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**TURKISH EFL TEACHERS' ATTITUDES TOWARDS ICT
INTEGRATION IN LANGUAGE CLASSROOMS**

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Öznur IŞIK

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TURKISH EFL TEACHERS' ATTITUDES TOWARDS ICT INTEGRATION IN LANGUAGE CLASSROOMS

Bu çalışmada Türkiye’de İngilizce dersi öğretmenlerinin bilgisayar ve diğer enformasyon ve iletişim teknolojilerinin dil öğretiminde kullanımını nasıl algıladıklarını incelenmiştir. Bu araştırma ayrıca ilköğretim düzeyinde çalışan bu öğretmenlerin bilgisayar ile diğer enformasyon ve iletişim teknolojilerini ne amaçla, hangi sıklıkla kullandıkları ve bunun yanı sıra yabancı dil derslerinde bu teknolojilerin kullanımını etkileyen faktörleri araştırmıştır.

Veriler 2008-2009 Eğitim Öğretim Yılında, 149 ilköğretim birinci ve ikinci kademe İngilizce dersi öğretmenlerine dağıtılan anketler aracılığı ile toplanmıştır. Anket sonuçları, bilgisayar ile enformasyon ve iletişim teknolojilerinin İngilizce dersi öğretmenlerince ders işlenişini kolaylaştırmaya yarayan araç olarak görüldükleri ve daha çok sunum amaçlı kullanıldıklarını göstermiştir.

İngilizce dersi öğretmenlerinin bilgisayar ve internet kullanımının diğer enformasyon ve iletişim teknolojilerine göre derslerinde daha az kullandığı saptanmıştır. Bu farklılığın ya bilgisayarlara erişimin kısıtlı olmasından ya da bu konuda öğretmenlerin deneyimlerinin olmamasından kaynaklandığı sonucuna varılmıştır.

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SOSYAL BİLİMLER ENSTİTÜSÜ MÜDÜRLÜĞÜNE

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verilmiştir.

(Tez Danışmanı ve Sınav Komisyonu Başkanı)

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İstatistiksel analizler İngilizce dersi öğretmenlerinin genel anlamda olumlu tutumlarına rağmen uygulamada farklılıklar olduğunu ortaya koymuştur. İleri analizler göstermiştir ki, kıdem ile genel tutum arasında negatif ilişki vardır. Ayrıca kıdemli öğretmenlerin bu aletler üzerindeki denetim algısının göreve yeni başlayan veya öğretmenlik deneyimi 10 yılın altında olan öğretmenlere göre daha düşük olduğu gözlenmiştir.

Araştırmada İngilizce dersi öğretmenlerinin bilgisayar ve diğer kaynaklara erişim ile zaman kısıtlılığını enformasyon ve iletişim teknolojilerinin derslerde bütünleştirilmesinin önündeki başlıca engellerler olarak işaret ettikleri gözlemlenmiştir.

İngilizce dersi öğretmenlerinin üreticilik algısının yanı sıra okullardaki öğretmenler arası ortak anlayışın ve idari desteğin bilgisayar ve diğer teknolojilerin kullanımına karşı tutum ve görüşleri olumlu yönde etkilediği tespit edildi.

Cinsiyet, öğretmenlik deneyimi ve eğitim geçmişi gibi demografik etkenlerin öğretmenlerin kararlarında belirgin bir etkisi gözlemlenmemiştir.

Anahtar Sözcükler

Tutum,

Enformasyon ve İletişim Teknolojileri,

Bilgisayar,

İngilizce Dersi Öğretmenleri,

Öğrenme Ve Öğretme, İlköğretim Okulları,

Destekleyen ya da Engelleyen Faktörler,

Entegrasyon

ABSTRACT

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TURKISH EFL TEACHERS' ATTITUDES TOWARDS ICT INTEGRATION IN LANGUAGE CLASSROOMS

In this study, Turkish EFL teachers' perception of computer and other information and communication technologies integration in language teaching was explored. In this research, it was also explored how and how often EFL teachers who work at the primary school level integrate computer and other ICT tools as well as the factors that influence this research.

Statistical data were obtained from 149 EFL teachers who work at the primary school level during 2008-2009 academic year with the help of questionnaires. Results of the statistical analysis indicated that those teachers perceive technology as a tool for teaching or as an aid for the teacher and use these tools mostly for presentation.

It was recorded that EFL teachers use computers less often than other ICT tools. The difference in frequency probably stemmed from either lack of experience or lack of access to computers in classes.

Statistical analysis showed that despite having positive attitudes in general, there were differences in application among EFL teachers. Further analysis revealed that there were negative correlations between teacher attitudes and teaching experience. Moreover, it was observed that experienced teachers' perception of control on these

tools were lower than novice teachers or teachers with less than 10 years of teaching

experience.

In the research, limited time and lack of access were pointed as the the main obstacles of ICT integration by the EFL teachers. Besides teachers' perception of usefulness in terms of terms of creativity and productivity, encouragement from administration and a common shared vision among school staff fostered ICT integration in teaching.

Teacher demographics such as gender, the number of years of teaching experience or education background did not appear to influence teacher decisions.

Key Words

Attitude

Information and Communication Technologies

Computer

EFL teachers

Learning and Teaching

Primary Schools

Enhancing or Hindering Factors

Integration

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CHAPTER 1: INTRODUCTION

1.1 Background of the Study

Over the past decade, as a consequence of the changed views in the field of education, significant attention and importance have been given to adapting technology as it influences many aspects of our lives and similarly it allows fast and cheap exchange of information. Computers and other related technologies have become symbolic goods (Cawson *et al.* 1995), and owning to them is identified with social distinction and intellectual superiority. Computer access is growing rapidly and computers are seen as magic tools which give people opportunities of limitless learning choices in today's world.

Technology has become an important part of our work in fields such as media, business, house-keeping, transportation, communication and so on. Also, there is no doubt that in the future more and more tasks will require human-computer interaction. As a result of this, it is likely that the key factor of occupational and personal success will lie in our attitudes towards technology and computer literacy.

In other words, it can easily be said that we have been living in a technology-based society therefore making use of technology in education has become an indispensable dimension of our education programmes. Pal (2003) emphasized in his study that the education system is "the most pivotal point from which technology can effectively permeate the entire social fabric" (p.111). For this reason, institutions and education ministries are widely feeling pressured to implement ICT in education to benefit from the knowledge-based world. Similarly Tsitouridou and Vryzas (2004) support this idea by arguing that there can hardly be a country in the world which is not currently engaged in the process of introducing information and communication technology (ICT) into its education system.

In order to cope with changing needs of today's world and to shape our structure of social life, many teacher education programmes of universities offer ICT literacy lessons, CALL and interactive education projects. As Kati (2008) stated in her study integrating technology with educational aims has become a key component of many teacher training programs, professional development initiatives, curricular

developments and school system reform movements. Likewise, most of the European countries like UK and Sweden have funded schools in order to encourage and increase implementation of ICT in schools. Various programmes have been established to direct teachers towards embedding ICT tools in their practice by in-service training departments. In a similar way, politicians and curriculum developers have focused on implementing ICT in education with the aim of transforming teacher-centred teaching to individualised, autonomous and maximized learning. Since technology offers the potential of constructing knowledge rather than just receiving information in a passive way, it is expected that ICT implementation will lead to significant educational and pedagogical outcomes and benefits both for teachers and students. A large number of studies have shown that integration of ICT in classes led to active, collaborative learning and promoted increased student motivation and triggered lifelong learning by helping learners to access information and enabled them to think critically.

However, studies and research has also shown that despite expected positive outcomes and benefits, the use of computers in classes still remains peripheral and minimal in many cases (Lim & Khine 2006). Though many of the European country schools achieved equipments and internet connectivity, using ICT in classes mostly depends on teachers' skills, confidence and attitudes towards technology acceptance. For example, Barton and Haydn (2008) propose in their study that at present computers have not had a revolutionary impact on teachers' practice and pupils' learning in many schools in the United Kingdom. It is rather a complex process and it is almost clear that having equipments do not guarantee ICT integration and productive use. It is certain that teachers believe the use of computer technology is useful for teaching and learning, however uncertainty exists when they are try to cope with a new teaching tool and a new teaching philosophy, probably because only a few of them have learned to apply (Kiridis *et al.* 2006).

Many of the previous studies point to educational beliefs as strong indicators of teachers' planning, instructional decisions and classroom practices (e.g: Bandura 1986; Pajares, 1992). Early studies in this research area (e.g: Koohang,1989; Violato, Mariniz and Hunter,1989) indicated that teacher attitudes, knowledge and skill are major factors of computer acceptance and profiting from them. Given that the teacher is the key to

effective use of computers in education system (Zhao,Hueyshan, & Mishra, 2001), it is important to understand teachers' attitudes towards ICT integration in education as well as other factors that are likely to influence technology acceptance. Generally, these factors were broadly classified under teacher-non-manipulative or non-personal category such as technical support or social influences in the previous studies. Those factors either hinder or contribute to the integration of ICT tools in classes; however successful use of computers in learning largely depends on the attitudes of teachers and their willingness to embrace these technologies.

The present study attempts to explore Turkish EFL teachers' attitudes towards integration of technology in EFL classrooms and those teachers' perception of the factors that have an impact on this process.

1.2 Statement of the Problem

ICT is now considered as both a cause of change and a means of change because it has the potential to change the way we learn, the way we teach and the means of interaction (Jenkins 1999). Developed and developing countries are shifting emphasis from traditional education policies to effective technology integrated policies to reap the potential benefits of information-based society day by day.

Classrooms are being equipped with ICT tools and those tools have created communication and learning opportunities for students, therefore the impact of those tools on teachers is an important issue to be explored. Teachers are the key factors in classes by having the capacity of having the role of either to direct learning or facilitate learning. Their attitudes towards these tools determine whether they integrate them in their teaching or not. Whatever the result is, the factors lying behind those decisions should be explored.

The factors are sometimes challenging such as access to ICT tools, operating these machines or experience with them and high costs. On the other hand, benefits such as enriched learning opportunities, increased student motivation and helping the learners to be autonomous learners outweigh those barriers. Thus modern education systems are going on a reform by defining their education goals, materials, and teachers' role in this process.

In parallel with this issue, learning English has become an indispensable part of those reforms because English is now considered as the international language and also the language of communication, technology, science and academic world. Teachers are aware of both the importance of knowing English and ICT in order to cope with the changing demands of today's world. Knowing English and embracing technology are intermingled with modernization and progress. Therefore, the human factor and innovation factor are significant to be explored.

There are studies on teacher attitudes towards ICT integration in education and on the factors which are related to integration both in Turkey and other countries (Ottesen 2006; Teo 2009; Sime & Priestley 2005, Gülbahar 2007); however very few empirical studies exist in literature on the EFL teachers' attitudes towards ICT. Thus, this study will explore the factors which have an impact on integration of ICT tools in teaching in the light of existing literature; in addition, the study will explore Turkish EFL teachers' attitudes towards this issue since research has shown that attitudes play a major role in technology acceptance to a large extent.

1.3 Research Questions

This study investigated Turkish EFL teachers' attitudes towards ICT integration in language classes and other factors which affect integration as well as teacher attitudes.

The study specifically addresses questions that aim to describe attitudes towards ICT integration among teachers of English as a foreign language who work at primary school level in Turkey.

The research questions are:

- 1) How and how often do EFL teachers' use information and communication technologies for professional aims?
- 2) What are EFL teachers' attitudes towards ICT integration in classes? What is the relationship between teacher attitudes and actual use of ICT in classes?
- 3) What are EFL teachers' opinions about the external factors that promote or hinder integration of ICT in their teaching? What is the relationship between external factors and actual use of ICT in classes?
- 4) What is the proportion of variability explained by the independent variables in actual use of ICT in classes?

The first part of the questionnaire aims to describe the demographic variables such as gender, education background and teaching experience.

While the second part of the questionnaire explores access issue in classes, the third part explores actual use of ICT by the EFL teachers. Section four is composed of items which explore teachers' attitudes, and the last section explores teachers' opinions about non-personal factors which are likely to influence teacher decisions of either to integrate technology in teaching or not to do so.

1.4 Significance of the Study

The study is important for several reasons.

Firstly scarcity of studies on the attitudes of EFL teachers and their use of ICT makes it important as it sheds light on the issue from a different country perspective. It also contributes to knowledge base of this issue by providing empirical data on both ICT and EFL perspectives.

Secondly this study contributes to literature on ICT integration in a developing country context. In addition, based on the findings of this study, other research can be conducted in various parts of the world to compare and contrast with Turkey. In this sense, the study has theoretical significance.

This contribution in scientific research is also interlinked to relative novelty of this area of educational research.

On a more applied level, the findings of the study are beneficial to educators and scholars in the field of EFL and to policy makers as little is known about EFL teachers' attitudes towards technology acceptance. In light of global trends, policy makers in Turkey need detailed research results in order to cope with the changing needs of today's world. It is very important to understand personal interest of EFL teachers and build trust and support for integrating ICT in teaching to achieve the goal of keeping the pace with developed countries of the new millennium.

Finally, as technology investment is considerably high, and as our country has to spend its money very carefully on such investment, the possible drawbacks or reasons of failure should be examined in order to reach target goals of our educational policy. Therefore, the timing of this study is particularly important for our country where

schools are being equipped with these tools to make it certain that this integration is effective.

1.5 Limitations of the Study

The nature of this study has caused some limitations which will be discussed in the following chapters and there are some suggestions for the problems in the implications part of the study.

Firstly, the instrument used to collect the data was in Turkish, the native language of the teachers. Our aim was to minimize any cultural or linguistic bias. However, some small amount of discontinuity may have occurred in translation process.

Secondly the population of the study was limited to EFL teachers in the primary schools. That is, the study only addresses teachers of English who work at primary school level. Similarly, the data was gathered mainly from a single city. As a result, the findings from this study may not be strictly generalised to Turkey as a whole.

Finally, teachers anonymously responded the questionnaire. That may have a drawback of responding the questions with self-consciousness and interviews might have been conducted to gather more detailed data from the respondents.

1.6 Definitions of terms

The following terms are used during the study:

Access: Teachers' self-reported actual availability of computer and other technologies at school that are measured by the research survey.

Behavioural Intention: According to Ajzen and Fishbein, all human behaviour is a matter of choice because at the minimum level all of our voluntary actions entail the choice of either to perform an action or vice versa. Simply, behavioural intention is the decision which is formed by evaluation of possible alternatives to perform.

Attitude: "Attitude is a psychological tendency that is expressed by evaluating a particular entity with some degree of favor or disfavor" (Eagly & Chaiken, 1993). In this study, the term refers to EFL teachers' opinions and the feelings that they usually

have about integration of computer and other information and communication technologies in teaching.

Autonomy: The ability to make your own decisions without being influenced by anyone else.

Information and Communication Technologies: Information and communication technologies that include a wide variety of hardware and similarly software applications which are needed for recording and broadcasting information.

Teacher Demographics: Teacher characteristics such as gender, teaching experience and teachers' educational background.

Technology Acceptance Model: Technology Acceptance Model is an information systems theory which is an extension of Ajzen and Fishbein's Theory of Planned Action. The model was developed by Fred Davis (1989) and was extended in a number of different settings in an attempt to explain user decisions of how and when to use a technology. It suggests that users are influenced by a number of factors when they are presented with a new technology.

TRA: Theory of Planned Action, a model which was proposed by Fishbein and Ajzen (1975) to explain and predict user behaviour in specific situations. The model addresses the problem of voluntariness in behaviour and according to TRA, individual's attitude toward behaviour and subjective norms are loading factors towards behavioural intention.

Perceived Easiness: Perceived easiness is the degree to which a system user believes that using a particular technology is free from mental or physical effort. It is also defined as user's control on a specific tool.

Perceived Usefulness: Perceived usefulness is the degree to which an individual believes that using a particular system would enhance his/her job performance. It refers to the relative advantage of using a technology in teaching in this study.

Subjective Norm: Subjective norm is an individual's perception of whether people important to the individual think the behaviour should be performed or not. In other words, these norms can be defined as socio-cultural influences on user decisions.

1.7 Summary

This chapter provided an introduction which included a background for the study, the statement of the problem and the research questions. Following the questions, the significance of the study is presented. In addition, the terms most commonly used throughout the study were defined; limitations to the study were also addressed in this chapter.

CHAPTER 2: LITERATURE REVIEW

2.1 Introduction

The purpose of this chapter is to review major research studies that focus on Information and Communication Technology and also integration of ICT tools in education. Furthermore, this chapter specifically deals with teacher attitudes towards ICT integration and the studies which concentrate on Technology Acceptance Model in an attempt to provide the background necessary to further examine the issue. Likewise in this chapter, various factors that either hinder or contribute the process of ICT integration in language classes will be examined in order to better understand the relationship between the factors that affect ICT integration in classes and teacher attitudes in the light of previous research.

The Theory of Reasoned Action (TRA; Fishbein & Ajzen 1975) and Technology Acceptance Model (TAM; Davis, 1989; Davis, Bagozzi, & Warshaw, 1989) will be explained while investigating teacher attitudes towards technology acceptance and factors related to integration of ICT tools.

2.2 What does Information and Communication Technology refer to?

Education has the potential of developing a society and it is now widely accepted that integration of technology in education has a fostering effect on this potential. Probably the fundamental reason of integrating technology is due to the fact that technology allows autonomy, critical thinking and mostly because it provides the opportunity to develop greater knowledge.

Uptake of information and communication technology (ICT) has had a revolutionary effect on personal and organizational, even cultural change. It has changed the learning context of the classroom and teacher-learner interaction.

Like many other reports and studies, in 1998 the Department for Education and Employment in Finland underlined the importance of ICT by stating that:

“ICT is more than a teaching tool. Its potential for improving the quality and standards of pupils’ education is significant. Equally, its potential is considerable for supporting teachers, both in their everyday classroom role, for example by reducing the

time occupied by the administration associated with it, and in their continuing training and development”.

Besides the importance of being a tool which supports teaching and learning, ICT is seen as a catalyst to accomplish economical and social goals. According to Jo Tondeur, Johan van Braak and Martin Valcke (2007) education is put forward as the central actor to pursue and attain the objectives of the ICT policy; and they claim that other sectors are expected to benefit indirectly from this backbone.

In the face of such perception of ICT, the most evident impact is at policy making. Priority is given to technology in promoting education and changing the type of interaction between teachers and learners. New expectations arouse which are difficult to integrate within traditional curriculum settings and such a context forces teachers to embrace technology in this digital world and generation. At this point the question of what information and communication refer to and what it includes may rise in our minds.

Therefore, firstly I would like to define the word ‘technology’ as there is a lack of agreement on it. According to Gardner (1994, 1995), a single definition of the word ‘technology’ proves complex because of the variations in meaning that exist within the English language to explain it. Likewise, McCormick indicates that ‘the nature of technology is not easy to pin down, and the definitions that exist do not give us much guidance as to what activities it includes’ (1990, p. 45). Despite this complexity, in this paper the word technology will be used as in the following sense:

‘Knowledge about scientific or industrial methods or the use of these methods.’ and
‘The machinery and equipment used or developed as a result of this knowledge.’

The information technology (IT) umbrella is rather large and the terms IT and ICT are interchangeable. Therefore in the common usage it is often used synonymous with information and communication (ICT), particularly in education. The term ICT covered equipments created to enhance acquisition, storage and dissemination of information materials in time (Tella *et al.* 2007).

The term ICT includes the range of hardware (desktop, portable computers, projection technology, audiotapes such as Mp3 Players) software (multimedia resources) and information systems (internet) and it also encompasses any medium to

record information such as CD or DVD or flash memory and technology to broadcast information. That is, ICT is a general term which includes any technology that helps to produce, store, communicate and broadcasts information.

2.3 Attitudes and ICT

Attitude is defined as positive or negative feelings associated with performing behaviour (Ajzen & Fishbein 1980). Theory of Reasoned Action (TRA) posits that attitudes towards behaviour refer to individual's degree of evaluative affect toward target behaviour. It is determined through an assessment of one's beliefs regarding the consequences arising from behaviour and an evaluation of the desirability of these consequences. In other words, people estimate the consequences of behaviour and these estimations form individual's expectancies lead to either performing an act or not. Behavioural intention (BI) is a measure of the strength of one's intention to perform a specific behaviour.

Researchers have realized that attitudes are very important in determining whether to accept an innovation or not. To a large extent, successful technology integration in classes depends on teacher attitudes since positive attitudes encourage teachers to use these tools. However, Leh (1995) found that despite positive attitudes by 12 American teachers towards the use of technology in language teaching, their actual level of use was limited, because of access problems to equipment and lack of knowledge of how to use the technology. This means that there are several factors that play a crucial role in ICT acceptance.

In an attempt to investigate factors influencing technology acceptance Davis focussed on internal factors such as awareness of benefits of ICT tools, and skills or a wide range of competencies to use a technology. The origins of the TAM came from Ajzen and Fishbein's (1975) Theory of Reasoned Action (TRA). TAM is less general than TRA and it provides a basis for attitude measures with two technology acceptance variables: a) perceived usefulness (PU) and b) perceived ease of use (PE). According to TAM, if users perceive a technology useful and easy to use, they develop positive attitudes towards the technology as shown in (Figure 1). For instance, the teacher may think that computer technology is useful for educational setting and at the same time he

may believe that the system is too complicated for him to use. Then, the outcomes of computer usage are outweighed by the effort of using computers in educational setting. He defines attitude as the degree of evaluative effect for or against the behaviour.

PE is defined as "the degree to which a person believes that using a particular system would be free from effort" (Davis, 1989, p. 320).

PU refers to "the degree to which a person believes that using a particular system would enhance his or her job performance" (Davis, 1989, p. 320).

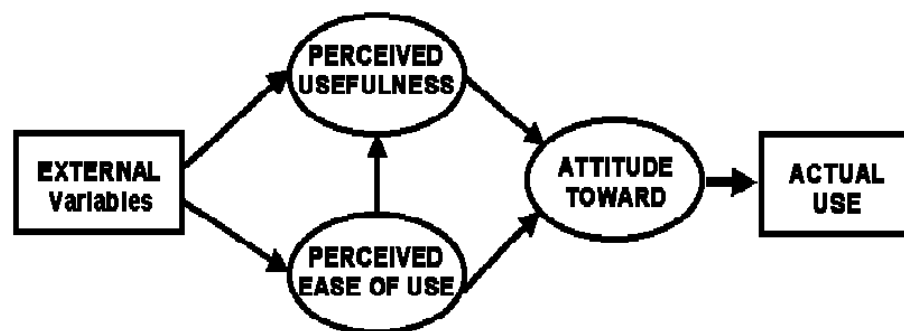


Figure1. The Technology Acceptance Model.

Research has shown that TAM has been one of the most influential models in explaining user acceptance of IT and it has taken wide attention in IT literature because it includes psychological interaction of a user with technology. Davis, Bagozzi and Warshaw tested the model with 107 adult users who are using a managerial system for 14 weeks. They found that participants' computer use was predicted by their intentions to use it and perceived usefulness is a powerful predictor of these intentions. According to TAM, if users perceive the technology useful and easy to use, they develop positive attitudes towards the technology. The positive relationship between perceived usefulness and ICT integration has empirical support. Ma et al. (2005) conducted a study with 84 student teachers and found that perceived usefulness was significant and strong in determining intention to use computer technology. More recently, Teo *et.al* (2008) conducted a comparative study and found that both perceived ease of use and perceived usefulness as significant determiners of Malaysian and Singaporean pre-service teachers intention to use computers. This factor is similar to 'job fit' which is

defined as the extent to which individual believes using a technology can enhance his/her job performance in IT literature.

Within IT literature, the opposite of perceived ease of use is defined as ‘complexity’ and Tornatzky and Klein (1982) found that the more complex the innovation, the lower its rate of adoption. If PC utilization can be viewed within the context of innovation adoption, then these results suggest a negative relationship between complexity and utilization. However, for perceived ease of use there is a positive relationship between perceived easiness and integration. For instance, in a current study conducted by Yuen and Ma (2008) perceived ease of use was found to be significant and powerful in predicting intention to use ICT.

In their study, Drent and Meelissen (2007) found that attitude towards computers contributed more in explaining ICT integration among several factors. Kadijevich (2006) argue that attitude is crucial to interest which results in a wider and more adequate technology integration. According to Chirstensen (1998) teacher attitudes towards computers affect both their and their students’ experiences in educational contexts. Positive computer attitudes are expected to foster computer integration in the classroom (van Braak *et al.* 2004).

2.4 Factors Related to ICT Acceptance

Countries have been struggling to stay connected to global network since 1970s and the rise of information age has forced researchers to focus on factors that can facilitate technology integration into business. With continuing enormous business resource investments, understanding and creating conditions under which information technology will be accepted and used in the human organization remains a high priority within the information technology research community (Vankatesh and Davis, 2000). A significant body of the research examines technology acceptance decisions across a wide range of contexts and draws conclusions and implications to provide explanation for technology acceptance.

Technology integration in education has also become very important since it has the potential of accessing information rapidly and constructing knowledge rather than receiving it in a passive way. Despite these potential and expected positive benefits, the

use of ICT tools is still limited in educational context. Factors influencing technology usage in education have been discussed in literature and while some researchers found teachers' computer skills and knowledge as important determiners (Pelgrum, 2001), some of them proposed that using up-to-date hardware and software resources is a key feature to diffusion of technology (Gülbahar, 2007).

In addressing the factors that either contribute or hinder technology integration, while some researchers chose to categorize the factors into two subtitles: a) internal, b) external factors (e.g. Niederhauser, Perkmen 2008), others decided to group them according to personal, environmental, social and curricular aspects (e.g. ChanLin *et al.* 2006). There are also empirical studies which paint a similar picture either by classifying their research results into two variables: teacher manipulative and teacher non-manipulative factors that affect integration; or by suggesting that barriers and support dimensions are predictors of the issue.

Some studies concentrated on teacher characteristics such as age (e.g., Bradley & Russell, 1997) and gender (e.g. Shapka & Ferrari, 2003), education and experience as internal or personal factors which influence technology acceptance. Burke (1986) found gender as a factor in explaining technology acceptance in a microcomputer teacher in-service training. Mohammed (1994) found that both age and teaching experience were positively related to acceptance of computers. Some studies report gender gap' in computer use, lower levels of classroom use of computers by female teachers (e.g. Van Braak *et al.* 2004). Albirini (2006) found that age was not a significant factor but he found a negative correlation between age and attitudes towards computers. That is, as age increases, teachers' attitudes towards ICT decrease.

However, one cannot rely on models which merely concentrate on individual characteristics and individual attitude ratings. Though TAM was validated and extended by several researchers (e.g. Taylor & Todd 1995, Venkatesh & Davis 2000) in a range of settings in time, Dishaw and Strong (1999) pointed out that it is necessary to explore the nature and specific influences of technological and usage-context factors that may affect user acceptance, since models like TAM accounts for only user attitudes as predictors of actual use. Socio-technical system theorists like Eason (1988) argue that information technologies are embedded in working practices and the network of social

relationships such as worker cooperation or management relationships impact user acceptance.

Empirical support for the relationship between social factors and ICT use can be found in many studies. Social influences along with personally held attitudes result in behavioural intention. The findings of Lin et al. (2003) indicated that subjective norm is an important determinant of technology acceptance and behavioural intentions; in addition, individuals tend to take significant referents' opinions into consideration when assessing a technology's usefulness. Sime and Priestley (2005) conducted a study with student teachers in Scotland and students were asked to post messages on forum as a part of their initial teacher education programme. Students discussed school culture as a factor which influences use of ICT. They observed that in an environment where opportunities to exchange ideas about integrated ICT use were provided and where teachers were encouraged by administrative staff, even the most reluctant teachers were likely to learn to use ICT. This means that teachers' perception of what others think and what authorities demand affected ICT integration. Shaw and Edwards (2005) suggest that strong leadership, attachment to a group, alignment with a changing environment and progress review all reinforce motivation in a setting. For example, a similar picture which confirms those suggestions is presented by Granger et al. (2002) in a Canadian school where effective leadership and supportive relationship between teachers were reported as significant determiners of successful ICT implementation. TRA defines the influence of others in a setting, especially the ones that a person values or gives importance, on a specific topic as subjective norms.

Some studies extended Technology Acceptance Model by adding environmental factors such as technical support (e.g. Ngai et al, 2007). Very recently, Lim and Khine (2006) found that teachers had cited poor facilitating conditions such as lack of access to computers or technical support as barriers to ICT integration in their teaching. Technical support problems and limited access issues make it challenging to use these tools in classes.

Brickner (1995) categorizes factors that influence teacher beliefs of technology integration into two groups as first-order and second-order barriers. First-order barriers to technology integration are described as being extinct to teachers such as lack of

access, inadequate administrative or technical support and insufficient time to plan integration. In contrast, second-order barriers are intrinsic to teachers' beliefs about teaching and technology. According to Brickner, many first-order barriers can be eliminated by providing resources and training, however confronting second-order barriers is more challenging. Wood et al. (2005) observed that technical support - having a teacher who was knowledgeable and enthusiastic about computers within the school – and easy access was a catalyst for school-wide integration of computers in their study. Similarly, in the context of Mukama and Andersson (2008) the findings showed that novice teachers succeeded in situations where school administrators grant easy access to computers and they were more motivated to acquire ICT in their teaching.

It can be deduced that training users, assisting them if they encounter problems and providing them with necessary equipment can reduce barriers that challenge technology integration in classes. In the same study, the secondary teachers frequently mentioned getting access to computers in labs as a necessary component of their instruction and that access was not always available. On the other hand, Teo (2009) found that facilitating conditions affect integration to use ICT tools indirectly. In other words, even if users have access to well-supported infrastructures to use technology, they do not use technology more unless they possess positive attitudes towards it.

Highlighting policy-related factors' impact, both at the macro and micro level, is also important for ICT integration in classroom instruction. Research has shown that in schools where an explicit ICT school policy and shared goals are stressed teachers use ICT more regularly in their classroom (Tondeur et al 2008; Hughes & Zachariah, 2001).

The findings also revealed that there is a need to develop school-based curricula, teacher professional development in the area of ICT literacy, which allows the teachers to develop a critical mind to the new tools. Most of the teachers are aware that the need for well planned curriculum and adoption of technology with existing teaching strategies is a prerequisite for success in ICT. Lack of software resources for the curriculum (Pelgrum 2001), curricular objectives, increased student motivation have also been discussed in literature. Ng and Gunstone's (2003) interview with secondary science teachers revealed that the cost of computer-based resources and access to

suitable software is a factor in ICT integration. This may partly explain why the use of computer technology has been a slow process in some schools.

2.5 Examples of Research on ICT Integration in Education throughout the World

Statistics show that computers are widely used in many fields, including education and there is a strong emphasis on the value of various information and communication tools as they promote and support teaching and learning.

The role of technology in today's world is evident and adoption of these tools in the field of education is quite incredible over the past two decades. As a result, we have witnessed a fast growth in the number of ICT tools in schools. That is probably because, now it is widely accepted that effective use of ICT within a school saves time, money and provides diverse learning opportunities for learners as well as producing positive gains such as increased student motivation and retention (Al-Kahtani, 1999; Cox et al, 1999)

There is also a growing body of evidence that effective use of ICT within a class extends active learning and leads to autonomous learners who are active in learning in and out of class.

According to Barlex (2000) it can make a significant contribution to the development of educational goals such as greater autonomy, increased creativity, problem-solving, and the opportunity to engage in critical reflection. It is a truly impressive situation for educational context.

However, some researchers like Jarvis and Rennie (1998) claim that a fundamental reason for the inclusion of technology lies in governments' awareness that this subject has the potential to enhance a country's economic prosperity. For example, it has the power of developing the knowledge, understanding and skills of its citizens.

As stated by Selwyn (2006) in OECD publishing, learning throughout life is a prerequisite to the development and sustainability of knowledge economies. As well as countries, corporations and communities require citizens and workers to have flexible, just-in-time skills and competencies. This need for accessible learning opportunities has drawn policy makers towards the use of ICT as an educational mechanism in our century.

The accelerating pervasiveness of ICT forced education systems to update themselves in order not to fall behind knowledge-based society. In their study A. Jimoyiannis and V. Komis (2007) stated that educational systems around the world, in both developed and developing countries are under increasing pressure to use information and communication technologies (ICT) in order to teach students the knowledge and skills needed for the future knowledge society. In their study, teachers' beliefs are seen as strong indicators of their decisions, so they analyzed in their survey 1165 preschool, primary and secondary education teachers (540 males and 625 females) who are attending a training programme on basic ICT skills. The findings revealed that though majority of the teachers have a positive attitude towards ICT implementation, contrary to expectations only a small percentage of the teachers in the sample (1.7%) used ICT as a teaching and learning tool incorporated as short episodes into the existing curricula and their conventional instruction methods. The researchers also explored the influence of personal factors on teacher attitudes and they found that gender and teaching experience were strongly associated with teacher beliefs about ICT in education. Highly experienced teachers were placed mainly into the negative beliefs group in the study. However, it is surprising that the findings showed that the availability of ICT tools did not seem to be a factor favouring or promoting by itself the teachers' use of ICT for educational purposes.

Researchers have been examining the potential barriers to successful integration of ICT tools since 1990s. These may range from access issues to teacher attitudes such as technophobia or social-based issues like the impact of traditional classroom organization. In a study in Italy Camilla Gobbo and Marta Girardi (2001) examined teachers' attitudes and they questioned the reasons of disappointments although the availability of ICT in schools has increased. Twenty-four teachers were interviewed and it is claimed that in general, the great majority of the teachers in the study were found to have positive aspects regarding the introduction of the computer in the school context; however, they did not show an uncritical acceptance and did not look forward to replacing traditional teaching in every respect. The study also shed light on teachers subjective norm ideas by revealing some teachers' explicit statements. These teachers

stated that they preferred to share with other colleagues what they were doing in their classroom.

Pelgrum (2001) addresses ICT as an important tool and catalyst for inducing educational reforms that change our students into productive knowledge workers. Pelgrum conducted a comparative international educational assessment of ICT integration which also included contextual factors that might explain the variations among the countries. He examined ICT application among 26 countries. The countries in the study were Belgium, Bulgaria, Canada, Cyprus, Czech Republic, Denmark, Finland, France, Hong Kong, Hungary, Iceland, Israel, Italy, Japan, Latvia, Lithuania, Luxembourg, New Zealand, Norway, Russian Federation, Singapore, Slovenia, Slovak Republic, South Africa, Taiwan and Thailand. The results of the study indicated that the top three obstacles related to the integration of ICT were insufficient number of computers, teachers' lack of knowledge/skills, and difficulty in finding computers that have an access to Internet. It was observed that even under very favourable conditions still 40% of the educational practitioners indicated that a lack of hardware was a major obstacle.

Technology integration is also a significant national priority across the USA, so Yuliang Liu and Carol Huang (2005) examined teachers' concerns about technology integration. Eighty-six in-service teachers in a graduate course participated in the study at a Midwestern State University during the summer semester of 2002. The study presents that although teachers have direct Internet access in the classroom, they may still have limited information related to technology integration. Thus, they have intense concerns about information related to integrating the Internet into instruction. Meanwhile, in order to obtain more related information, teachers have high concerns about personal commitments such as time, energy and financial issues. These concerns can be seen as a reason for failure of ICT integration.

Likewise, instructional technology preparation courses in teacher training programmes are also seen as one of the reasons for disappointment. Even if some teacher preparation programmes have technology courses, in these courses students are likely to learn using older technologies and therefore not to be prepared to integrate new technologies. Warschauer and Healey (1998) explain that teacher training is a key

element to understand the importance and role of technology in teaching, enabling teachers to use multimedia and other resources effectively in their classes. As well as inefficiency of these courses, lack of adequate or inappropriate in-service training is a crucial issue in the field of ICT implementation.

In their study in Greece, Melpomeni Tsitouridou and Konstantinos Vryzas (2004) explain that introduction of computers date back to early 1990s in Greece and their research project has studied the views of early childhood teachers on the prospect of computer use being integrated into education at the kindergarten level. The project employed a questionnaire which was completed by 278 early childhood teachers. The results point to in-service training as a crucial issue and the views of the teachers are shaped by their knowledge and experience of computers and by the in-service training in computer use. The results indicate that although the vast majority of teachers believe that the use of computers will upgrade their role in the classroom, a much smaller number wish in-service training in the new technologies to be compulsory. This apparent contradiction shows that despite being aware of the importance of ICT in their professional development, teachers are not equally willing to make a commitment to its use. The study also claims that years of teaching experience has no meaningful influence in ICT integration.

Similar to the previous study which points to in-service training as a crucial issue Oliver McGarr and John O'Brien (2007) aimed to determine current use of ICT by teacher of Irish context and the types of in-service education and training in ICT to which they had previously been exposed.

The researcher informs that in order to achieve integration the Schools IT2000 initiative aimed to equip schools with IT resources, provide a training continuum to allow teachers to progress from novice to expert users of the technology and provide an infrastructure to support schools and teachers in their attempts to integrate ICT into teaching and learning. As part of the training continuum the National Centre for Technology in Education (NCTE) developed short skills-type courses which were offered to all teachers. Fifty-six post-primary teachers answered the questionnaire. The results show that eighteen per cent of respondents referred to the use of the computer as a presentation tool and a further eighteen per cent used it in the preparation of lessons

and tests. Twenty-one per cent used it in project work and student competitions, while only seven per cent referred to the use of ICT in the classroom in an educational context. Reference to the use of ICT in teaching and learning also increased since the commencement of the programme (from 7% to 21%).

Despite the level of computer experience among the respondents, the teachers identified several barriers affecting their use of ICT. The most commonly mentioned barrier to use was access to the technology (55%), followed by inadequate hardware (39%) and poor technical support (13%).

There is little evidence to suggest that any significant number of teachers surveyed have benefited from the continuum of progression developed as part of the Schools IT2000 training initiative.

Techno centric belief assumes that integration of computers in classes has a transformative nature that is technology has the capacity to support powerful and sophisticated learning environments. However, research has shown that there is a gap between innovation objectives and current level of ICT integration. In order to investigate the relationship between teachers' educational beliefs and their computer use, R. Hermans *et al.* (2008) administered a questionnaire to a sample of 525 primary school teachers from 68 schools in Flanders (the Dutch-speaking area of Belgium). The empirical evidence of the study suggests that traditional teacher beliefs seem to have a negative impact on the integrated classroom use of computers. Next to the impact of educational beliefs, the final multilevel analysis model has shown that gender, computer experience and general computer attitudes do have a significant effect on the class use of computers.

Researchers are increasingly finding that teachers' lack of experience with using technology is also a serious barrier in successful integration of ICT tools. Recent research about differences in ICT adoption by teachers is often limited to technology-related variables, such as 'computer experience' (e.g. Hooper and Reiber 1995; Tsitouridou and Vryzas 2004) and 'attitudes towards computers' (Albirini, 2006; van Braak, 2001). A general finding is that computer experience is positively related to computer attitudes. The more experience teachers have with computers, the more likely they will report positive attitudes towards computers (Rozell & Gardner, 1999).

The studies which concentrated on creative and successful technology integration in classes had a common agreement on possible enablers; such as technical and social support or a shared vision of school policy. In their study, ChanLin et al. (2006) interviewed eight teachers who won an award for creative teaching in Taiwan. These teachers were from different schools and involved various teaching domains, including mathematics, language arts, information technology education (teaching about computers), arts and humanities, social studies, science, etc. It was found that teachers involved in the study knew how to use computers for presenting instructional materials, planning lessons and preparing handouts. The study also revealed that in learning social studies, project-based learning approaches were employed in classrooms, and students were encouraged to explore knowledge outside the classroom.

Moreover, the study categorizes factors that influence technology integration into four main aspects: environmental, personal, social and curricular. Researchers claim that whether schools provide opportunities for in-service training, or have a policy to reward technology integration and creative teaching, might influence a teacher's initiative.

The study also proposes that social factors play an important role in the process of technology acceptance and endorses the argument with quotes from the interview that some teachers felt that they were lucky to have wonderful colleagues to work with as a team in trying creative efforts and on the other hand, some teachers felt that if they had had supportive working companions, they would have done a better job in integrating technology into creative teaching. Likewise concerns about learning objectives and teaching load were cited as curricular factors that are considered to be important in technology integration decisions. Personal experiences with technology, willingness and attitudes about teaching with technology are closely related with those decisions.

Debra N.A. Hayes (2007) conducted a study in six diverse public schools in Australia with the aim of describing and examining the ways in which teachers, in a range of settings, are utilising ICT in their classroom practices. Teachers were observed and interviewed. The findings indicate that ICT is largely being integrated in ways that support and supplement existing classroom practices. Observations clearly show that functioning computers, and 'fast fixes' when they break down, are essential to effective

ICT integration. One teacher explained the situation in her school in the following way in the study:

“There’s a constant maintenance problem because things go wrong - just bits and pieces. But you have to be able to resolve those problems yourself. You’ve really got to become adept at sort of understanding your own computers. And you tend to if you have them long enough.”

Teachers’ adoption of technology has been defined as developmental, that is evolving as they gain experience in time. Hooper and Reiber (1995) suggested that teachers might begin using technology in ways that are supplementary to curriculum; they tend to progress uses that reinforce curriculum and, in time to capitalize on the potential of technology to take students beyond the curriculum. In an attempt to identify a typology of computer use in primary education, J. Tondeur, J. van Braak and M. Valcke (2007) conducted a study with 352 primary school teachers and measured different types of educational computer use in the classroom. In an earlier study, Braak et al. (2004) identified two different types of computer use by teachers: ‘class use of computers’ for example for presentation, encouraging pupils to train skills, and ‘supportive use of computers’ for example administration, preparing worksheets for the pupils, looking for information on the Internet for lesson preparation. The results revealed that the use of computers as an information tool seemed to be related with grade, that is higher grade levels reflected higher levels of computer use as an information tool. The results also propose that the frequency of ‘computers use as an information tool’ is different depending on grade level in primary education. Fifth and sixth-grade teachers are more likely to provide opportunities to use computers as an information tool. A similar study by Ravitz and Becker (2000) suggested that teachers who have constructivist beliefs are more aligned to use technology to expand classroom boundaries and their guide students to become independent learners.

Gülbahar conducted a study in Turkey in order to illustrate how technology planning process was carried out. Data were collected from 105 teachers, 25 administrative staff, and 376 students. Teachers and administrative staff were asked to fill out a questionnaire to gather data on their perceived computer literacy, issues related to ICT usage. Students were also asked about their perceptions on the current utilization

of ICT at their school. Additionally, unstructured interviews were conducted with administrative staff and teachers to validate data obtained through questionnaires. The results showed that overhead projector, printed materials and audio players were the top-rated technologies among the teachers in terms of usage in classrooms. Although it was seen that about 30% of teachers used computers for activities like preparing exams and handouts, searching the Internet and keeping records of students, 95% thought that using computers for administrative and teaching–learning activities was important. The study also shed light on the issue of in-service training views of teachers and the results indicate that though half of the teachers participated in-service training course, they still wanted to participate in such workshops.

As argued by previous studies, Summers (1990) also emphasized the need for training since it was found that lack of knowledge and experience in the computing area is one of the most common reasons for teachers' negative attitudes towards computers. Therefore, it is useful to develop a school environment that enables teachers to have more hands-on experience in new technologies as suggested by some previous research (e.g. Yuen & Ma 2008; Fleming, Motamedi, & May 2007). Similarly, Yunus (2007) indicated that teachers' development necessitates are not merely providing additional training opportunities for them, but also aiding them in experimenting with technology before being able to use it in their classroom.

Allan H.K. Yuen and Will W.K. Ma (2008) have attempted to explore a model to understand teacher acceptance of e-learning technology in Hong Kong. The Technology Acceptance Model (TAM) was used as the core framework for analysis while additional constructs were added in order to find a better model to understand teacher acceptance of technology. The study targeted a group of in-service teachers studying in a part-time Postgraduate Diploma in Education program offered by a university in Hong Kong. Data were collected from 152 in-service teachers. It was found that perceived usefulness was not significant to intention to future use of the e-learning system. This is not consistent to previous studies using TAM in predicting intention and usage. On the contrary perceived ease of use was even the sole and dominant determinant in the model in predicting intention to use. This seems to indicate that the perceived ease of use amongst teachers is extremely important. Subjective norm was found not significant in

predicting intention to use. However, it is highly correlated with both perceived usefulness and perceived ease of use.

2.6 ICT in the EFL Classes

Several studies on the use of ICT and especially using computers in language teaching and teacher attitudes towards these tools have been conducted in the past decade (Al-Kahtani, 2001; Albirini, 2006; Yunus, 2007; Kati, 2008) These studies have focused on barriers, facilitating conditions, teacher perceptions and current status of ICT implementation in language classes.

C.B.M.J. Martins et al. (2004) carried out a survey with 92 language schools and the questionnaires were sent to 171 pedagogical managers. It was verified that a little more than half (55.43%) of the schools researched use the Internet as a teaching tool. The percentage suggests that, in the average, Southern Brazilian language schools are slowly shifting from the position of mere observers of Internet applications with cautious interest to effective adopters of such resource. Simply, the results suggest that providing Internet access in a language classroom does not make it an educational tool that brings benefits for students and teachers. It was concluded that appropriate training on how to use the resources of the Internet and time for its possibilities to be explored for the use in the language classroom seem to be the key for the diffusion of the Internet as a teaching tool.

Young (2003) investigated the potential impacts of integrating the Internet into English as a second language class in a vocational senior high school in Taiwan. Twenty-nine students and a young male English teacher were involved. It was found that the students overall had a positive perception toward using Internet tools. This study indicated that the integration of information communication technology on the Internet with English facilitated the creation of a virtual environment that transformed learning from a traditional passive experience to one of discovery, exploration, and excitement in a less stressful setting. The study revealed that a computer-mediated communication environment could lower students' psychological barriers to enable them to express their opinions freely and to communicate actively on the Internet and

that it could also enhance their critical thinking, problem-solving and communication skills through online activities or class homepage construction.

A study from Syria by Albirini explored the Syrian high school EFL teachers' attitudes towards ICT in relation to computer attributes, cultural perceptions, computer competence, and computer access. Teachers' personal characteristics (gender, age, income, teaching experience, school location, education, and teaching methods as well as computer training background) were also included in the study. The researcher collected a random sample of 320 Syrian EFL teachers' questionnaire answers and 314 of them were analyzed. The study findings showed that Syrian EFL teachers had positive attitudes towards ICT in education. One of the main barriers to technology implementation perceived by the teachers in this study is the mismatch between ICT and the existing curricula and the class-time frame. The researcher recommended that Syrian policy makers offer more professional training opportunities and include measures for preparing teachers to use computers in their teaching practices. Cultural perceptions were the second most important predictor of computer attitudes. Many of the respondents replied that there were more important social issues to be addressed before implementation. He pointed the need for better suit of the computers to Arabic, a developing country, culture and identity.

Goodwyn *et al.* (1997) on divided English teachers' into three groups according to their beliefs and rationales about ICT and the English curriculum: a) the fearful group, who considers ICT as a threat and who excludes of ICT from their subject. They are also very assertive to preserve book-based culture against ICT; b) the unresolved group, who are anxious to preserve the values through which their subject had gained status but are also aware of the fact that cultural shifts and changing textual practices are bound to influence the ways in which their students learn; and finally c) the optimists, who believed that ICT can significantly enhance English teaching, by offering new ways of reading, writing and communicating with others all over the world.

In 2005, Yunus carried out a study in Malaysia and he distributed a 128-item survey that inquired about a wide range of issues to 530 ESL teachers at 75 technical schools. He also interviewed with 35 teachers to better analyze the results. Teachers were asked to indicate how much they agreed with statements about the usefulness of using ICT in

their language lessons. Analysis of factors relating to usefulness reveals a very positive attitude amongst the majority of the teachers to using ICT in their language teaching. The majority (91%) agreed that using ICT in language teaching helps their students understand English better. However the study also revealed that despite their positive perceptions of the value of ICT as an educational tool, ESL teachers in this context reported that ICT is not widely used because of access to Internet, lack of training and technical support.

Likewise, Robinson Joseph Samuel and Zaitun Abu Bakar in Malaysia in 2005 conducted face to face, semi structured interviews with 30 trained teachers from three schools. Almost two thirds of the respondents acknowledged that their ICT skills were generally poor and in spite of the existence of numerous useful websites, one third of the informants were ignorant of the existence of interactive and ICT integrated English lessons in the World Wide Web. The researchers were aware of the fact that the success of ICT integration in teaching and learning activities to a large extent is dependent on the support given by the school headmaster or principal. However, two thirds of the responses noted negative experiences in relation to support from the head teacher. The respondents voiced their personal problems and obstacles such as exam pressure and fear of not being able to complete the syllabus, overburden with administrative tasks, and lack of supervision on ICT integration by school administrators and negative attitude of some teachers in this context.

Very recently, Greg Kessler (2007) investigated 108 TESOL masters degree graduates attitudes towards technology. The results suggest that TESOL professionals are confident regarding technology and the study revealed that training has not seen dramatic increases in perceived effectiveness. The study emphasized the fact that what most of the recent studies suggested was that much of what teachers know about technology for language teaching resulted from informal or self-study not from instruction.

It is apparent that many factors play significant roles in integration of information and communication technologies in education. It is rather a complex process, and in this study these factors will be explored with the help of the data gathered from EFL teachers who work at primary school level in Turkey.

2.7 Summary

This chapter provided background information that is necessary for exploring teacher attitudes towards ICT integration and other factors that affect this process by highlighting the importance of the issue for educational modernization. The chapter included theoretical base and previous research conducted in the light of those foundations. Discussion and relevance of the previous research results related to teacher attitudes and other factors that influence ICT acceptance in teaching were presented.

CHAPTER 3: METHODOLOGY

3.1 Introduction

The primary purpose of this study is to explore Turkish EFL teachers' attitudes towards information and communication technology as a major factor which affects integration of technology in classes and also to explore other factors that might hinder or enhance integration of ICT tools by EFL teachers in their teaching in the light of previous research. The focus stemmed from the belief that teachers are the key persons to implement innovation (Chirstensen 1998; Albirini, 2006; Yunus, 2007) for educational enhancement. Similarly, earlier research on this subject also suggested a prominent role for teachers by finding a significant relationship between the success of any initiatives to implement technology and teacher attitudes. Existing literature takes attention to the problem that if teachers do not believe that computer or other ICT tools are not likely to fulfil their own or their students' needs; they usually resist any attempt to introduce technology into their teaching and learning (Askar & Umay 2001).

Specifically, the study seeks to measure Turkish EFL teachers 'attitudes towards ICT and their impact on integration of ICT tools in their teaching; also to explore the relationship between a number of either contributing or hindering variables and ICT integration; such as social influences or technical factors. Furthermore, the study sheds light on the influence of teacher characteristics on ICT integration, such as gender and teaching experience. Besides outlining the research questions guiding this inquiry, this chapter exhibits explanation of the methodology to be used, including both a description of the sample, the instrument and data collection methods as well as data analysis techniques to be used.

3.2 Research Questions and Research Design

This study addresses questions that aim to describe attitudes towards ICT integration among teachers of English as a foreign language who work at primary school level in Turkey and to explore the factors related to ICT integration in EFL classes.

The research questions are:

- 1) How and how often do EFL teachers' use information and communication technologies for professional aims?
- 2) What are EFL teachers' attitudes towards ICT integration in classes? What is the relationship between teacher attitudes and actual use of ICT in classes?
- 3) What are EFL teachers' opinions about the external factors that promote or hinder integration of ICT in their teaching? What is the relationship between external factors and actual use of ICT in classes?
- 4) What is the proportion of variability explained by the independent variables in actual use of ICT in classes?

The research is largely exploratory in nature because very little research has been conducted in Turkey on the attitudes of EFL teachers towards ICT and on their opinions of the factors which might affect integration of ICT in teaching. The statistical analysis aimed to demonstrate the relationship between the variables that affect the practice of English teaching in primary school level in Turkey.

3.3 Sampling and the participants

The study focuses on teachers of English as a foreign language who work at primary school level in Turkey. The characteristics of the sample participated in the study after deleting the missing data were as follows: A total of 149 teachers, 106 female and 43 male participated in the study during the school year 2008-2009. In terms of education level, 136 of them have a B.A. degree, which equals to %91,3 of the sum. 12 of the teachers have M.A degree and 1 of them has a Ph.D in English Language Teaching. Table 1 indicates that the participants are also different in terms of their teaching experience. While majority of the teachers can be categorized as either novice or moderately novice, only 6 of the teachers in the sample are experienced. The rest of them have been working as an English teacher for 11 to 20 years.

Table 1
Teacher Demographics

Variable	Category	Number	Percent
Gender	Male	43	%28,9
	Female	106	%71,1
Education background	B. A	136	%91,3
	M.A	12	%8,1
	Ph.D	1	%0,7
Teaching Experience	1-10 years	120	%80,5
	11-20 years	23	%15,4
	21-30 years	6	%4

While the majority of the teachers were handed the questionnaire by the researcher and collected by the same person, some of the participants answered the questionnaire by e-mail.

3.4 Questionnaire development

The instrument has five sections. The first section focuses on demographic variables such as; gender, teaching experience, previous ICT training experience, and highest level of education. The demographics were treated as independent variables and were correlated with both dependent variable and the independent variables of the study.

In the second section, access to ICT tools in classes was assessed with forced-choice questions to better understand access issue as an independent variable. In the same section participants were asked to indicate if they have access to a personal computer and internet connection at home.

The third section was intended to reveal integration of ICT tools in teaching with three integration-related items for measuring the dependent variable of the survey. ICT integration by the respondents was quantified on a five-point scale to measure how and how often they use computers as well as other ICT tools in their teaching. Participants were also asked to indicate the amount of time they spend for their teaching-related work on computer and internet. This section explores how often primary school EFL

teachers use ICT tools and for what purposes they use computers mostly in their profession.

To rate how positive or negative their attitudes towards ICT, the teachers of English as a foreign language who work at a primary school were asked to determine on a Likert-scale if they (5) strongly agree, (4) agree, (3) slightly agree, (2) disagree or (1) strongly disagree with each statement in the fourth section of the questionnaire. The summative method was used to obtain a score for this section by reducing answers to mean scores. Higher scores indicate positive attitudes. Attitude measurement scale's items were adapted from "Computer Attitude Scale" (Selwyn 1997). Selwyn reported that the scale was formulated within the framework for assessing attitudes towards computers set out by Kay and Davis' Technology Acceptance Model and also added that Kay draws on Ajzen's theory of Planned Behaviour for structuring the scale items. The scale has four subscales; a) affective component (feelings towards computers), b) perceived usefulness, c) perceived easiness and d) behavioural (intention) component. Computer Attitude Scale (SAC) is originally reported to have a high internal reliability coefficient (.90) and significant construct validity ($p \leq 0.001$). Some minor alterations were made on it to better understand Turkish EFL teachers' attitudes towards technology.

The last section of the questionnaire was developed according to established guidelines and adapted from several published instruments that have been validated in a number of studies. Prior to the construction of the questionnaire, a substantial literature review was carried out. This section was designed to explore the factors that might either promote or hinder ICT integration in classes. These factors are mostly non-manipulative factors which can not be manipulated by teachers directly; however which are likely to influence ICT integration directly. This section has fifteen items and after factor analysis of the questionnaire, those items were labelled as a) social influences, b) facilitating or inhibiting conditions of schools which can be categorized as environmental support and finally items that explore c) curricular issues related to ICT integration. The items of curricular issues were adapted from Brush et.al (2008) and from Jimoyiannis & Komis (2007), social influences items were adapted from studies of Staessens and Vandenberghe (1994), environmental support items were adapted from

Thompson et.al (1991). The scalings and ratings of this section were the same as previously described section. Higher scores on each category indicate that explored factor has positive influences on ICT integration.

Negatively worded items were also given in the questionnaire to provide a check against respondents giving negative or positive response sets because there is a tendency of participants to choose the same answer for each question (Büyüköztürk, 2005). Therefore, those items assisted participants to think separately for each item and to increase the internal reliability of the instrument. Reliability and factor analyses were conducted and will be discussed in the following chapter.

3.5 Data Analysis Procedure

The statistical analyses were conducted by using SPSS 15 software program. In the present study, data were analyzed using both descriptive and inferential statistics. Independent t-tests statistical procedure is applied and the frequency counts of both genders for all constructs are compared to see if there is any significant difference between the groups. Pearson and Spearman correlations, One-Way ANOVA analysis and multiple regression analysis were conducted.

Means, modes, ranges and standard deviations were applied in summing the data for the descriptive statistics. Pearson and Spearman correlations were utilized in detecting the correlation between the dependent variable and the independent variables.

Multiple regression analysis was used to examine the relationship between the dependent variable of the current study-ICT integration- and the independent variables, including teacher attitudes, teachers' perception of external factors, access and also teacher demographics. In addition the analysis allows us to examine the variance in the dependent variable explained by the selected independent variables.

CHAPTER 4: DATA ANALYSES AND RESULTS

4.1 Introduction

The ultimate objective for the current study is to explore the factors of ICT integration and the attitudes of EFL teachers towards it who work at primary schools. The review of literature assisted me to identify a range of factors which are believed to have a direct effect on ICT integration in education and the utilisation of questionnaires in this study provided me to gather data about ICT integration, particularly in primary schools by the EFL teachers.

This chapter first discusses the reliability and validity of the instrument used for data collection and then presents descriptive statistics of the study by seeking answers to the research questions by analyzing the data obtained from EFL teachers who work at primary school level.

4.2 Reliability of the Instrument

According to Joppe (2000) if the results of a study can be reproduced under a similar methodology, then the research instrument is considered to be reliable. That is, reliability is the extent to which results are consistent over time and an accurate representation of the total population under study.

The ICT Acceptance Questionnaire consists of five sections. The fourth section aimed to measure EFL teachers' attitudes towards ICT integration. It was adapted from the Computer Attitude Scale which was developed and validated by Selwyn(1997). The scale has a reported alpha 0.90 for the internal consistency and significant construct validity to measure attitudes towards computers.

The last section of the questionnaire used in this study aimed to examine EFL teachers' opinions about the factors which might affect ICT acceptance. The items were adapted from various resources that were proven to have established validity and reliability. However, since the instrument used in this study is composed of items from different resources and used in different settings previously, the reliability was recalculated for the questionnaire from the data of 149 respondents.

The data inputs were loaded into a statistical package (SPSS 15.0) for doing various statistical analyses. Cronbach's alpha coefficient, the most common method for estimating reliability is used for determining the reliability of individual scales and subscales. The reliability of all measurement scales is above the recommended minimum level of .70 for social science research (Hatcher 1994), as shown in Table 2. The reliability analysis of the ICT Acceptance Questionnaire reveals a high level of internal consistency of total .81. The results in Table 2 are accepted as "desirable". It is important to note that the internal consistency of the scale increases as the number of items increases.

Table 2
Reliability Coefficient of the Questionnaire

Scales	Reliability Coefficient
Attitude	.81
Perceived Usefulness	.80
Perceived Ease of Use	.75
Affective	.77
Behavioural Intention	.80
External Factors	.82
Social Influences	.78
Curricular Issues	.80
Environmental Support	.75
Access	.72
Integration	.75

4.3 Validity of the Instrument

According to Joppe (2000) validity determines whether the research truly measures that which it was intended to measure or how truthful the research results are. In order to determine the construct validity of the constructs measured in this questionnaire, an exploratory factor analysis (EFA) was performed with SPSS 15.0.

For the current study, the construct validity was conducted for three sections of the questionnaire to assess the underlying structure of the ICT Acceptance Questionnaire.

Demographic information section and three integration related items were not included since the latter section consists of a limited number of items. A principal component analysis using varimax rotation was conducted in order to achieve the best possible loadings. The goal of the rotation was to simplify and clarify the data structure. The varimax rotation was used in these analyses for the clearer interpretation of the factors, while the eigenvalues cut-off point for the creation of factors was set to 1.

Kaiser-Meyer- Olkin's (KMO) Measure of Sampling Adequacy was used to test the assumption underlying the principal component analysis. The KMO test scores range from 0 to 1; the closer the test static is to 1, the better correlation between pairs of variables can be explained by other variables. The KMO was .723, which can be considered as good.

Table 3 indicates that the amount of variance in EFL teachers' responses to ICT Acceptance Questionnaire. After rotation, first factor accounted for %20,69 of the variance, the second factor accounted for %17,59 and the last factor accounted for %13,93.

Table 3

Variance Explained in the ICT Acceptance Questionnaire

Factor	% of Variance	% Cumulative
1	20,69	20,69
2	17,59	38,29
3	13,93	52,23

4.4 Analyzing the Items in the Questionnaire and the Research Questions

This section presents analyses of Turkish EFL teachers' responds to the research questions by presenting descriptive analyses of attitude scale and teachers' opinions about the external factors that affect ICT integration.

4.4.1 Summary of teacher characteristics

Demographic information including gender, level of education (qualification), teaching experience, previous ICT training experiences of EFL teachers were collected in the first section of the questionnaire.

The participants have a proportion of approximately %29 male to %71 females in this study. In terms of their level of education, majority of the participants have a B.A. degree and a small number of them have M.A degree. Just 1 of the participants has a Ph.D in English Language Teaching.

The EFL teachers participating in the study ranged from 2 to 28 years of teaching experience and their answers were categorized into three groups to compare their attitudes towards ICT. When asked how long they have been working as an English teacher, approximately 81% percent of the respondents answered that they have been working for 1 to 10 years and 15% percent stated that they have an experience of 11 to 20 years. Only 4% percent of them have an experience of 21 to 30 years.

The study also aimed to compare the attitudes towards ICT and integration of these tools in teaching by the EFL teachers among the respondents according to specific background information: those who have taken ICT training either at university or at in-service training and those who haven't. The majority of teachers haven't taken CALL or ICT lessons either at university or at in-service education as shown in table 4. Among the participants, only 19 of the participants, who were labelled as group B have taken a previous training both at university and at in-service education. Nearly one third of the EFL teachers had a previous training only once either at university or at in-service education.

Table 4
Summary of EFL Teacher's Training Results

Group A		Group B	Group C	
	Taken training only at university 13	Taken training only at in-service- education 34	Taken training both at university and at in-service training 19	Taken training neither at university or at in- service training 83
Total	47	19	83	149

4.4.2 Access issue

When asked about the availability of ICT tools in class, more than one third of the teachers (%41,6) stated that they have access to four of the given ICT tools in the

questionnaire. 13 teachers in the study stated that they have access to none of these tools in their class. Table 5 provides details of the availability of the ICT in classes of the respondents.

Table 5
Access to Information and Communication Technologies in Classes

Available Technologies in Class	Yes	(Percent)	No	(Percent)
Internet	8	(%5)	141	(%95)
Overhead Projector(OHP)	91	(%61)	58	(%39)
Projector	101	(%67)	48	(%33)
VCD/DVD Player	109	(%73)	40	(%27)
Mp3/Cassette Player	75	(%50)	74	(%50)
Computer	23	(%85)	126	(%85)

Also, ownership of a computer at home and familiarity with using this tool was explored under this issue. A great majority of the respondents have a computer at home. Only %6 of them does not have a personal computer. Likewise, when asked about their internet connection at home, highly more than half of the teachers stated that they have an internet connection at home. On the other hand, % 20.1 of them does not have an internet connection at home.

4.4.3 Research Question One: How and how often do EFL teachers' use information and communication technologies for professional aims?

EFL teachers were asked to respond how and how often they use information and communication technologies for professional work. In terms of reasons for using ICT in teaching, the most common answer is for finding questions and exercises for their students as a supplementary with a percent of %32,9 as shown in Table 6.

Table 6
Information and Communication Technology Use for Professional Aim

Reasons for using technology	Percent
Mostly for administrative work	%34,2
Mostly for finding questions and exercises	% 32,9
Mostly for presenting PowerPoint slides,	% 16,1

Ask students to do homework on computer	%13,4
Encourage students to use ICT for learning opportunities	%2,7
For watching videos	%0,7

The second most frequent reason is for presenting PowerPoint Slides for instruction aim with a percentage of %16,1. While % 13,4 percent of the EFL teachers ask their student to do homework on computer and present them in classes, only %2,7 of them encourage their students to use information and communication technologies for learning opportunities like chatting with foreign people or connecting to educational web sites. Only one teacher responded that he/she uses computers in teaching for watching videos. It is also important to note that one third of the EFL teachers (%34,2) responded that they use computers mostly for administrative work such as preparing plans or uploading exam results. Twelve of the teachers stated that they use computers as a substitute for teaching and also they added that they use it since their school is a part of pilot study conducted by Ministry of Education.

EFL teachers in the study stated that while nearly % 40 of them never use computers in their teaching, nearly % 33 of them use computers at least once or twice a week as shown in Table 7. Approximately % 13 of them uses computers even three or four times a week in their teaching. Also, the remaining %14 uses computers once a month in their lessons.

Table 7
Frequency of Computer Use in Teaching

Frequency	Percent
Twice or three times a week	13,4
Once a week	32,9
Once a month	14,1
Never	39,6

Similarly they were asked to indicate how often they use other ICT tools such as audiovisual materials like video cassettes, CDs or OHP transparencies in their teaching.

The results indicate that participants are likely to use these tools more often than computers in their teaching. The most common answer is once a week with a percent of % 43,6. The details are as shown in Table 8.

Table 8
Frequency of other ICT Materials Use in Teaching

Frequency	Percent
Twice or three times a week	18,1
Once a week	43,6
Once a month	17,4
Never	20,8

The percentages of sums of scores for the integration of ICT in language teaching by the EFL teachers who work at primary school level is as follows. Nearly one fifth of the participants never use information and communication technologies in their teaching. The most common answer is “often” with a percent of % 30,9. Only four teachers usually use these tools and seventeen teachers use these tools nearly always. The details of sum score for integration questions are presented in Table 9.

Table 9
Overview of ICT integration in teaching by the EFL Teachers

Frequency	Number of people	Percent (%)
Never	28	18,8
Seldom	10	6,7
Occasionally	32	21,5
Sometimes	12	8,1
Often	46	30,9
Usually	4	2,7
Nearly always	17	11,4

Teachers were also asked to reply how much time they spent on computers for professional work. More than half of the teachers spent an hour and %32 of them spent

two hours for professional work in a week. Only %4 of them stated that they do not spent any time on computers for professional aim.

In order to analyze the relationship between integration of information and communication technologies in teaching by the EFL teachers and access, Pearson correlation analysis was conducted. The results indicated positive and moderately strong correlations ($r = .424$, $p < .01$) between actual use and access independent variable.

4.4.4 Research Question Two: What are EFL teachers' attitudes towards ICT integration in classes? What is the relationship between teacher attitudes and actual use of ICT in classes?

Respondents were asked to describe their attitudes on a scale ranging from strongly agree (5) to strongly disagree (1) measure as shown in Table 10. Higher scores on each item affect the total mean score for the attitude scale. In other words, higher mean scores reflect positive attitudes towards ICT. The attitude scale was analyzed by computing frequencies and percentages of items of each subscale. The results are presented in Table 10 below.

Table 10
Frequency Percentages on Attitude Scale

Item	Percent (%)				
	Strongly Agree	Agree	Slightly Agree	Disagree	Strongly Disagree
1* If given the opportunity to me to use a computer I am afraid that I might damage it in one way	0.7	20.1	24.8	35.6	18.8
2* I hesitate to use a computer for fear of making mistakes I can't correct	2.7	6.0	8.1	39.6	43.6
3 I don't feel apprehensive about using a computer	4.0	53.7	32.9	8.7	0.7
4* Computers make me feel uncomfortable	2.0	16.8	24.2	29.5	27.5
5* Using ICT tools does not scare me at all	20.1	56.4	20.8	2.7	
6* I hesitate to use a computer in case I look stupid.	3.4	12.8	26.2	43.6	14.0

		Strongly Agree	Agree	Slightly Agree	Disagree	Strongly Disagree
7	Computers help me organise my work better	57.7	36.9	3.4	2.0	
8	Computers make it possible to work more productively	61.7	35.6	2.0		0.7
9	Computers can allow me to do more creative and interesting work	58.4	38.9	1.4	1.3	
10	Most things that a computer can be used for I can do just as well myself	0.7	4.7	11.4	43.0	40.2
*						
11	ICT tools can enhance the presentation of my work to a degree which justifies the extra effort	30.9	50.3	12.8	6.0	
12	I could probably teach myself most of the things I need to know about computers	37.6	53.7	6.7	2.0	
13	I can make the computer do what I want it to	40.9	37.6	12.8	6.0	2.7
14	If I get problems using the computer, I can usually solve them one way or the other	5.4	41.6	18.7	30.9	3.4
15	I am not in complete control when I use ICT tools	2.0	7.4	30.9	48.3	11.4
*						
16	I need an experienced person nearby when I use ICT tools	2.7	7.4	9.4	51.6	28.9
*						
17	I do not need someone to tell me the way to use a computer	40.3	43.6	6.0	6.7	3.4
18	I would avoid taking a job if I knew it involved working with computer	2.0	9.4	3.4	30.8	54.4
*						
19	I avoid coming into contact with ICT tools in school	0.7	4.0	1.4	53.0	40.9
*						
20	I only use computers at school when I have to	2.0	10.7	14.8	51.0	21.5
*						
21	I will use computers regularly throughout school	19.5	54.3	18.1	7.4	0.7

* Negative items were reversed before scoring

Participants' responds to the affective subscale had a mean score of 3.71 and their replies are as follows:

Although nearly one forth of EFL teachers indicated partial agreement (%24.8) and one fifth of them indicated agreement (%20.1) with the statement “If given the opportunity to use a computer, I am afraid that I might damage it in one way”, more than one third of the teachers (%35.6) disagreed with it.

In response to the statement “I don't feel apprehensive about using a computer” more than half of the respondents (%53.7) agree with it and also an important percent (%32.9) indicated slightly agreement with this statement. Only a minor number of the respondents (%8.7) replied that they disagree with it.

Quite an important number of EFL teachers (%43.6) responded that they strongly disagree with the statement “I hesitate to use a computer for fear of making mistakes I can't correct”. Similarly, %39.6 of the participants disagreed with this item. Only a small amount of teachers (%6) indicated agreement with it.

When asked to respond to the statement ‘Computers make me uncomfortable because I don’t understand them’ EFL teachers with a percent of %16.8 indicated agreement with it and %24.2 of them partially supported this view. However a noticeable percent of them (%29.5) indicated disagreement with it.

As revealed by significant distribution of responses to the statement “Using ICT tool does not scare me at all” more than half of the teachers (%56.4) indicated agreement with it. Only a small percent of them (%2.7) indicated disagreement with it. Approximately one fifth of them (%20.1) strongly support this view.

In regard to the statement “I hesitate to use a computer in case I look stupid’ participants indicated either disagreement (%43.6) or strong disagreement (%14) with it. On the other hand, one fourth of the teachers (%26.2) slightly agreed with this item.

According to data obtained from EFL teachers, most of the participants seem to have positive attitudes towards ICT integration in teaching since they find these tools useful. This interpretation can be supported by responses to the perceived usefulness subscale, which reveals that EFL teachers had a mean score of 4.37, the highest score within the subscales as shown Table 11.

Table 11
Mean Scores of Attitude Scale Components

Subscale Component	Mean Score	Standard Deviation
Perceived Usefulness	4.37	.426
Perceived Control	3.86	.539
Behavioural Intention	4.04	.575
Affective	3.71	.480
Overall Attitude	3.97	.362

More than half of the respondents (%57.7) strongly supported the statement “Computers help me organise my work better” and also an important percent (%36.9) indicated agreement with this statement. Only a minor number of the respondents (%2) replied that they disagree with it.

A significant percent of the EFL teachers (%61,7) support the item “Computers make it possible to work more productively”. They perceive technology as a useful supporting tool for education. None of the teachers disagreed with the statement.

In response to the item “Computers can allow me to do more creative and interesting work” majority of the participants (%58.4) indicated high agreement. Likewise, a high percent (%38.9) agreed with this item.

While quite an important number of EFL teachers (%43) responded that they disagree with the statement “Most things that a computer can be used for I can do just as well myself”, participants’ %11.4 percent slightly agreed with this item. Also a small amount of teachers (%4.7) indicated agreement with it.

When asked to respond to the statement “ICT tools can enhance the presentation of my work to a degree which justifies the extra effort”, merely a small percent (%6) indicated disagreement with it whereas a noticeable percent of them (%50.3) indicated agreement.

Teachers’ perception of self-control on ICT tools are as follows with a mean score of 3.86.

In regard to the statement “I could probably teach myself most of the things I need to know about computers” a quite number of the participants indicated either strong agreement (%37.6) or agreement (%53.7) with it. On the other hand, none of the participants indicated strong disagreement with this item.

A noticeable percent of the respondents (%40.9) indicated strong agreement with “I can make the computer do what I want it to” and also an important percent (%37.6) indicated agreement with this statement. Only a minor number of the respondents (%2.7) replied that they strongly disagree with it.

As for the item “If I get problems using the computer, I can usually solve them one way or the other” %41.6 of the participants indicated agreement. Likewise, nearly the one fifth of them (%18.7) slightly agreed with this item. On the other hand %30.9 of them indicated disagreement with it.

Quite an important number of EFL teachers (%48.3) responded that they disagree with the statement “I am not in complete control when I use ICT tools”. However, %30.9 of the participants indicated partial agreement with this item. Similarly only a small amount of teachers (%7.4) indicated agreement with it.

When asked to respond to the statement “I need an experienced person nearby when I use ICT tools” only %7.4 of them indicated agreement with it whereas approximately half of the teachers (%51.6) indicated disagreement with it

More than one third of the respondents (%40.3) indicated strong agreement with the item “I do not need someone to tell me the way to use a computer” and also an important percent (%43.6) indicated agreement with this statement. On the other hand, only a small percent of the respondents (% 6.7) replied that they disagree with it.

The overall mean score for the behavioural intention subscale is 4.04, with a standard deviation of .575, indicating that primary school EFL teachers have an intention to use ICT tools in their teaching.

The distribution of responses for this subscale is significant. More than half of the teachers (%54. 4) strongly disagreed that “I would avoid taking a job if I knew it involved working with computer” and also a high percentage (%30.8) indicated disagreement with this statement. Only a small number of participants (%9.4) agreed with it.

As for the statement “I avoid coming into contact with ICT tools in school” most of the teachers indicated strong disagreement (%40.9) besides a noticeable percent of them indicated disagreement (%53) with it.

When asked to respond item “I only use computers at school when I have to” more than half of the participants (%51) disagreed with the statement. A small number of teachers (%10.7) agreed with this statement.

In regard to the statement “I will use computers regularly throughout college/school” only a small of the respondents (%7.4) indicated disagreement. On the other hand, more than half of the teachers (%54.3) agreed with this item.

In conclusion, teachers’ attitudes towards ICT tools had a mean score of 3.97 with a standard deviation of .362.

To find out whether teacher demographics such as gender, teaching experience, education background and previous ICT training have caused any attitude differences an independent t- test and one way ANOVA tests were performed.

The results of independent t- tests revealed no significant difference between female and male participants. Again no significant differences were observed between groups in terms of their education background and previous ICT training experiences.

One-way ANOVA statistical analyses conducted for teaching experience revealed that there were significant differences between teachers who were categorized into three groups: a) Novice and at most 10 years of experience b) 10 to 20 years of teaching experience c) experienced teachers who have been working more than 20 years. The results suggest that novice teachers have positive attitudes with a mean score of 4,07. Likewise, relatively experienced teachers who had been working between 11 and 20 years, also positive attitudes with a mean score of 3,94. However, the mean score of experienced teachers is between slightly agree and agree, with a mean score of 3,46 as presented in Table 12. These results imply that those teachers who have teaching experience less than 20 years have more positive attitudes towards ICT integration than those who are more experienced. That is there is a negative correlation between attitudes towards ICT integration and teaching experience. This may stem from the fact that less experienced teachers are younger than experienced ones and they have been in contact with these technological tools during their education since they are grown up in

technology blended era. One-way ANOVA analysis between attitude subscales and teaching experience showed that there is also difference between same groups in terms of their perceived control of these tools as shown in Table12. This result may be interpreted that EFL teachers' attitudes towards ICT integration may stem from confidence and control in using these tools.

Table 12
One-way ANOVA Results of Attitude Differences According to Teaching Experience

Years of teaching experience	Attitude Scale	Perceived Control
1 to 10 years	4,07	3,89
11 to 20 years	3,94	3,92
21 to 30 years	3, 46	3,00

Finally, to analyze the relationship between EFL teachers' attitudes and their responses to actual use of ICT tools, Pearson Correlations were conducted.

Analysis of the EFL teachers' attitudes towards ICT integration and their actual use in their teaching can be interpreted as a moderate positive relation ($r = .384$, $p < .01$). The strongest relationship was found between ICT integration and affective subscale among attitude subscales ($r = .424$, $p < .01$). The details of correlations are presented in Table 13.

Table 13
Pearson Correlation Results

Variable	ICT Attitudes	Actual Integration
ICT Attitudes Scale	1.00	.384
Perceived Usefulness Subscale	.598	
Perceived Control Subscale	.813	.334
Behavioral Intention Subscale	.662	
Affective Subscale	.740	.424

4.4.5 Research question Three: What are EFL teachers' opinions about the external factors that promote or hinder integration of ICT in their teaching? What is the relationship between teacher opinions about those factors and actual use of ICT in classes?

Teachers' assessment of individual feelings towards ICT integration, in other words internal factors were analysed in the previous question. This section provides teachers' assessment of the external factors which were categorized into three subtitles upon literature review as environmental support, social influences and curricular issues. Participants were asked to respond to a scale ranging from strongly agree (5) to strongly disagree (1) measure, as shown in Table 14. Higher scores on each item affect the mean score for the each factor.

Table 14
Frequency Percentages on External Factors Scale

Item		Percent (%)				
		Strongly Agree	Agree	Slightly Agree	Disagree	Strongly Disagree
1	We have enough computers for teachers in my school	12,8	21,5	6	30,9	28,9
2	In my school timetable to use computer labs is scheduled	17,4	25,5	4	28,9	24,2
3	Whenever I need an ICT tool, it is provided by my school	15,4	37,6	17,4	20,1	9,4
4	When I need help to use ICT tools, guidance is available in my school	26,2	39,6	14,8	16,1	3,4
5	There is enough in-service training about how to integrate ICT in teaching	12,8	30,2	31,5	20,1	5,4
6	Parents are sure of educational value of integrating ICT tools in teaching	20,1	40,9	18,1	17,4	3,4

		Strongly Agree	Agree	Slightly Agree	Disagree	Strongly Disagree
7	All teachers work together to accomplish our school goals	8,7	45	28,9	15,4	2
8	My school manager thinks that we-teachers should use ICT tools in our teaching	33,6	43,6	12,8	8,1	2
9	People whose opinions I give value encourage me to use computer	20,1	48,3	19,5	8,7	3,4
10	My friends think I should use computer in my teaching	10,1	39,6	36,9	10,1	3,4
11	Student motivation increases when technology is integrated into the curriculum.	20,8	35,6	23,5	14,8	5,4
12	There isn't enough time to incorporate technology into the curriculum.	14,1	22,1	30,9	22,8	10,1
13	Technology facilitates the use of a wide variety of instructional strategies designed to maximize learning.	22,1	40,9	18,1	12,8	6
14	There is too much material to cover.	0,7	26,8	43	26,8	2,7
15	ICT can be a tool for instruction and learning for every subject matter in the curriculum	18,1	28,9	31,5	19,5	2

* Negative items were reversed before scoring

Items from 1 to 5 addressed the EFL teachers' opinions of environmental support or interferences in primary school level. In response to the statement 'We have enough computers for teachers in my school' about %21,5 of the teachers indicated their agreement with this item. However, just over than half of the teachers (%30,9) disagreed with this item.

In response to the statement, 'In my school timetable to use computer labs is scheduled' more than one fourth of the respondents (%28,9) disagreed with the statement while nearly the same percent agreed (%25,5) agreed with it.

As for the statement 'Whenever I need an ICT tool, it is provided by my school' more than one third (%37,6) of the participants replied that they agree with this statement. Only a minor number of the teachers (%9,4) indicated their strong disagreement.

When asked to respond to the statement 'When I need help to use ICT tools, guidance is available in my school' considerably a high percent (%39,6) replied that they are agree with this statement. Likewise, % 26,2 of the participants strongly agreed with this item. Only a small number of EFL teachers (%3,4) replied that they are strongly disagree with this statement.

In response to the item 'There is enough in-service training about how to integrate ICT in teaching' nearly one third of the participants (%30,2) indicated agreement. Only a small number of teachers (%5,4) replied that they strongly disagree with this statement.

In conclusion, the overall mean on the environmental support subscale is 3.13, with a standard deviation of .859, indicating that EFL teachers view environmental support slightly positive in ICT integration and affect ICT integration practically.

As for social influences upon teachers' perception of ICT subscale, participants responded items from 6 to 10. When asked to respond to the statement 'I think parents are sure of educational value of integrating ICT tools in teaching' only % 3,4 of the teachers indicated strong disagreement with this item whereas most of them (%40,9) indicated high agreement with it.

Slightly less than half of the participants (%45) reported that they disagree with the statement 'All teachers work together to accomplish our school goals'. However, one a minor number of the respondents (%2) indicated strong disagreement with this item.

According to sixty- five teachers (%43.6) their school manager thinks that teachers should use ICT tools in their teaching. In addition, nearly one third of them (%33.6) strongly agree with this statement. On the other hand, twelve of the teachers (%8.1) indicated disagreement with this item.

In regard to the statement ‘People whose opinions I give value encourage me to use computer’ a large proportion of teachers (%48,3) indicated agreement with this item. To the same statement %8,7 of the teachers showed disagreement.

In response to the item ‘My friends think I should use computer in my teaching’ nearly half of the participants (%39,6) indicated agreement. Only a small number of teachers (%3,4) replied that they strongly disagree with this statement.

In conclusion, the overall mean on the subjective norm scale is 3.62, with a standard deviation of .630, indicating that EFL teachers perceive the demand from management and influences of colleagues midway between slightly neutral and positive. It is also important to note that the overall mean score of social influences is the highest among external factors scale.

The remaining five items explored the impact of curricular issues on ICT integration. More than one third of the respondents (%35,6) agreed with the item ‘Student motivation increases when technology is integrated into the curriculum’. However, % 14,8 percent of them indicated disagreement with it.

As for the negative statement ‘There isn't enough time to incorporate technology into the curriculum’ an important percentage of the teachers (%22,1) agreed this item. Likewise, % 14,1 percent of them strongly agreed with it. On the other hand, nearly one third of them (%22,8) replied that they disagree with this statement.

When they were asked to reply ‘Technology facilitates the use of a wide variety of instructional strategies designed to maximize learning’ a high percentage of the teachers (%40,9) agreed with the statement. Just a minor number of the respondents (%6) of them indicated strong disagreement with it.

Nearly one fourth of the participants (%22,8) indicated agreement when they are asked to respond to the statement ‘There is too much material to cover’. Similarly, an important percent of them (%43) replied that they slightly agree with this item. However, approximately one third of the teachers (%30,8) indicated strong disagreement with it.

As for the statement ‘ICT can be a tool for instruction and learning for every subject matter in the curriculum’ nearly one fifth of the respondents (%19, 5) indicated

disagreement. On the other hand, %28,9 of them agreed that information and communication technologies can be used in English language teaching lesson.

The overall mean on the curricular issues scale is 3.28, with a standard deviation of .688, as shown in Table 15.

Table 15

Distribution of Standard Deviation and Mean Scores of External Factors

	Mean Score	Standard Deviation
External Factors Scale	3,34	.538
Environmental Support Subscale	3.13	.859
Social Influences Subscale	3.62	.630
Curricular Issues Subscale	3.28	.688

To address the relationship between external factors of a) environmental support b) social influences c) curricular issues and teacher demographics t- test and one way ANOVA tests were performed.

No significant difference between female and male participants was found in terms of their opinions about the external factors that affect integration. Similarly, no significant differences were observed between groups in terms of their education background and teaching experience. However, t- test scores indicate that there is a relationship between teachers' opinions about environmental support and previous training experiences. One-way ANOVA statistical analysis showed that teachers who had previous ICT training experiences both at university and at in-service education feel environmental support more with a mean score of 3,57 than those who had never taken ICT training with a mean score of 2,93.

The dependent variable of the study, actual use of these tools in teaching by EFL teachers, was correlated with external factors.

There was a considerable positive relationship between actual ICT integration and external factors. The strongest positive relation was between curricular factors subscale and actual use ($r = .646$, $p < .01$). Environmental support was second in strength with a correlation of ($r = .536$, $p < .01$). There existed a weak positive correlation between

social influences and actual ICT integration. The details of the Pearson correlations were presented in Table 16.

Table 16
Pearson Correlations between External Factors and Integration

Variable	External Factors	Actual Integration
External Factors	1.00	.676
Social Influences	.699	.293
Environmental Support	.819	.536
Curricular Issues	.682	.646

To analyze the proportion of variability explained by independent variables in the main dependent variable, a linear multiple regression analysis was conducted. As a primary step, Spearman correlation was conducted between teacher demographics and the main dependent variable of the study. However, results indicated that there was no significant relation. Accordingly, teacher demographics were not included in the regression analysis.

Scatter plot of residuals versus predicted Y value didn't indicate any violations of the model fit. Enter method was utilized with the dependent variable- actual integration- and independent variables of attitudes towards ICT integration, external factors and access. A significant model emerged for actual integration ICT in foreign language teaching ($F= 49.46$, $p <.001$) and the independent variables accounted for % 50 of the variability in the dependent variable ($R \text{ square} = .50$).

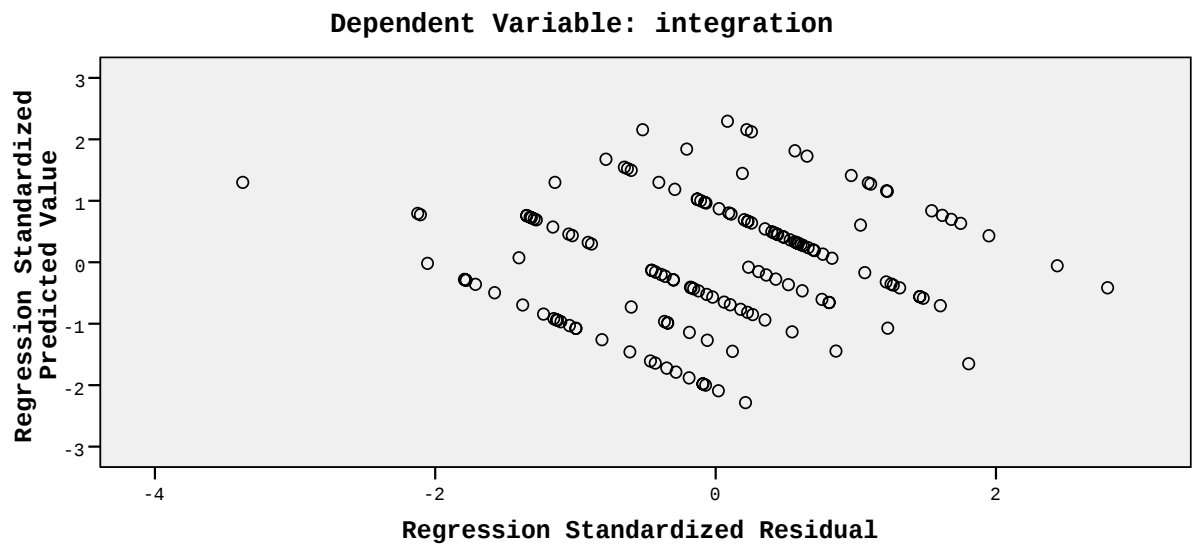
The results showed that integration was significantly predicted by external factors ($\beta = .542$, $p <.001$). Table 17 presents zero-ordered and partial significance of independent variables on the dependent variable and β values which are the indicators of ordered importance values.

Table 17
Zero-Ordered and Partial Significance Values of the Independent Variables

Variable	Std. Error	β	T	p	Zero-ordered	Partial
Constant	1,257			.000		
Access	.088	162	2.480	.014	.424	.202
Attitude	.325	185	2.979	.003	.384	.240
External	.242	542	7.896	.000	.676	.548
Factors						

(F = 49.49, p<.001)

Scatterplot



4.5 Summary

This chapter presented the findings of the analysis of data obtained from EFL teachers who work at primary school level. The ultimate objective of the study was to explore the relationship between technology integration and the main independent

variables. Descriptive statistics such as frequencies, mean scores and standard deviations were used to better understand the responses of participants.

EFL teachers seemed to have positive attitudes towards technology integration in language teaching. On the other hand, not all teachers feel confident in using ICT tools in their teaching. The mean scores of each subscale revealed that outcome expectations were high in EFL teachers. Results indicated that ICT tools are regarded as useful since they help teachers to work more productively. One-way ANOVA results indicated that there was attitude difference among teachers in terms of their teaching experience.

Pearson correlations between integration and teachers' perception of external factors were strong and also positive. The strongest relation was between curricular issues subscale and integration which indicates that teachers' decision to use technology is largely related to themes such as student motivation or instruction strategies.

Finally multiple regression analysis was conducted to explore the proportion of variance in integration explained by the main independent variables.

CHAPTER 5: DISCUSSION

5.1 Introduction

Chapter 5 addresses all research questions by summarizing the results and presents a picture of factors regarding the complexity involved in ICT integration by discussing results of the study in the light of existing literature. The chapter discusses teacher attitudes under the category of personal factors related to ICT acceptance and deals with the relationship between technology integration and EFL teachers' perceptions of external factors under subtitles of; a) environmental support b) curricular issues and c) social influences on integration.

Accordingly, the issues presented at all these levels illustrated the complexity by highlighting various factors related to the uptake of ICT in EFL classes rather than merely blaming teachers who are seen as central actors of teaching.

5.2 Discussion of the Findings

The ultimate objective of the study was to explore EFL teachers' attitudes towards technology integration and the study assumed a relationship between teacher attitudes and technology integration in education. However extensive literature review revealed that though teachers had positive attitudes towards technology, integration in teaching remained peripheral or limited in many cases.

Current emphasis on external and contextual factors, besides teacher attitudes and characteristics also accounted for the variability in technology integration or acceptance in recent studies. In fact, most of the previous studies concentrated either merely on teacher's self assessment of skills, beliefs and attitudes or merely on teacher's perception of external variables such as technical or pedagogical support. After, literature review the study aimed to analyze both teacher attitudes and their opinions of teacher-non-manipulative variables like social influences or technical support.

Findings from the data showed that most of the Turkish EFL teachers who work at primary school level use computer and internet for administrative needs more often than using them in teaching practices to mediate learning.

The classroom practices of the EFL teachers participating in the study were similar to the findings of Lam (2000) who observed a utilitarian perspective of second language teachers in his study. The results of his study reflected that teachers perceive technology as a tool for teaching or as an aid for the teacher. Similarly, nearly half of the teachers in the current study reported that they integrate technology in language teaching mostly in a supportive or in a supplementary way such as for presenting PowerPoint slides for facilitating instruction or as for finding interesting and motivating exercises. Only a minor number of teachers encourage their students to use information and communication technologies for learning opportunities such as using web for playing word games or introducing them possible web sites for constructing knowledge on their own. It seems that EFL teachers neglect the power of technology to maximize learning by enabling learners to be active constructors of knowledge and to think critically. Based on the results that very few EFL teachers who participated in the study made references to use of technology for reinforcing curriculum or using technology beyond curriculum, it can be inferred that they need opportunities for developing their abilities and having experiences of technology involvement for facilitating curriculum.

The findings of a comparative study by Oliver McGarr and John O'Brien (2007) support our inferences. In the Irish concept, the findings revealed that an important percent of the participants in the study used computer only as a presentation tool or as for preparing tests before they participated in an in-service education which was designed to develop teacher competence in the area of ICT in education. However, the results of post test analysis reflected that teachers' awareness of how to facilitate learning increased by recognizing possible ways of integrating ICT in teaching through training.

It is evident from the results of the current study that teachers use audiovisual ICT tools such as OHP, CDs or MP3 players more often than they use computers in their teaching. The huge difference in frequency percent probably stems from either lack of experience or lack of access to computers in classes. Only twenty-three teachers

reported that they have access to computers and it can be concluded that lack of adequate hardware possibly discouraged teachers from integrating computers in teaching.

Our findings echo the observations made by Hayes (2007) who was alerted by the need for well maintained access to information and communication technologies and the need for technical support in schools.

The links between teacher attitudes and technology integration have been validated in many studies that were previously conducted. The current study also revealed that most of the EFL teachers have positive attitudes towards technology and technology integration in teaching. They consider integrating technology is useful in terms of producing, organizing and presenting more creative and interesting work for their teaching and they have intentions to use ICT tools in their future teaching. It seems that being convinced of benefits of using technology in teaching has contributed considerably on positive attitudes. On the other hand, EFL teachers' feeling towards information and communication tools were the least among the attitude subscales. Affective subscale was followed by perceived control. It appears that though practical considerations outweigh love-hate feelings, respondents attitudes would possibly be more positive if they had chance to learn more about using these tools .

Further analyses revealed that teacher attitudes differed in terms of their teaching experience. Negative correlations between years of teaching experience and teacher attitudes were observed, reiterating the results of previous studies by Jimoyiannis and V. Komis (2007).

Closer analyses also revealed that experienced teachers' perceived control on ICT tools were lower than less experienced and novice teachers. Experienced teachers were more reserved, probably because they had less experience with those newly emerged and radically changing technologies. It is also possible that experienced teachers are more likely to advocate traditional teaching strategies which consequently arises a mismatch between technology integration and teaching experience. The findings of the current study resemble, to some extent, those of Yuen and Ma (2008) who found that perceived ease of use was the sole and dominant determinant in predicting intention to

use ICT and who suggested that building up teachers' confidence in using technology would increase positive attitudes in general.

Yet, depending on teacher attitudes that intrinsic to them such as feelings of love-hate or levels of control on these technologies could not fully reflect the complexity of ICT integration in education. This problem has also been emphasized in previous studies in the literature. Including only perceived usefulness and perceived ease of use as independent determiners in the research accounted for only a small amount of variance in predicting a system usage.

The links between integration of a technology in education and social influences or structural school characteristics were empirically supported (eg.i Lin et al. 2006, J. Tondeur et al. 2009) previously. Given strong evidence from research, it was decided to obtain a more balanced view of the situation by examining teachers' opinions about the factors that are extrinsic to them.

The findings of the study validate previous studies by Pelgrum (2001) and Yunus (2007) to some extent in which lack of access to ICT and lack of time were stressed as main challenges to effective use of ICT. In the current study, EFL teachers cited that availability of computers in classes is too less. The findings also revealed that structural planning of computer labs for English lessons falls short, in general. More than one fourth of the teachers noted negative opinions in relation to technical support and training about integration of ICT in education. In short, the participants' opinion of external support both at the macro and micro level was the lowest among the factors that were extrinsic to teachers.

Teachers' perception of what others think about integrating technology had the highest mean score among the external factors, reiterating thus the results of previous studies by Sime and Priestley (2005).

The findings confirmed previous research suggestions that commitment and involvement of the school manger and all teachers to ICT integration reinforces the process of technology integration (Shaw & Edwards, 2005).

Contradictory to the findings which revealed negative experiences in relation to support from administration reported by Samuel and Bakar (2006), more than two-thirds of the EFL teachers in the current study acknowledged that their school manager

supports the use of ICT in teaching and also they noted encouragement from colleagues. It can be proposed based on the findings of the current study and previous studies that if schools adopt an innovative structural strategy which is shared by all staff, teachers' perception of first-order barriers would decrease, which in turn fosters ICT integration.

The results obtained from the study make it possible to infer that EFL teachers are aware of advantages of integrating technology in their teaching; however they have some considerations in regard to curricular issues. Though, it was verified that more than half of the teachers support the view that technology has the power to maximize learning and to increase student motivation when integrated in teaching, the fact that teachers' concern on lack of time and limited resources to integrate cannot be underestimated.

Linear multiple regression analysis took the study one step further by revealing the proportion of variance in ICT integration by the explored factors. Unlike some of the previous studies, gender (e.g. Van Braak et al. 2004), the number of years of teaching experience (e.g. Mohammed 1994), education background and previous training did not appear to be important in determining whether or not a teacher uses information and communication technologies in teaching in the current study. Therefore, teacher characteristics were not included in the analysis.

It is evident from the results of the study that most of the teachers in the study have positive attitudes towards technology in education and they are convinced of the advantages of using ICT in teaching in terms of creativity, productivity and relatively an important percent of them feel that they have control over these tools. However, the results of the statistical linear multiple regression analysis point at other factors which seem to affect teachers' decisions regarding technology integration in their teaching more than attitudes do. In this respect, it can be concluded from the findings that more positive attitudes towards ICT in education do not guarantee by itself higher levels of ICT use in the classroom and also it is unfair to put the blame merely on teacher attitudes towards technology.

It appears that teachers' perception of non-manipulative factors such as technical and administrative support, curricular objectives, encouragement from colleagues and from parents of the students were the main factors that shaped EFL teachers' decisions

whether to use ICT in English lessons or not. Close observations have mirrored that in schools where teachers feel full cooperation and support from administration, teacher attitudes and integration is maximized. Therefore, these results may signal a wavy relationship between the variables, rather than linear although the integration process is linear.

These results largely replicated those of previous studies by Leh (1995) and Pelgrum (2001) who documented a number of obstacles that affected integration, mainly lack of access to hardware and educational resources besides teacher competence. Similarly, the relevance of social influences and curricular factors that were underpinned both in previously mentioned studies of Lin et al. (2003) and ChanLin et al. (2006) can be observed in the current study.

It is also noteworthy to mention that most of the EFL teachers in the present study did not have any pedagogical training on ICT in education. The opportunity to participate in a training programme may have facilitated their awareness of technology integration in teaching. Nevertheless, the results seem to indicate that EFL teachers, as generally tend to have positive attitudes in regards to technology integration in education and try to reinforce English lessons with ICT integration despite the obstacles.

Overall, this study presented a complex and multifaceted picture of technology integration by the Turkish EFL teachers who work at primary school level. The variables that are external to the teacher included curriculum concerns, technical and structural support in an intuition, the influence of others with whom teachers have social relations such as administrators, colleagues or parents of students. The variables that were special to the teacher included personal comfort with technology, feelings of love-hate, perceived benefits of technology to themselves and personal intentions. Despite the fact that the change does not occur unless teachers have open attitudes towards educational innovations, personal engagement of the teacher could not explain the variance in technology integration in teaching by ignoring the influence of external factors in the present case. The results demonstrated the complexity of technology integration process and as well as teacher attitudes, the importance of structural planning of integration both at the curriculum and institution level was emphasized.

CHAPTER 6: CONCLUSIONS

6.1 Introduction

This chapter presents an overview of the current study by summarizing the general intent of the study, the research questions, the findings and also implications both for effective ICT integration in language classes and for further study drawn from the results of the data analyses.

Besides, its contributions to both research field of technology integration and to practice at the policy making level are discussed. Finally, limitations are listed.

6.2 An Overview of the Study

A significant body of research has been conducted on technology acceptance in a variety of contexts since technology adoption is seen as the backbone of information age. In an attempt to explain technology acceptance, researchers like Ajzen & Fishbein (1975) and latter Davis (1989) concentrated on personal factors such as user attitudes and research has shown that to a very large extent, integration of an innovation in an organization depends on its implementers.

Specifically, the aim of the current study was to explore teacher attitudes since they are the implementers in our context, thus teacher attitudes are the key predictors of ICT acceptance in classes. However, despite positive teacher attitudes, ICT integration remained peripheral in many instances of previous research. It appears that evaluating teacher attitudes merely on two constructs (perceived usefulness and perceived ease of use) and centring on personal factors such as gender or experience have fallen short in explaining ICT integration in education. Therefore, unlike some of the previous research which ignored complex nature of ICT integration, the study also concentrated on teachers' opinions about social influences, environmental support and curricular issues related to technology acceptance which are likely to underlie ICT integration in classes.

In the light of those previously conducted research, it was decided to evolve research question four. Initially the question aimed to compare the influence of attitude

constructs on ICT integration and determine the crucial factor. If it had been done so, teachers' opinions about external factors would have been ignored. Therefore, the research questions were revised as follows:

- 1) How and how often do EFL teachers' use information and communication technologies for professional aims?
- 2) What are EFL teachers' attitudes towards ICT integration in classes? What is the relationship between teacher attitudes and actual use of ICT in classes?
- 3) What are EFL teachers' opinions about the external factors that promote or hinder integration of ICT in their teaching? What is the relationship between external factors and actual use of ICT in classes?
- 4) What is the proportion of variability explained by the independent variables in actual use of ICT in classes?

The distributed questionnaire consisted of five sections. Teacher demographics, access to information and communication technologies in classes and teacher's actual use were explored in the first three sections.

Considering the existing literature on attitudes, Computer Attitudes Scale (Selwyn 1997) which has been validated and has been found to be reliable in education context was adapted in the fourth section of the questionnaire. Teachers were asked to reply 21 items related to attitudes towards ICT; a) affective items addressed teachers' feelings about ICT, b) perceived ease of use items referred teachers' control on ICT tools; c) perceived usefulness items addressed teachers' beliefs of how ICT tools enhance their job performance and d) behavioural intention items addressed users' future intends with respect to ICT.

The last section aimed to find answers to research question three. This section had fifteen items and those items explored EFL teachers' opinions about other people's influences on their technology integration, facilitating or inhibiting conditions of schools and their opinions about curricular issues related to ICT integration.

The results showed that Turkish EFL teachers are making use of information and communication tools mostly for supporting English lessons and for administrative needs. Only a limited number of teachers are guiding their students how to refer these tools for self study. These findings may imply that the EFL teachers are very at the

beginning of ICT integration continuum and they are likely to evolve as they gain experience in time (Hooper and Reiber, 1995).

When it comes to teachers' attitudes towards ICT integration in language instruction, considerably high numbers of teachers perceive computers useful in terms of its contributions to their profession such as being more productive or creative. However, teachers' discomfort at ICT control and personal feelings seemed to lower general attitudes towards ICT integration in education.

One final finding gathered from attitude scale analysis suggested that teachers who were categorized as experienced teachers had less positive attitudes. Closer analysis revealed that the factor that probably had influence was low sense of control on information and communication tools. Therefore, competence at using these tools and professional usefulness are the key factors of positive attitudes as also had been identified by Davis (1989).

Although high positive attitudes were observed, it seemed that many teachers did not use ICT tools as much as desired. This issue forced us to explore other factors. As emphasized in literature (Pelgrum 2001, Shaw & Edwards 2005, ChanLin *et al.* 2006), the factors vary and while in some cases they foster integration, at others they can prevent teachers from exploiting these tools successfully.

As argued by Eason (1988) the network of social relationships in which information technologies are embedded was the emerging finding that seemed to impact user acceptance in the current study. Cooperation both between teachers and at the management level, forced teachers to use ICT tools as well as parental support. In other words, if the school manager has intent to improve learning through technology integration and if there is a shared vision among the staff, technology integration in teaching is likely to be initiated.

Limited resources that overlap with curriculum and lack of time concerns were the crucial factors that seemed to affect teacher decisions in regard to technology integration in language classes.

Once again supported in literature (Lim and Khine, 2006), technical support and access were recorded as prominent factors behind integration. Turkish EFL teachers' perception of the factors that are extinct to them had more influence in this case.

Most of the teachers had never been offered training on how to use ICT in education. Ironically, Ministry of Education has been trying to motivate teachers to buy computers by offering them campaigns of owning a personal notebook cheaply. However, the training of how to use these tools and how to integrate these sources seems to be a latter priority or must have been forgotten.

In short, merely personal commitment or curricular outcome expectations cannot lead to success in ICT integration. Though Ertmer (1999), emphasized that internal barriers may persist even when external barriers are removed, one should not forget that beliefs are guided by social influences and personal experiences. It is important to notice bi-dimensional focus on the issue may not turn out to be an effective approach in highlighting this issue.

6.3 Limitations of the study and suggestions

The nature of this study is limited to the data collected from 149 teachers working at primary schools. For this reason, it can be said that the study is limited to a small group of Turkish EFL teachers, which makes it hard to generalize the results in different groups of teachers in other educational settings.

Second, the teachers in the current study are working at a primary school level. It is also important to understand high school EFL teachers' attitudes towards ICT in education and to compare the findings with the current study to analyze technology integration thoroughly.

Another limitation of the study is the lack of a pilot study. No official pilot study was conducted in an environment similar to actual environment of the study as an ineffective aspect of the research. The reason was the difficulty to reach to the target number of participants to conduct the study as teachers are mostly lack of investment to fill in questionnaires or spend time on them.

Last but not least, results of the present study are based on the quantitative data collected from participants through questionnaires. Interviews might have been conducted to gather more detailed information from the respondents.

6.4 Implications

The findings of the current study are in parallel with previous research area on integration of ICT in education. Though most of EFL teachers consider technology integration as useful in terms of professional productivity and increased student motivation, integration was limited in most English lessons.

It seems clear that despite having positive attitudes towards technology in education, most of the teachers' confidence in technology competence was low and those teachers feel themselves uncomfortable before students. In other words, systematic training on two levels is urgently essential to release teachers' discomfort at using ICT. First, they need to be trained in developing technology competence on using these tools and then they need to be trained in technology-supported pedagogy that is based on good examples of practice. The research findings of Tsitouridou and Vryzas (2004) also supported this need.

Moreover, reflections of those who take part in this study can be fruitful teacher education programmes of universities in regards to the training they offer for teacher nominees as discussed by Warschauer and Healey (1998) who addressed teacher training programmes as the key elements of understanding the importance and role of technology in teaching.

A possible reason for teachers' supportive and supplementary technology use can be traditional way of teaching. Consistent with the findings of Ravitz and Becker (2000), this means that teacher beliefs about learning and instruction could be identified as critical predictors of types of computers use. It will be interesting to revisit, in future research, the influence of teachers' preferred way of teaching on technology acceptance.

Future research may include a comparative a study between primary school and high school EFL teachers to establish the extent to which ICT integration in education differs.

Practical implications from this study may include reducing first-order barriers which has been noted very frequently. In addition, the fact that teachers' curricular considerations demonstrated high levels of effect, taking into account that establishing a curriculum by involving those who face challenges rather than forcing top-down plans can be important in technology integration in education. Furthermore, it would have

been interesting to conduct this research with EFL teachers who are employed by one school or institution to control the influence of factors that are extrinsic to teachers. In that case, we could thoroughly understand the impact of factors that are intrinsic to teachers.

6.5 Conclusion

It can be concluded that improving teacher's confidence in using ICT in teaching would improve their overall attitudes towards technology integration in education. Nonetheless, the successful implementation requires more than positive attitudes. Extending the established repertoires of previous research with the factors that are extrinsic to teachers has made the current study more powerful by offering a different perspective to the issue. Indeed, these factors seemed to influence the puzzle more than expected in the present case.

This study has contributed to research and practice in several ways. First, it has contributed to the field of EFL and ICT research, also provided knowledge for theoretical basis. Through this study, not only our understanding of the factors that influence successful integration has improved, but also EFL teachers' actual technology applies were recorded as examples of real classroom practices.

Secondly, since not much research has been conducted in this specific area in Turkey, research findings are important for those who take initiatives both at planning of financial resources and at planning educational reforms at policy making level. Hence, in their effort to keep up pace with global trends, policy makers should take into consideration the effect of those predictors which were highlighted in the present study. Yet, our data indicates that priorities should be given to explore the issue in a broader sense urgently within research area since technology has become an indispensable part of learning.

Finally, though context is limited to Turkey, it is probable that the major issues are shared with most of the other countries all over the world. Based on the fact that the study provided insights to the situation, attention to the research subject can be re-attracted. More research needs to be done to confirm and compare these research findings, however.

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APPENDIX I

ICT ACCEPTANCE QUESTIONNAIRE

General instructions: The purpose of this survey is to examine your attitudes towards the introduction of the information and communication technology (ICT) into English language instruction in the Turkish primary schools. The survey consists of five sections. Each section begins with some directions pertaining to that part only. As you begin each section, please read the instructions carefully and provide your responses candidly in the format requested.

Section 1: Please indicate your response to the following questions by checking the appropriate boxes.

Gender: Female: Male:

Level of education. B.A: M.A.: Ph.D.:

Teaching experience: 1-10years: 11-20 years: 21- more:

I have taken ICT training at university : Yes: No:

I have taken ICT training at in-service- education: Yes: No:

Section 2: Please indicate your response to the following questions by checking the appropriate boxes.

Available technologies in my class are

Yes

No

Available technologies in my class are	Yes	No
Internet		
Overhead Projector(OHP)		
Projector		
VCD/DVD Player		
Mp3/Cassette Player		
Computer		
I have computer access at home		
I have internet access at home		

Section 3: Please indicate your response to the following questions by checking the appropriate boxes.

I use the following tools in my teaching	Twice or three times a week	Once a week	Once a month	Never
Computers				
Internet				
Overhead Projector(OHP)				
Projector				
VCD/DVD Player				
Mp3/Cassette Player				

	Yes	No
I usually use ICT tools mostly for finding questions and exercises		
I usually ask my students to do homework on computer		
I usually use ICT tools mostly for administrative work		
I usually use ICT tools mostly for watching videos		
I usually encourage my students to use ICT for learning opportunities		
I usually use ICT tools mostly for presenting PowerPoint slides		

Section 4: Please indicate your response to the following questions by checking the appropriate boxes.

	Item	Strongly Agree	Agree	Slightly Agree	Disagree	Strongly Disagree
1	If given the opportunity to me to use a computer I am afraid that I might damage it in one way					
2	I hesitate to use a computer for fear of making mistakes I can't correct					
3	I don't feel apprehensive about using a computer					
4	Computers make me feel uncomfortable					
5	Using ICT tools does not scare me at all					
6	I hesitate to use a computer in case I look stupid.					
7	Computers help me organise my work better					
8	Computers make it possible to work more productively					
9	Computers can allow me to do more creative and interesting work					
10	Most things that a computer can be used for I can do just as well myself					
11	ICT tools can enhance the presentation of my work to a degree which justifies the extra effort					

12	I could probably teach myself most of the things I need to know about computers					
13	I can make the computer do what I want it to					
14	If I get problems using the computer, I can usually solve them one way or the other					
15	I am not in complete control when I use ICT tools					
16	I need an experienced person nearby when I use ICT tools					
17	I do not need someone to tell me the way to use a computer					
18	I would avoid taking a job if I knew it involved working with computer					
19	I avoid coming into contact with ICT tools in school					
20	I only use computers at school when I have to					
21	I will use computers regularly throughout school					

Section 5: Please indicate your response to the following questions by checking the appropriate boxes.

	Item	Strongly Agree	Agree	Slightly Agree	Disagree	Strongly Disagree
1	We have enough computers for teachers in my school					
2	In my school timetable to use computer labs is scheduled					
3	Whenever I need an ICT tool, it is provided by my school					
4	When I need help to use ICT tools, guidance is available in my school					
5	There is enough in-service training about how to integrate ICT in teaching					
6	Parents are sure of educational value of integrating ICT tools in teaching					
7	All teachers work together to accomplish our school goals					

8	My school manager thinks that we-teachers should use ICT tools in our teaching					
9	People whose opinions I give value encourage me to use computer					
10	My friends think I should use computer in my teaching					
11	Student motivation increases when technology is integrated into the curriculum.					
12	There isn't enough time to incorporate technology into the curriculum.					
13	Technology facilitates the use of a wide variety of instructional strategies designed to maximize learning.					
14	There is too much material to cover.					
15	ICT can be a tool for instruction and learning for every subject matter in the curriculum					

ÖZGEÇMİŞ			
Doğum Yeri ve Yılı :	Balıkesir /1984		
Öğr.Gördüğü Kurumlar :	Başlama Yılı	Bitirme Yılı	Kurum Adı
Lise :	1998	2002	Rahmi Kula Anadolu Lisesi
Lisans :	2002	2006	Balıkesir Üniversitesi Eğitim Fakültesi-İngiliz Dili Eğitimi Bilim Dalı
Yüksek Lisans :	2006		UÜ Yab Dil. Eğt ABD İng Dili Eğt. Blim Dalı.
Doktora :			
Medeni Durum :	Bekar		
Bildiği Yabancı Diller ve Düzeyi:	:İngilizce KPDS (88)		
Çalıştığı Kurum (lar) :	Başlama ve Ayrılma Tarihleri	Çalışılan Kurumun Adı	
1.	04/09/2006		MEB Fatih İÖO
Yurtdışı Görevleri :			
Kullandığı Burslar :			
Aldığı Ödüller :			
Üye Olduğu Bilimsel ve Meslekî Topluluklar :			
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Yurt İçi ve Yurt Dışında katıldığı Projeler :			
Katıldığı Yurt İçi ve Yurt Dışı Bilimsel Toplantılar:			
Yayımlanan Çalışmalar :			
Diğer :			
			/...../2009 İmza Öznur IŞIK