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EFL Teachers' Attitudes toward Using Computer Technology in English Language Teaching

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***Abstract*—Computers have become commonplace in our personal as well as our professional lives. Computers have made many of our everyday tasks easier and faster and made our society more productive. A very important set of variables such as the classroom teacher and the teacher's attitudes towards the effective uses of computers in the classroom have been overlooked in EFL classrooms. This study investigates how teachers perceive the use of computer technology resources in English Language Teaching. The first aim of the study is to define the teachers' attitudes. The second aim is to discuss the aspects of attitude. The third aim is to explain teachers' attitudes and computer technology training. The fourth aim is to elaborate teachers' attitudes and computer technology integration. The fifth aim is to define teachers' attitudes and computer experience. The sixth aim is to discuss teachers' attitudes and computer anxiety and interest. The last aim is to review teachers' attitudes and computer literacy. The review of the related literature shows that simply introducing computer technology resources does not guarantee teachers' use of these in practice. Knowledge of EFL teachers' attitudes about teaching, learning, and computers, affords them the opportunity to design and implement EFL instruction.**

***Index Terms*—computer technology, teacher attitude, training, integration, experience, anxiety and interest, literacy**

I. Introduction

Traditional approaches to language teaching and learning have been challenged by new and innovative approaches based on the latest advances in computer and Internet technology. The vast resources and opportunities that computers and Internet provide have brought about new tools, approaches, and strategies in language teaching and learning. The success of any initiatives to implement technology in an educational programme depends strongly upon the support and attitudes of teachers involved. It has been suggested that if teachers believed or perceived computers not to be fulfilling their own or their students' needs, they are likely to resist any attempts to introduce technology into their teaching and learning (Askar & Umay, 2001). Computers are increasingly widespread, influencing many aspects of our social and work lives, as well as many of our leisure activities. As more tasks involve human computer interaction, computer skills and knowledge have become more positively correlated with both occupational and personal success. Therefore, as we move into a technology based society, it is important that children's classroom experiences with technology be equitable and unbiased for males and females. In most cases, the teacher is key to effective implementation of the use of computers in the educational system and given that teachers have tremendous potential to transmit beliefs and values to students, it is important to understand the biases and stereotypes that teachers may hold about the use of computers and the factors that act as facilitators to teachers' positive computer usage.

Of the factors that have been listed to affect the successful use of computers in the classroom are teachers' attitudes towards computers and these attitudes, whether positive or negative, affect how teachers respond to technologies. This in turn affects the way students view the importance of computers in schools (Teo, 2006) and affects current and future computer usage. In support of the importance of teachers' attitude towards computer use, Zhao, Tan and Mishra (2001) provided evidence to suggest that the attitudes of teachers are directly related to computer use in the classroom. For example, teachers often view the computer as a tool to accomplish housekeeping tasks, manage their students more efficiently, and to communicate with parents more easily. The success of student learning with computer technology will depend largely on the attitudes of teachers, and their willingness to embrace the technology (Teo, 2006). Gaining an appreciation of the teachers' attitudes towards computer use may provide useful insights into technology integration and acceptance and usage of technology in teaching and learning.

No matter how sophisticated and powerful the state of technology is, the extent to which it is implemented depends on teachers having a positive attitude towards it (Huang & Liaw, 2005). In this paper, definition of teachers' attitudes, aspects of attitude, teachers' attitudes and computer technology training, teachers' attitudes and computer technology

integration, teachers' attitudes and computer experience, teachers' attitudes and computer anxiety and interest, and teachers' attitudes and computer literacy are elaborated.

II. Definition of Teachers' Attitudes

An attitude is defined as "a relatively enduring organization of beliefs, feelings, and behavioural tendencies towards socially significant objects, groups, events or symbols" (Hogg & Vaughan, 2005, p. 150). In the educational environment, attitudes expressed by teachers as well as students play an important role in the achievement of educational objectives. Specifically with regard to the use of new innovations in the classroom, traditional teaching methods are being forced to accommodate what are sometimes incommensurate information technologies. The attitudes of teachers play a prominent role in educational interaction as well as instructional choices and as such are fundamental in examining the outcome of technological integration in the classroom (Becker, Ravitz, & Wong, 1999; Albion & Ertmer, 2002).

Allport (1935) as cited in Albarracin et al., (2005) mentioned that an attitude is a mental or neural state of readiness, organized through experience, exerting a directive or dynamic influence upon the individual's response to all objects and situations with which it is related. His definition, though is complex, emphasises two crucial aspects that contribute a lot in understanding the concept of attitude. In their definition, Fishbein and Ajzen (1975), emphasises the learned nature of attitudes: "An attitude is a learned predisposition to respond in a consistently favourable or unfavourable manner with respect to a given object" (p. 6).

Eagly and Chaiken (1993) have omitted that aspect through their evaluative definition of attitudes: "Attitude is a psychological tendency that is expressed by evaluating a particular entity with some degree of favour or disfavour."(p. 1). Computer attitudes are influenced by different variables. Examples from recent research include training (Tsitouridou & Vryzas, 2003), knowledge about computers (Mukti, 2000), computer anxiety and liking (Yildirim, 2000), and computer experience (Kumar & Kumar, 2003). In most cases, many of these factors interact with one another to impact on attitude towards computers.

III. Aspects of Attitude

Two core aspects characterise attitudes. The first, which is the central one, refers to "readiness for response." That is, an attitude is not behaviour, not something that a person does; rather it is a preparation for behaviour, a predisposition to respond in a particular way to the attitude object. The term attitude object is used to include things, people, places, ideas, actions, or situations, either singular or plural. This aspect appears in many other definitions like that of Jung (1971): "*readiness of the psyche to act or react in a certain way"* (Jung, 1971, p. 687) as cited in Oskamp and Schultz (2005). The second aspect is the "motivating" or driving force of attitudes. That is, attitudes are not just passive result of past experiences. Instead they have two active actions expressed by Allport as "exerting a directive or dynamic influence. Dynamic action means that it impels or drives behaviour. Directive action means that it guides the form and manner of behaviour into specific channels, encouraging some actions and deterring others.

Attitudes are characterised by other essential features like their relatively "enduring nature", though it is not true for all attitudes (some attitudes can be stable whereas others can be changeable). The evaluation aspect of attitudes, which is the disposition to respond in a favourable or unfavourable manner to given objects, has been increasingly stressed by recent research. Olson and Maio (2003) define attitudes as "tendencies to evaluate objects favourably or unfavourably" (p. 299). Bem (1972) defines attitudes as "Attitudes are likes and dislikes" (p. 14) cited in Oskamps and Schultz (2005, p. 8), this simple definition emphasizes the importance of the evaluative aspect of attitudes. In conclusion, I can say that in general "attitude" is a hypothetical construct that represents an individual's like or dislike for an item. They are positive, negative or neutral views of an "attitude object. People can also simultaneously hold a positive and a negative bias towards the attitude in question. All attitudes take a stance - positive or negative – but they can vary in intensity.

IV. Teachers' Attitudes and Computer Technology Training

There is a positive relationship between computer technology training and teachers' attitudes (Becker et al., 1999; Gobbo & Girardi, 2001). Training can significantly impact the ways in which a teacher embraces technology tools in the classroom. In an examination of teaching styles and technology integration in Italy, results "appeared to indicate that both personal theories of teaching and the level of competence with technology play a major role in how teachers implement technology and in their perception of their own and their pupils' motivation" (Gobbo & Girardi, 2001, p. 63).

In contrast, a study carried out by Veen (1993) that described the daily pedagogical practices of four teachers in the midst of implementing Information and Communication Technology (ICT) in their classrooms in Dutch, found that the most important factor effecting teachers' use of ICT was teachers' attitudes regarding what should be taught and the way it should be taught. Computer related technical skills were found to be less important than skills related to the teachers' competence in managing activities and communicating lessons.

Teachers must be given the opportunity to become acquainted with newly introduced technologies. Mcalister et al., (2005), in their study of teachers' use of computers to teach mathematics, found that overall attitudes towards using computers were very positive, although many of them had limited experience with computers. The conclusion of

Mcalister et al., (2005) was that more training and support in IT should be given to teachers, and more value should be placed on the teacher as a role model for students. Gulbahar (2008) reported that lack of in-service training and insufficient technological infrastructures were the factors that have a significant influence on the effective use of technology by instructors.

Most of the studies focusing on teachers and CALL discussed the training and the attitudes of teachers towards CALL (Ridgway & Passey, 1991; Egbert, Paulis & Nakamichi, 2002; Jones, 2002; Warschauer, 2002). Egbert, Paulis, and Nakamichi (2002) had participants of twenty English as a second language and foreign language teachers in their sample. They used surveys and follow-up interviews on technology use in class. They concluded that lack of time, support and resources prohibited the use of CALL by the teachers. Warschauer (2002) discussed the training of instructors in Egypt about the use and applications of CALL. An interesting anecdote was given in his discussion of CALL. He said that an Egyptian university lecturer expressed his view as: we have the hardware, we have the software, but we lack the human ware. Ridgway and Passey (1991) stressed out the importance of training teachers and exploiting the use of computers more than as a word processor in the classroom. Similarly, Jones (2002) argued that teachers need to become informed users of technology and stressed the importance of technology training.

V. Teachers' Attitudes and Computer Technology Integration

Teachers who reportedly value the integration of technology change their teaching in order to better incorporate technology approaches (Cox et al., 1999). Software availability and teacher willingness to use the software can have positive effects on the teachers' attitudes towards the adoption of technology in the classroom (Sepehr & Harris, 1995). Interactive venues and discussion boards can help teachers to learn with technology instead of solely using the technology to teach (Coniam, 2002; Ducate & Arnold, 2006). Additionally, teachers who report a strong commitment to teaching as well as their own professional development have been found to integrate technology tools more readily (Hadley & Sheingold, 1993; Becker et al., 1999).

Norum, Grabinger and Duffield (1999) studied the "thoughts, perceptions, beliefs, experiences, knowledge, and growth" (p. 187) of teachers studying and attempting to integrate the use of computers in their classrooms. The important theme they found running throughout this research was teachers' strong assertion that they needed to change personally and take on new roles if technology was to be effectively integrated into their classrooms. Most of the teachers involved in this study saw themselves as the place where change efforts needed to begin. Experiences with technology planning highlight the well-documented observation that teacher attitudes toward technology and technology integration seriously impact the success of professional development programs. They thus need to be seriously considered (Albion, 1999; Ross, Hogaboam-Gray, & Hannay, 1999).

Positive attitudes toward technology integration enhance learning to use technologies in teaching and learning; negative attitudes constrain it. This does not necessarily mean that only teachers with positive attitudes should be included in technology training activities. It does mean that negative attitudes among participants need to be valued and addressed, and that positive attitudes should be encouraged and developed. Teachers often recognize that their students do indeed need additional input and output activities to help them continue to improve their language skills, particularly pronunciation skills (Albion, 1999; Ross, Hogaboam-Gray, & Hannay, 1999).

Guskey (1989) and Saye (1998) stated that as the teacher plays the key role in classroom change and teachers tend to accept only changes that they perceive facilitate their work, exploring teachers' attitudes toward technology integration is necessary. Early in 1987 Woodrow observed that the infusion of computer technology into school curriculum has the potential to drastically change educational practices. However, to successfully change traditional instructional practices, teachers must have positive attitudes toward the educational issues involved. If teachers are resistant to the change, the proposed curricular and procedural changes will have a slim chance of success. This is true of any educational innovation, but it is particularly true of technology use in education because the change involves both the acquisitions of new technology skills and pedagogies (Woodrow, 1987; Saye, 1998).

Chinese teachers' attitudes toward the pedagogical use of computers were measured by Allan and Will (2001). These attitudes also play an important role in the effective investment in computer technology to support instruction and successful integration of computers in teaching (Koohang 1989). Teachers' attitudes are a major enabling/disabling factor in the adoption of technology (Bullock, 2004). Similarly, Kersaint, Horton, Stohl, and Garofalo (2003) found that teachers who have positive attitudes toward technology feel more comfortable with using it and usually incorporate it into their teaching. Woodrow (1992) asserts that any successful transformation in educational practice requires the development of positive user attitude toward the new technology. The development of teachers' positive attitudes toward ICT is a key factor not only for enhancing computer integration but also for avoiding teachers' resistance to computer use (Watson, 1998). Watson (1998) warns against the severance of the innovation from the classroom teacher and the idea that ''the teacher is an empty vessel into which this externally defined innovation must be poured'' (p. 191).

VI. Teachers' Attitudes and Computer Experience

Dupagne and Krendl (1992) noted that computer experience often fosters positive attitudes towards computers; moreover, the lack of computer instruction often accounts for teachers' low confidence level when they initiate

computer activities. This feeling of low confidence often results in high anxiety towards computers. High anxiety can lead to negative attitudes and eventually negatively influence the learning process.

Computer experience has been the most commonly cited variable correlated to positive attitudes (Woodrow, 1992; Chou, 1997; Ropp, 1999; Yıldırım, 2000; Gaudron & Vignoli 2002). For example, Woodrow (1992) reported correlations between computer experience and attitudes toward technology. Chou (1997) also highlighted that computer experience influenced teacher attitudes toward computers. Ropp (1999) found that there is significant relationship between computer access and hours of computer use per week and computer attitudes.

According to Abas (1995a), Blankenship (1998) and Isleem (2003), teachers' attitudes have been found to be a major predictor of the use of new technologies in instructional settings. Christensen (1998) states that teachers' attitudes toward computers affect not only their own computer experiences, but also the experiences of the students they teach. In fact, it has been suggested that attitudes towards computers affect teachers' use of computers in the classroom and the likelihood of their benefiting from training. Positive attitudes often encourage less technologically capable teachers to learn the skills necessary for the implementation of technology-based activities in the classroom.

VII. Teachers' Attitudes and Computer Anxiety and Interest

According to the report of International Society for Technology and Education (2001), relatively few teachers (20%) report feeling well prepared to integrate technology into classroom instruction. Although computers have been put in the classroom, many teachers are still skeptical of the value computers have provided for teaching and learning. Studies indicate that the level of feelings teachers have toward computer use range from euphoria to uncertainty, to hostility and fear (Berson, 1996; Saye, 1998). Some teachers show little interest in using instructional technology, while others are obviously resistant to its use. Some positively accept the concept, but feel somewhat bound by lack of training for effective integration (Chin & Hortin, 1993). Still others have ambivalent feelings toward technology. Feelings of uncertainty, hostility and fear naturally lead to many teachers' reluctance or resistance to technological innovation. They will continue to adhere to their traditional practices with which they feel more confident and comfortable.

Teo, Lee and Chai (2008) showed that the effective use of technology enables teachers to facilitate and adjust their instructional strategies to optimize students' learning. In this respect, when teachers' role and activity in the process is taken into account; it is important to know teachers' interest in technology and their attitudes, affective features towards technology (Erkan, 2004; Rohaan, Taconis & Jochems, 2010). Kagan (1992) noted that teachers' attitudes appear to lie at the heart of teaching and tend to be associated with a congruent style of teaching. Teachers' attitudes and emotions also build the meanings they bring to innovations such as technology integration. Hence, changes to teaching style, as might be required by working with technology, may necessitate changes to teachers' attitudes (Albion & Ertmer, 2002).

VIII. Teachers' Attitudes and Computer Literacy

In Asan's (2003) study, primary teachers' perceptions and awareness level about specific technologies, and about the role of technology in education, and how they see the technological problems that are faced by basic education school systems in Turkey were investigated. The results showed that many teachers were not computer users and lacked a functional computer literacy background upon which to build new technology and skills. The study also indicated that the use of computer and related technologies was not routine part of their teaching and learning environment.

Cavas and Kesercioğlu (2003) investigated the science teachers' attitudes toward computer assisted learning (CAL). The results showed that the majority of science teachers had positive attitudes toward CAL and no gender difference exists between science teachers' computer-assisted learning attitudes. Ocak and Akdemir (2008) expressed that science teachers' computer literacy level is related to their computer use. And also computer literacy level of the teachers increases their integration of computer applications in their teaching. In the study, most of the teachers use Internet, email, and educational software CDs as computer applications in the classrooms. They found statistically differences in the integration of computer applications as an instructional tool.

Teachers' attitudes toward computer technologies are related to teachers' computer competence. In their study of the correlation between teachers' attitude and acceptance of technology, Francis-Pelton and Pelton (1996) maintained although many teachers believe computers are an important component of a student's education, their lack of knowledge and experience lead to a lack of confidence to attempt to introduce them into their instruction. A large number of studies showed that teachers' computer competence is a significant predictor of their attitudes toward computers (Na, 1993; Berner, 2003). Al-Oteawi (2002) found that most teachers who showed negative or neutral attitudes toward the use of ICT in education lacked knowledge and skill about computers that would enable them to make ''informed decision'' (p. 253).

A major obstacle to successful technology integration was the lack of teacher confidence and skill when using technology (Zammit, 1992). Supporting this result, in the study of Akpınar (2003) where he studied the level of primary and secondary school teachers' using the technological opportunities, it is concluded that half of teachers do not use computers for educational purposes in activities outside the classroom and almost half of them never use computer software in educational activities. Again in another study (Erdemir, Bakırcı & Eyduran, 2009), pre-service teachers state that they do not feel themselves adequate for using internet and computer for the purpose of teaching, while they feel

that they are adequate for using search engines; they can prepare basic materials for teaching but not complex and multi-purpose educational devices.

IX. Conclusion

It can be stated that simply providing technology resources does not guarantee their use in language instruction. Therefore, it is necessary to convince teachers of the usefulness and benefits of these resources in improving teaching and learning. This suggests the need for effective guidance, support and training for teachers in integrating computer technology resources into language instruction through more hands-on and direct practical experience. The prominent factors that influence the use of computer technology resources are provision of efficient and effective training support, and more systematic incorporation of technology resources into the curriculum. Training should not be limited to how to use computer technology; it should show teachers how they can make use of technology in improving the quality and effectiveness of their instruction, as well as how such technology resources can be effectively integrated into the curriculum. There is a need for ongoing training and assistance in helping teachers to better employ computer technology resources in pedagogic practices. Although it is important to know that teachers need more equipment or more time to plan for technology use, it may not always be enough. It may also be important to understand teachers' reasons for computer technology using or not using computer technology and their attitudes about the value of technology in teaching and learning practices. While introducing computer technology resources to teachers, their pedagogical potential should be emphasized and guidance and assistance should be provided on ways of integrating these resources into instruction. Those who plan to integrate particular technology resources need to provide the rational and grounding for better integration into language instruction and learning. Teachers need to be provided with explanation, guidance and assistance from trainers and other colleagues, and also the opportunities to reflect and discuss the integration, share outcomes and possible problems with each other. To understand how to achieve better integration, we need to study teachers and what makes them use computers, and we need to study computer technology resources and what makes teachers want to or need to use them. The innovative nature of technology, as it continues to change and expand, will require teachers to adapt and change the way they approach teaching and learning.

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References

[1] Abas, Z. W. (1995a). Attitudes towards using computers among Malaysian teacher education students. In J. D. Tinsley, & T. J. van Weert (Eds.), *World conference on computers in education* VI: WCCE_ 95 liberating the learner (pp. 153–162). London: Chapman & Hall.

[2] Akpınar, Y. (2003). The of high education in teachers' use of new information technologies: the sample of Istanbul schools. *The Turkish Online Journal of Educational Technology*, 2 (2), 79-96.

[3] Albarracin, D., Johnson, B, Kumkale, T., & Zanna, M. (2005). Attitudes: introduction and scope. In D. Albarracin, B.Johnson, & M. Zanna (Eds.), *The Handbook of Attitudes* (PP.3-20). New Jersey: Lawrence Erlbaum Associates.

[4] Albion, P. R. (1999). Self-efficacy beliefs as an indicator of teachers' preparedness for teaching with technology. Paper presented at the 1999 annual Society for Information Technology in Teacher Education conference, San Antonio, TX.

[5] Albion, P., & Ertmer, P. A. (2002). Beyond the foundations: The role of vision and belief in teachers' preparation for integration of technology. *Tech Trends*, 46 (5), 34–38.

[6] Allan, Y., & Will, M. (2001). Teachers' computer attitudes: Factors influencing the instructional use of computers. Paper presented at the International Conference on Computers in Education, Seoul, Korea.

[7] Al-Oteawi, S. M. (2002). The perceptions of administrators and teachers in utilizing information technology in instruction, administrative work, technology planning and staff development in Saudi Arabia. Doctoral dissertation, Ohio University.

[8] Asan, A. (2003). Computer Technology Awareness by Elementary School Teachers: A Case Study from Turkey. *Journal of Information Technology Education*, 2, 150-163.

[9] Askar, P., & Umay, A. (2001). Pre-service elementary mathematics teachers' computer self-efficacy, attitudes towards computers, and their perceptions of computer enriched learning environments. In *Proceedings of Society for Information Technology and Teacher Education International Conference 2001* (eds C. Crawford, D.A.Willis, R. Carlsen, I. Gibson, K. McFerrin, J. Price & R. Weber), pp. 2262–2263. AACE, Chesapeake, VA.

[10] at: http://www.ascilite.org.au/ajet/ajet.html, accessed on 01/05/2010.

[11] Becker, H., Ravitz, J., & Wong, Y. (1999). Teacher and teacher-directed student use of computers and software. *Teaching, Learning, and Computing: 1998 National Survey*. Report #3.

[12] Berner, J. E. (2003). A study of factors that may influence faculty in selected schools of education in the Commonwealth of Virginia to adopt computers in the classroom. Doctoral Dissertation, George Mason University. Pro Quest Digital Dissertations (UMI No. AAT 3090718).

[13] Berson, M. J. (1996). Effectiveness of computer technology in the social studies: A review of the literature. *Journal of Research and Computing in Education, 28*(4), 486-489.

[14] Blankenship, S. E. (1998). Factors related to computer use by teachers in classroom instruction. Doctoral Dissertation, Virginia Polytechnic Institute and State University.

[15] Bullock, D. (2004). Moving from theory to practice: An examination of the factors that pre-service teachers encounter as they attempt to gain experience teaching with technology during field placement experiences. *Journal of Technology and Teacher Education, 12*(2), 211-224.
[16] Cavas, B., & Kesercioglu, T. (2003). Primary Science Teachers' Attitudes toward Computer Assisted Learning. *Ege Journal of Education*, 3(2), 35-43.
[17] Chin, S., & Hortin, J. (1993). Teachers' perceptions of instructional technology and staff development. *Educational Technology System, 22*(2), 83-98.
[18] Chou, T. R. (1997). The relationships among computer usage, experience with the computer, computer anxiety, and attitudes toward computers for secondary agricultural education teachers in the United States. Mississippi State University: Dissertation.
[19] Christensen, R. (1998). Effect of technology integration education on the attitudes of teachers and their students. Doctoral dissertation, University of North Texas. Retrieved on 12 November, 2003, from http://www.tcet.unt.edulresearch/dissert/rhondac.
[20] Coniam, D. (2002). Perceptions of a multimedia syllabus – making the demands of a performance test more accessible. *System, 31*, 55–70.
[21] Cox, M., Webb, M., Abbott, C., Blakeley, B., Beauchamp, T., & Rhodes, V. (1999). *ICT and pedagogy: A review of the literature.* British Educational Communications and Technology Agency, Department for Education and Skills.
[22] Ducate, L., & Arnold, N. (2006). Calling on CALL: From theory and research to new directions in foreign language teaching. San Marcos, TX: Computer Assisted Language Instruction Consortium.
[23] Dupagne, M., & Krendel, K. A. (1992). Teachers' attitudes towards computers: A review of literature. *Journal of Research on Computing in Education*, 24(3), 420-429.
[24] Eagly, A.H., & S. Chaiken, S. (1993). The Psychology of Attitudes. Forth Worth, TX: H.
[25] Egbert, J., Paulis, T. M., & Nakamichi, Y. (2002). The impact of CALL instruction on classroom computer use: A foundation for rethinking technology in teacher education. *Language Learning and Technology, 6*(3), 108-126.
[26] Erdemir, N., Bakırcı, H., & Eyduran, E. (2009). The determination of teachers' confidence to use technology in education. *Journal of Turkish Science Education, 6*(3), 99-108.
[27] Erkan, S. (2004). An analysis on teachers' attitudes towards computer. Manas University, *Journal of Social Science, 17*(12).
[28] Fishbein, M., & Ajzen, I.(1975). Beliefs, Attitudes, Intentions, and Behaviour: An Introduction to Theory and Research. Reading, MA: Addison –Wiseley.
[29] Francis-Pelton, L., & Pelton, T. (1996). Building attitudes: how a technology course affects pre-service teachers' attitudes about technology. Retrieved on 16 April 2004 from: http://web.uvic.ca/educ/lfrancis/web/attitudesite.html
[30] Gaudron, J. P., & Vignoli, E. (2002). Assessing computer anxiety with the interaction model of anxiety: development and validation of the computer anxiety trait subscale. *Computers in Human Behavior* 18, 315–325.
[31] Gobbo, C., & Girardi, M. (2001). Teachers' beliefs and integration of information and communications technology in Italian schools. *Journal of Information Technology for Teacher Education, 10* (1 & 2), 63–86.
[32] Gulbahar, Y. (2008). ICT Usage in Higher Education: A Case Study on Pre-service Teachers and Instructors. *The Turkish Online Journal of Educational Technology*. 7(1).
[33] Guskey, T. (1989). Attitude and perceptual change in teachers. *International Journal of Educational Research, 13*, 439-453.
[34] Hadley, M., & Sheingold, K. (1993). Commonalities and distinctive patterns in teachers' integration of computers. *American Journal of Education, 101*, 261–315.
[35] Hogg, M., & Vaughan, G. (2005). Social psychology (4th ed.). London: Prentice Hall.
[36] Huang, H. M., & Liaw, S. S. (2005). Exploring user's attitudes and intentions toward the web as a survey tool. *Computers in Human Behavior, 21(5)*, 729-743.
[37] International Society for Technology in Education (ISTE). (2001). Retrieved November 20, 2002, from http://www.iste.org/standards/index.cfm
[38] Isleem, M. (2003). Relationships of selected factors and the level of computer use for instructional purposes by technology education teachers in Ohio public schools: a state wide survey. Doctoral dissertation, the Ohio State University.
[39] Jones, B. G. (2002). Emerging technologies: Technology for prospective language teachers. *Language Learning and Technology, 6*(3), 10-14.
[40] Kagan, D. M. (1992). Implications of research on teacher belief. *Educational Psychologist*, 27(1), 65-90.
[41] Kersaint, G., Horton, B., Stohl, H., & Garofalo, J. (2003). Technology beliefs and practices of mathematics education faculty. *Journal of Technology and Teacher Education, 11*(4), 549–577.
[42] Koohang, A. (1989). A study of attitudes toward computers: Anxiety, confidence, liking and perception of usefulness. *Journal of Research on Computing in Education 22*(2), 137-50.
[43] Kumar, P., & Kumar, A. (2003). Effect of a web-based project on pre-service and in-service teachers' attitudes toward computers and technology skills. *Journal of Computing in Teacher Education, 19*(3), 87-92.
[44] Mcalister, M., Dunn, J., & Quinn, L. (2005). Student teachers' attitudes to and use of computers to teach mathematics in the primary classroom. *Technology, Pedagogy and Education, 14*(1), 77–106.
[45] Mukti, N. A. (2000). Computer technology in Malaysia: teachers' background characteristics, attitudes and concerns. *Electronic Journal of Information Science in Developing Countries*, 3, 1–13.
[46] Na, S. I. (1993). Variables associated with attitudes of teachers toward computers in Korean vocational agriculture high schools. Doctoral dissertation, The Ohio State University.
[47] Norum, K., Grabinger, R. S., & Duffield, J. A. (1999). Healing the universe is an inside job: teachers' views on integrating technology. *Journal of Technology and Teacher Education, 7*(3), 187-203.
[48] Ocak, M. A., & Akdemir, O. (2008). An Investigation of Primary School Science Teachers' Use of Computer Applications. *The Turkish Online Journal of Educational Technology*, 7(4), 6.
[49] Olson, J.M., & Maio, G.(2003). Attitudes in social behaviour. In T. Million & M. Cerneer(Eds.), *Handbook of Psychology: Personality and Social Psychology* (Vol.5, PP.229-325). New York: Wiley.

[50] Oskamp, S., & Schultz, P.W. (2005). Sociology, Attitudes and Opinions. New Jersey: Lawrence Erlbaum Associates.
[51] Ridgway, J., & Passey, D. (1991). A constructivist approach to educational computing. *Australian Educational Computing*, *6*(2), 4-9.
[52] Rohaan, E. J., Taconis, R., & Jochems, W. M. G. (2010). Reviewing the relations between teachers' knowledge and pupils' attitude in the field of primary technology education. *International Journal of Technology and Design Education*, 20, 15-26.
[53] Ropp, M. M. (1999). Exploring individual characteristics associated with learning to use computers in pre-service teacher preparation. *Journal of Research on Computing in Education, 31*(4), 402-425.
[54] Ross, J. A., Hogaboam-Gray, A., & Hannay, L. (1999). Predictors of teachers' confidence in their ability to implement computer-based instruction. *Journal of Educational Computing Research, 21*(1), 75-97.
[55] Saye, J. W. (1998). Technology in the classroom: The role of disposition in teacher gate keeping. *Journal of Curriculum and Supervision, 13*(3), 210-234.
[56] Sepehr, H., & Harris, D. (1995). Teachers' use of software for pupils with specific learning difficulties. *Journal of Computer Assisted Learning, 11*, 64–71.
[57] Teo, T. (2006). Attitudes toward computers: A study of post-secondary students in Singapore. *Interactive Learning Environments*, 14(1), 17-24.
[58] Teo, T., Lee, C. B., & Chai, C. S. (2008). Understanding pre-service teachers' computer attitudes: applying and extending the Technology Acceptance Model (TAM). *Journal of Computer Assisted Learning, 24(2)*, 128-143.
[59] Tsitouridou, M., & Vryzas, K. (2003). Early childhood teachers' attitudes towards computer and information technology: the case of Greece. *Information Technology in Childhood Education Annual, 1*, 187–207.
[60] Veen, W. (1993). The role of beliefs in the use of information technology: implications for teacher education, or teaching the right thing at the right time. *Journal of Information Technology for Teacher Education, 2*(2), 139–153.
[61] Warschauer, M. (2002). A developmental perspective on technology in language education. *TESOL Quarterly, 36* (3), 453-475.
[62] Watson, D. M. (1998). Blame the technocentric artifact! What research tells us about problems inhibiting teacher use of IT. In G. Marshall, & M. Ruohonen (Eds.), *Capacity building for IT in education in developing countries*, 185–192. London: Chapman & Hall.
[63] Woodrow, J. E. (1987). Educators' attitudes and predispositions towards computers. *Journal of Computers in Mathematics and Science Teaching, 6*(3), 27-37.
[64] Woodrow, J. E. (1992). The influence of programming training on the computer literacy and attitudes of pre-service teachers. *Journal of Research on Computing in Education, 25*(2), 200-218.
[65] Yildirim, S. (2000). Effects of an educational computing course on pre-service and inservice teachers: A discussion and analysis of attitudes and use. *Journal of Research on Computing in Education, 32(4)*, 479-495.
[66] Zammit, S. A. (1992). Factors facilitating or hindering the use of computers in schools. *Educational Research, 34*, 57-66.
[67] Zhao, Y., Tan, H. S. & Mishra, P. (2001). Teaching and learning: Whose computer is it? *Journal of Adolescent & Adult Literacy*, 44(4), 348-354.

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