CHAPTER - II

A REVIEW OF RELATED STUDIES

2.01. INTRODUCTION:

The importance of reviewing studies already made in ones’ field of investigation has beautifully been stated by Best (1977) in the following words:

“Practically all human knowledge can be found in books and libraries. Unlike other animals that must start anew with each generation, man builds upon the accumulated and recorded knowledge of the past. His constant adding to the vast store of knowledge makes possible progress in all areas of human endeavour... A familiarity with literature in any problem area helps the student to discover what is already known, what others have attempted to find out, what methods of attack have been promising or disappointing and what problems remain to be solved”.

Thus for any investigator, the study of literature related to his/her field of current investigation is essential. Such a review serves the following purposes (Good et al., 1941):
(i) To show whether the evidence already available solved the problem adequately without further investigation and thus avoids the risk of duplication.

(ii) To provide ideas, theories, explanations of hypotheses valuable in formulating the problem.

(iii) To suggest methods of research appropriate to the problem.

(iv) To locate comparative data useful in the interpretation of results and

(v) To contribute to the general scholarship of the investigator.

After having referred several journals, periodicals, books, abstracts, web-resources and so on, the investigator has obtained only a very few studies on techno pedagogical competency, anxiety towards the use of instructional aids in teaching and attitude towards using new technology, conducted in India and aboard. Hence the present investigation may be considered as a pioneering work in this area. The investigator, based on the review of related studies collected by him, prepared an abstract of his review that is being presented in the succeeding paragraphs.
2.02. STUDIES RELATED TO TECHNO-PEDAGOGICAL COMPETENCY:

Yuehua Zhang (2000) conducted a study on a project-based learning approach to helping pre-service teachers develop technology competencies at the University of North Carolina. In this study, the result indicated only hampers their competencies and perpetuates negative attitude about technology. Instead, technology competencies must be learned in both a practical and philosophical context, one that allows pre-service teachers to meaningfully apply the skills that they have learned in a classroom to a real curriculum.

Randa, Il W. McCoy, (2001) studied computer competencies for the 21st century information systems educator in Morehead State University in Kentucky. The study consists of three rounds of a Delphi instrument using electronic mail as the primary means of communication. Twenty-three experts nominated by the national association for business teacher education (NABTE) served on the Delphi panel. The findings from the study revealed that 95 statements about computer competencies that should be included in business teacher education curricula. These competencies were grouped into five categories: computer hardware, software, computer
programming, computer integration, and general computer knowledge.

Spector, J. Michael - de la Teja, Ileana, (2001) conducted a field study of competencies for online teaching in university Quebec in Canada. This study reveals that online teaching has focused on technical skills and requirements of successfully moderating and facilitating online discussions and chat sessions. This body of literature suggested that becoming an effective online moderator requires training and that there are competencies unique to online environments.

Chifang Lu and Larry, E. Miller, (2003) conducted a study on instructional technology competencies perceived as needed by vocational teachers in Ohio and Taiwan. They investigated that the relationship between teacher education degree held. Instructional technology training experience and educational needs had a negligible to low relationship. A negative coefficient means that the predicted value of the dependent variable (educational needs) decreased when the value of the independent variable (teachers’ education degree held) increases. Vocational teachers with higher degrees had lower educational needs; had more instructional technology training experience and had lower educational needs.
Instructional technology competencies need to be constantly practiced and updated as new technology emerges.

Linda Scaparra Hayes (2004) in their study of methods used to determine technology competence for Virginia teachers. The findings from their study show that 79% response rate indicated that workshops, college courses and portfolio assessment were the methods most used in Virginia public schools.

Muhammad Sukri Saud (2004) Studied Computer technology competencies perceived as needed by vocational and technical teachers in Malaysia. The population studied involved Malaysian full-time vocational and technical high school teachers (N = 284) employed by the ministry of education, Malaysia, during the 2003–2004 academic year. Two hundred and eighty-four teachers from nine vocational and technical schools were selected to participate in this study. Data were gathered via a mailed questionnaire and the questionnaire consisted two parts that measured the teachers' perceived importance and competence, and demographic information on the sample. The study showed that over 50% of the Malaysian vocational and technical teachers had not had formal computer technology training. Only 63% of the Malaysian vocational and technical teachers had a bachelor's degree or higher. The lowest computer technology educational needs of Malaysia
vocational and technical teachers were computer operating skills. Media communication and telecommunication were the top two areas of educational needs among the eight domains of computer technology. The educational needs increased when the computer technology skills were more complicated. Demographic characteristics such as age, gender, years of teaching, and having a computer at home had low to negligible relationships with computer technology educational needs. Teachers' degree held and computer technology educational experiences had negligible to low relationship with educational needs.

Georges Louis baron (2004) conducted a study on teachers’ competencies in ICT for education within a knowledge society. In Germany, a study carried out at the national level by the national ministry of education, and science shows that 96% of schools have stationary and mobile ICT equipment. In primary schools 48% of ICT-equipment is suitable for multimedia work, in grammar schools and vocational schools this figure is 65% of all schools use the World Wide Web. A study from the research institute for school development at the university of Dortmund shows that only 4% of all teachers have specialized competencies (network, maintenance of hard and software...), 30% of teaching staff to need support in questions of software and hardware problems, 50% of the staff has little
or no knowledge in ICT questions. Nearly all schools use ISTT courses in ICT. The study also shows that an average 62% of all teachers take part in such courses.

Lorraine Beaudin and Corey Hadden (2004) conducted a study on technology and pedagogy: building techno-pedagogical skills in preservice teachers in Washington. This study revealed the results that techno-pedagogically skilled teachers and exemplified how a hybrid approach of meta-teaching, technology exposure and critical reflection can be used to enhance instruction. In all of our endeavours to prepare technology-pedagogically skilled teachers, it is crucial that we incorporate an underpinning of technology and pedagogy to prepare our pre-service teachers to teach with technology and become learners on a never-ending journey.

Juanna Risah Saari et al., (2005) conducted a study on attitudes and perceived information technology competency among teachers in Malaysia. The results revealed that most teachers possessed positive attitudes towards IT. The findings also established that most teachers have moderate levels of IT competency. They as well believe that they still lack the appropriate IT skills to integrate the technology into the teaching and learning process. The results of MANOVA analysis indicated that there are significant differences between the
group of competent and incompetent teachers in terms of usefulness, confidence, anxiety and aversion to the use of IT.

Lisa Beth Birman (2005) conducted a study on user competence and influence on the adoption of new technologies: technophobia, exposure to technical jargon, and the support of social networks in San Diego state university. This study distributed both hardcopy and online surveys to a sample of over 250 community members. The results showed that as motivation, knowledge, skills, and network supportiveness increase, technophobia decreases, and as these processes occur, the likelihood of technology adoption increases. In addition, the study found that the effects of exposure to technical jargon on technophobia were moderated by gender and the particular aspects of competence and motivation being studied.

Clarisse O. Lima, and Scott W. Brown, (2005) in their study of teachers’ perception of their classroom technological resources and the perceived feasibility of implementation of their Connecticut teacher technology competencies: Level II proposals in USA. The findings of their lack of significant findings related to gender are perhaps reflective of a skewed sample with a disproportionately high number of females (n=88) compared to males (n=25), that generally reflects the gender distribution of teachers. This finding is supportive of
recent literature that indicates that the technology gender gap is disappearing (Dholakia et al., 2003). To evaluate if there is the relationship between gender and the perceived feasibility of implementation of Level II proposals, a less skewed sample is needed is needed in future studies. Furthermore, a more thorough examination of the types of technology uses and the way they were utilized would help to provide a more sound understanding of technology use by gender.

Punya misha Matthew j. Koehler, (2006) conducted a study of technological pedagogical content knowledge: A framework for teacher knowledge in Michigan State University. The study shows that conceptually based theoretical framework of the relationship between technology and teaching can transform the conceptualization and the practice of teacher education, teacher training, and teachers’ professional development. It can also have a significant impact upon the kinds of research questions that we explore. In the sections that follow, we will address these related issues in the following order: (1) We introduce the technological pedagogical content knowledge (TPCK) framework for thinking about teacher knowledge and how it informs the debate on what teachers need to know (and how they might develop it); (2) we show how our pedagogical approach to teachers’.
Nwachukwu Prince Ololube (2006) conducted a study on the impact of professional and nonprofessional teachers’ ICT competencies in secondary schools in Nigeria. The results of the findings point out that a variety of techniques are needed for teachers to effectively utilize ICT instructional materials in the teaching and learning processes. The findings also revealed that there are significant differences in the effectiveness between professionally trained teachers and untrained teachers in their ICT instructional material utilization competencies.

Jason L. Davis, (2007) studied Pre-service Teachers’ Self-perception of competency in computer knowledge and skills. A sample of 67 students in an undergraduate educational technology course offered for students in the teacher education program at TAMU in Burma-Commerce was surveyed to determine self-perceptions as to their competency in five constructs containing 43 elements related to personal computer knowledge and skills. In an analysis of all computer knowledge and skill elements combined, there was no statistically significant difference based on gender. Further analysis revealed that there were instances of statistically significant differences found based on students’ pre-requisite course preparation.

Ra Vannatta, S. Banister, (2008) investigated the impact of assessing technology competencies of incoming teacher
education students in bowling green state university at US. Student’s perceptions of the assessment of technology competencies (ATC) and its impact were elicited through a self-reported survey administered in a junior-level education course. The study found that the ATC has facilitated technology use among the participants. Respondents also revealed that their high school experience with technology adequately prepared them for passing the ATC, although most students are unable to pass the ATC in the first attempt.

Jeong-Bae Son et al., (2008) conducted a study on computer literacy and competency: A survey of Indonesian teachers of English as a foreign language. Participants in the study were a total of 73 in-service Indonesian teachers of EFL at schools and universities in Indonesia. The findings of the study provide a picture of the Indonesian teachers’ use of computers in their local contexts and recommend increasing the teachers’ online opportunities, skills and competencies in the use of computers for their teaching practices and professional development.

Guzman, A. and Nussbaumt, M. (2009) studied teaching competencies for technology integration in the classroom in Pontificia Universidad Catolica de Chile at Santiago. The findings from this study the presentation of six such domains that have been proposed in the existing literature:
instrumental/technological, pedagogical/curricular, didactic/methodological, evaluative/investigative, communicational/relational and personal/attitudinal. A set of teaching competencies for each domain is also identified. These domains and competencies together from the basis for creating a technology integration training model.

Asa Ryegard et al., (2010) conducted a study on a Swedish perspective on pedagogical competence at Uppsala University in Sweden. The findings from this study have been written by representatives from ten different institutions of higher education in Sweden and is intended to reflect both the diversity and the similarity of views that are found today among the Swedish institutions of higher learning regarding pedagogical competence. Our ambition has been to capture, spread and document the knowledge that exists concerning pedagogical competence. This study shows that stimulate discussion concerning what pedagogical competence is an in that way contributes further to improving the quality of higher education.

Joseph Blankson et al., (2010) conducted a study on teachers and technology: enhancing technology competencies for pre-service teachers in USA. The study shows that international society for technology in education (ISTE) has established the national education technology standards for
teachers (NETS-T) to help promote teacher technology competencies. The purpose of the study was to evaluate pre-service teachers’ self-assessed technology competency to determine whether pre-service teachers perceived that their technology class enabled them to meet ISTE’s required standards. This study revealed that explored the extent to which an educational technology course at a participating Midwest college helped to improve pre-service teachers’ technology skills as well as to prepare them to attain ISTE NETS-T.

Jesus M. Suarez Rodriguez et al., (2010) conducted a study on teachers’ competence on ICT and their relation through the use being made of these technologies, both professionals-personal and with their students. To it, a survey design has been used. The target population constitutes the teaching staff of canters of primary and secondary education of the comunidad Valencia. Information was collected through questionnaires. Starting from the technological and pedagogical competences in a TIC, we have been obtained teachers’ consistent profile with four increasing levels: without knowledge, entrance, adoption and innovation. Likewise, we have been a narrow relationship between this profile and the use that the teachers carry out, more closely connected with the personal-professional who with the use by the students.
Findings contribute keys to guide the professional development and initial teacher education programs.

Mary Hooker et al., (2011) in their study on ICT competency framework for teachers in Nigeria. The study shows that there is a significant opportunity to link the contextual of the ICT-competency standards for teachers in Nigeria to the national policy and standards setting agenda.

Almerich, Gonzalo et al., (2011) studied training needs of teachers in ICT competencies: training profiles and elements of complexity. The study questionnaire design has been used as a sample of 868 primary and secondary education teachers in the Valencia community (E. Spain) to collect information. The results showed that teachers demand higher-level training in the personal-professional area, and that they require more training with students in classrooms and to integrate ICT into classrooms.

Isil Kabakci Yurdakul (2011) conducted a study on examining techno pedagogical knowledge competencies of pre-service teachers based on ICT usage. The participants of the study consist 3105 preservice teachers from seven higher education institution in turkey. This study reveals that pre-service teachers for the study had high level techno pedagogical knowledge competency. Furthermore, a significant difference between pre-service teachers’ Techno pedagogical
knowledge competencies and general ICT usage level were found. Also, it was determined that there is a significant difference between pre-service teachers’ techno pedagogical knowledge competencies and the usage level of each ICT category.

Mudasiru O. Yusuf, Modupe R. Balogun, (2011) conducted a study on student-teachers’ competence and attitude towards information and communication technology: A case study in a Nigerian University. Participants were 382 students-teachers (181 males and 201 females) from the faculty of education, University of Ilorin, Nigeria. The findings from the study reveal that the majority of the student-teachers have a positive attitude toward the use of ICT, and they are competent in the use of few basic ICT tools. Overall, no significant difference was established between male and female student-teachers’ attitudes and use of ICT.

Finger, G. et al., (2012) conducted a study on teaching teachers in the future (TTF) project technological pedagogical content knowledge (TPACK). The TTF Project, funded by an Australian government ICT Innovation Fund grant, involved all 39 Australians higher education institutions which provide initial teacher education. TTF data collections were undertaken at the end of Semester 1 (T1) and at the end of Semester 2 (T2) in 2011. A total of 12881 participants completed the first survey
(T1), and 5809 participants completed the second survey (T2). Groups of like-named items from the T1 survey were subject to a battery of complementary data analysis techniques. The results showed that there was a measurable growth in the confidence of initial teacher education students to use ICT as a teacher, and that there was a measurable growth in their confidence to facilitate student use of ICT as future teachers. In combination with higher levels of initial teacher education students’ perceptions about the usefulness of ICT for them as a teacher, and their perceptions about the usefulness of ICT for their future students, the findings suggest that initial teacher education students are now more likely to demonstrate TPACK as future teachers.

Sathiya Raj, K. and Singaravelu, S. (2013) in their study on techno-pedagogical competency of higher secondary school teachers. The normative survey method has been used in the present investigation. The random sampling technique has been used in the selection of the sample of as many as 300 teachers working in higher secondary schools situated in Cuddalore district, Tamilnadu, India. The findings of the study show that the majority of the higher secondary school teachers was having an average level of perceived techno-pedagogical competency. Also, it is found that there is no significant difference between the (i) male and female teachers, (ii) urban
and rural school teachers, (iii) government and private school teachers and (iv) married and unmarried teachers in respect of their perceived techno-pedagogical competency.

2.03. STUDIES RELATED TO ANXIETY TOWARDS THE USE OF INSTRUCTIONAL AIDS IN TEACHING:

Glenn Russell and Graham Bradley (1997) conducted a study on teachers’ computer anxiety: implications for professional development in government schools in Queensland, Australia. Changes in society’s expectations mean that school teachers need to be able to use computers in education with minimal anxiety. Some 350 primary and secondary school teachers completed a questionnaire that identified sources of computer anxiety and provided teachers with the opportunity to suggest solutions. The teachers were very supportive of the use of computers in education, but reported moderately low levels of computer competence. A number of suggestions for the reduction of computer anxiety are made, based on teachers’ first-hand accounts, and an analysis of trends in the quantitative data. The implications of these suggestions for teachers’ professional development are explored.

John Todman (2000) conducted a study on gender differences in computer anxiety among Dundee University entrants of Scotland, UK since 1992 and found that the overall
reduction in computer anxiety concealed a widening gap between mean computer anxiety scores of female and male students.

Mcilroy et al., (2001) studied the relation of gender and background experience to self-reported computing anxiety and cognitions of undergraduate students in UK and found that female undergraduate students have greater computer anxiety than the male undergraduate students.

John King et al., (2002) investigated computer anxiety by gender and grade in Australia and found that there was a small but measurable difference between male students and female students with the male students having a higher anxiety level. The data indicate that female students are measurably more computer anxious at the grade 7 level, that there is no measurable gender difference at the grade 9 level and that male students are measurably more anxious at the grade 11 level.

Kian-Sam Hong and Chee-Kiat Koh (2002) in their study on computer anxiety and attitudes towards computer among rural secondary school teachers in Malaysia investigated the relationship between anxiety and attitudes towards computers and differences in anxiety levels and attitudes based on demographic characteristics. The study revealed the results that
rural school teachers had low computer anxiety levels and positive attitudes toward computers. There was a negative linear relationship between computer anxiety and attitudes towards computers. Female teachers were found to be more anxious than male teachers towards computers.

Lilly Epsy Bai and Gnanadevan, R. (2002) conducted a study on, teachers’ anxiety towards computer in Chidambaram town of Cuddalore district of Tamilnadu, India. The findings of their study show that the gender, the age and the locality of the school do not influence teachers’ anxiety towards computer. Further the educational qualification does not influence their anxiety towards computer. The study also shows that 53.40% of teachers have a low level of anxiety towards computer.

Aysen Gurcan Namlu (2003) studied the effect of learning strategy on computer anxiety in Turkey and the findings demonstrated that after the treatment on learning strategies there was a significant decrease in the computer anxiety level of students attending a computer programming course in the experimental group. However, there was no significant decrease in the anxiety level of the students in the control group.

Andrea Machado de Almeida Mattos (2003) conducted a study on virtual classrooms in Brazil: teachers’ difficulties and anxieties towards technology in language learning. The
research design was based on theoretical and empirical studies both in the areas of computer-assisted language learning and teacher development. Furthermore, results indicated that the teachers’ anxieties in relation to the virtual environment of language learning. Data was gathered through interviews of the teachers, leading to a qualitative analysis of the findings.

Chien Chou (2003) studied Internet anxiety experience by Taiwan high school and vocational high school teachers. This survey was conducted in 136 teachers in Taiwan. The results showed that female teachers had significantly higher internet anxiety than did male teachers, and teachers' majors or subject areas appeared to contribute significantly to the level of Internet anxiety as well. Also showed that both computers-use hours per week and the Internet-use hours per week were significantly negative factors when correlated with anxiety over Internet users, hardware construction, and management of students' the Internet-use.

Selvaganapathy, S. (2004) conducted a study on computer users' anxiety of higher secondary physics students in the Chidambaram town of Cuddalore district of Tamilnadu, India. The findings of the study reveal that the majority of the students have computer users’ anxiety and also it is evident that gender of the students caused significant differences in respect of their computer users’ anxiety, but the locale and
management of the schools have not caused any significant difference in respect of their computer users anxiety.

Nikos Bozionelos (2004) studied the socio-economic background and computer use of the university students in UK and found that socio-economic background had a direct positive relationship with computer experience and an indirect negative relationship with computer anxiety.

Kian-Sam Hong (2005) in their study of computer self-efficacy, computer anxiety and attitudes towards the internet in Malaysia found that the undergraduates had moderate computer anxiousness and based on gender there was no significant differences in computer anxiety levels.

John Todman and Kenneth Day (2006) studied computer anxiety; the role of psychological gender for first year undergraduate students of Scotland, UK and found that both sex and psychological gender may be independently related to computer anxiety. Also the sex may be related to computer anxiety merely because of its relation to psychological gender.

Kimberly, M. et al., (2006) conducted a study on the effect of visual complexity when playing a slot-machine simulation: the role of computer experience, computer anxiety and optimism in USA. The findings revealed that computer experience was inversely related to computer related anxiety.
Shih, M. L and Tsai, C. C. (2006) studied anxiety of technology integration: its influence on school personnel. This study through interview and observations in a public elementary school in Taiwan. The findings of the study are discussed from three perspectives: school administrators, experienced teachers, and novice teachers create a better understanding of how technology integration influence people differently in today's school environment.

Vaiyapuriraja, P. (2007) conducted a study of computer knowledge of higher secondary school teachers as related to their attitude towards computer, computer anxiety and computer phobia. Cluster sampling technique was used in the selection of the sample of as many as 670 teachers working in higher secondary schools. This sample was taken from 45 higher secondary schools out of the 137 higher secondary schools situated in the Cuddalore district of Tamilnadu, India. The finding of the study shows that there is no significant difference between the male and the female teachers in respect of their computer anxiety. There is a significant difference in computer anxiety among the teachers working in urban and rural schools.

Erkan Tekinarslan (2007) conducted a study on computer anxiety: a cross cultural comparative study of Dutch and
Turkish university students regarding computer anxiety. The results indicated that the Turkish students have significantly higher computer anxiety levels than the Dutch students. The students’ computer anxiety levels do not differ depending on gender. It is also revealed that the Turkish female students have significantly higher computer anxiety levels than the Dutch female and Dutch male students. Moreover, results indicated that while the students, ‘computer experience increased their computer anxiety levels decrease significantly’.

Norris et al., (2007) conducted a study on mood change and computer anxiety of the undergraduate students of Ireland, UK. The results revealed that computer anxiety was only related to stating anxiety. Lack of equivalence, therefore, appears to be a function of psychological stress, characterised by affective modulation rather than computer anxiety.

Ye Sun and Laura Pyzdrowski (2009) conducted a study on using technology as a tool to reduce mathematics anxiety. The finding from this study analysis uses a meta-analytic approach based upon a review on the literature. Various definitions of mathematics anxiety are explored and factors often associated with the phenomena are reviewed. Known causes and specific uses of technology that may effectively reduce mathematics anxiety are presented. Selected software
and Web sites are reviewed for their positive influence on reducing mathematics anxiety.

Hala Alshawa and Sadiq Alhayek (2009) conducted The Effect of Teaching Method via Computer on Students’ Anxiety. The sample consisted of 40 students (21 females and 19 males) from the faculty of physical education at the University of Jordan. The results showed that the data analysis of the anxiety scale indicated that teaching method via computer reduced student’s level of computer anxiety from pre-tests to post-test; they scored significantly lower in the post test. The results also indicated that there were no significant differences between male and female students on computer anxiety tests.

Nihat Ekizoglu (2010) conducted on perceived self-efficacy predicts each other were held by using 590 candidate teachers. In the research, computer anxiety scale (Alpha= 0.84) computer perceived self efficacy scale (Alpha=0.97) Internet anxiety scale (Alpha =0.90) and internet perceived safe efficacy scale (Alpha = 0.939) were used. This study reveals that there is a positive and high level relationship between computer perceived self-efficacy and internet perceived self-efficacy, and thus analyzing the other variables, it is clear that the correlation between the variables is calculated as (r= 0.845) It has been concluded that computer anxiety, together with internet anxiety and computer perceived
self-efficacy anxiety variables explain approximately 0.72 % of internet perceived self-efficacy variance.

Matilda Miller (2010) studied an investigation of perceived anxiety toward new software technologies among teachers in a Mississippi rural city school district. This study population consisted of 110 teachers with a minimum of a bachelor’s degree and certified to teach in their respective areas of specialization. Findings from descriptive statistics revealed that the majority of the participants were female teachers with 43% of participants possessing either a Master’s or Ph.D. degree. A large portion of these teachers had one year or more experience with learning about or working with computers with access into a computer at home. The findings from the study revealed that when teachers have a moderate degree of confidence, liking, and usefulness when using new and emerging software technology, there is a low degree of anxiety. Pearson correlations were used to examine the relationships between the sub scales (anxiety, confidence, liking, and usefulness) and demographic variables (gender, age, years of teaching, subject area taught, and educational attainment). Results confirmed that there were significant relationships between age and anxiety, gender and confidence, gender and
liking, and years of teaching and anxiety. However, there were no significant relationships between the other variables.

Alaba Olaoluwasokotansibe Agbatogun (2010) conducted a study on self-concept, computer anxiety, gender and attitude towards interactive computer technologies: A predictive study among Nigerian teachers. Participants in this study were 454 (males 298 = 65.63%; females 156 = 34.36 %) secondary school teachers from Ogun East senatorial district of Ogun State. Three instruments were used to collect the data analysed with Pearson product moment correlation, multiple regression and analysis of variance. The findings revealed that the combination of the three independent variables significantly predicted the independent variable. Gender did not make any significant contribution to the prediction of the dependent variable.

Bolliger, Doris, U. (2012) Eighty-four students in an online health education doctoral program taking the first course in the program over one year (four quarters) were surveyed with regard to their computer, the Internet, and online course anxiety, and overall course satisfaction. The findings from this study reveal that, a significant negative correlation between anxiety and student satisfaction. Student’s anxiety levels were in the relatively moderate range; changes in anxiety levels over
time were not significant. Participants who felt anxious when using computers or the Internet, or when taking online courses experienced anxiety with other domains.

Cem Cuhadar (2012) conducted a study on the relationship between problematic Internet use and social interaction anxiety among pre-service teachers. Participants were 1235 students attending teacher training programs at a Turkish state university. Findings revealed that male students’ use of the Internet was more problematic compared to female students’. As the time spent on the Internet increased, so did the problematic Internet use levels. In this study, the results indicated that a significant relationship was found between the level of problematic Internet use and social interaction anxiety, and social interaction anxiety was found to be among the predictors of problematic Internet use. Implications and suggestions for further research are provided.

Sathiyaraj, K. and Singaravelu, S. (2013) conducted a study on anxiety towards the use of instructional aids in teaching of higher secondary school teachers. The normative survey method has been used in the present investigation. Random sampling technique has been used in the selection of the sample of as many as 300 teachers working in higher secondary schools situated in Cuddalore district, Tamilnadu,
India. The findings of the study show that majority of the higher secondary school teachers were having an average level of anxiety towards the use of instructional aids in teaching. Also, it is found that there is no significant difference between the (i) male and female teachers, (ii) urban and rural school teachers and (iii) married and unmarried teachers in respect of their anxiety towards the use of instructional aids in teaching. It is also found that there is a significant difference between the government and private school teachers in respect of their anxiety towards the use of instructional aids in teaching.

2.04. STUDIES RELATED TO ATTITUDE TOWARDS USING NEW TECHNOLOGY:

Ying-Chen, L. et al., (2000) conducted a study of computer technology training to prospective teachers’ computer attitudes and perceived self-efficacy in US. This study examined prospective teachers’ changes in perceived anxiety/discomfort with and usefulness of computer technology, frequency of using word processing, e-mail, spreadsheets, database management, statistical packages and CD-Rom databases, and perceived self-efficacy with the six selected computer technologies over three years of study. The results of the study revealed technology had a significant influence on the future of education. In some cases, computer technology has manifested its potential in
helping teachers facilitate students’ problem-solving skills, scientific inquiry, understanding of abstract mathematical concepts, communication skills, and workplace competencies. Current learning theories. Such as constructivism. Emphasize using computer technology as a tool to access and organize information, and to construct personal knowledge.

Kumaran, D. and Selvaraj, K. (2001) conducted a study on cognitive and affective computer attitude of teachers of chennai, India. The findings of the study reveal that, teachers have more favourable computer attitude and sex of teachers have significant differences in affective computer attitude but no significant difference in cognitive computer attitude and the total computer attitude.

Rajasekar, S. (2002) conducted a study on cognitive and affective attitude of teachers towards computer in Chidambaram town of Cuddalore district of Tamilnadu, India. The study shows that a large number of teachers (83.4%) have a favourable total attitude towards computer. Gender, the type of the school where the teachers are working and the subjects taught by them evince no significant difference in respect of their total attitude towards computer. But the designation of the teachers and the locality of the teachers evince significant difference in respect of their total attitude towards computer.
Erkan Ismail Arkin (2003) studied teachers’ attitudes towards computer technology use in vocabulary instruction. The data were collected through questionnaires distributed to 97 teachers in an English-medium university. Based on the results from the questionnaires, a stratified sample of 12 teachers was selected for follow-up interviews. The questionnaire results revealed statistically significant differences between teachers who have undergone computer technology training and those who have not in terms of their attitudes toward computers and the use of computer technology resources in language teaching. Follow-up interviews were used to determine whether positive attitudes or interests led people to undergo training or the reverse.

Tsitouridou et al., (2003) performed a study on early childhood teacher’s attitude towards computer and information technology the case of Greece. The purpose of this research was to investigate the attitudes of early-childhood teachers towards computers and information technology. The study examined whether or not attitudes are differentiated by a series of factors, such as; years of previous service, the use of a computer at home, in-service training and experience of teachers with computers as well as their views about the introduction of computer into early childhood education. The results show that early-childhood educations have limited
access and positive but temperate attitudes to the world of computers. Teachers’ attitudes appear to be influenced significantly by computer use at home, experience with computers and in-service training.

Abdulkafi Albirini (2004) investigated the relationship between computer attitudes and five independent variables: computer attributes, cultural perceptions, computer competence, computer access, and personal characteristics (including computer training background). Based on the new technology initiative in Syrian education, this study explored the attitudes of high school English as a foreign language (EFL) teachers in Syria toward ICT. The findings suggest that teachers have positive attitudes toward ICT in education. Teachers’ attitudes were predicted by computer attributes, cultural perceptions and computer competence. The results point to the importance of teachers’ vision of technology itself, their experiences with it, and the cultural conditions that surround its introduction into schools in shaping their attitudes toward technology and its subsequent diffusion in their educational practice.

Vaiyapuriraja, P. (2004) in his study on teachers’ attitude towards computer in Cuddalore educational district of Tamilnadu, India found that 87.5% of the teachers have
favourable attitude towards computer. Also there is no significant difference in teachers’ attitude towards computer in respect of their gender, locality and designation. For the gender and locality of the teachers combined, the male and the female teachers from urban area show no significant difference in respect of their attitude towards computer. But the male and the female teachers from rural area differ significantly in respect of their attitude towards computer. For the gender and the designation of the teachers combined, the male and the female secondary grade, graduate and postgraduate teachers do not differ significantly in respect of their attitude towards computer.

Ahmed Ali and Abdulaziz Eifessi (2004) conducted a study on examining students’ performance and attitudes towards the use of information technology in a virtual and conventional setting in University of Wisconsin-La Crosse this study examined student performance and attitudes towards the use of information technology in virtual and conventional settings. Students were pre-service undergraduate and graduate students enrolled in an educational media and technology course. All were full time, on campus students, but one group completed the course entirely online. A web-based survey was administered. The two groups completed pre and post-tests of student performance and a Likert-type attitude
assessment. The findings revealed that there were no significant performance and attitude difference between the two groups.

Sugar, W. et al., (2004) conducted a study on examining teachers’ decisions to adopt new technology. This study examined teachers’ belief about technology adoption as a reasoned, deliberate, intentional decision making process, as reflected in Ajzen’s (1985) theory of planned behaviour. Qualitative and quantitative data were collected from teachers in four schools located in the southeastern region of the United States. Overall results indicated that technology adoption decision were influenced by teacher’s individual attitudes towards technology adoption, which were formed from specific underlying personal beliefs regarding the consequences of adoption. External support from key persons and contextual resources were insignificant factors affecting teachers’ technology adoption decisions.

Rajasekar, S. (2005) in his study on university students’ attitude towards computer, conducted in Chidambaram town of Cuddalore district of Tamilnadu, India, showed that the gender, the subjects (arts and science) and the locale of the University students do not influence their attitude towards computer. Also this study has shown that a large number of (78.9%) university
students have a relatively favourable attitude towards computer.

Barbara Denson (2005) conducted a study on teacher attitudes toward technology. The primary purpose of this study was to investigate which demographic factors and personal perspectives facilitate integration and which barriers prevent middle school teachers in rural schools in southern middle Tennessee from integrating technology. The Pearson correlations were used to describe relationships between teacher’s years of experience and teacher’s perceived levels of technology integration. Independent samples t-Tests were used to test for statistically significant difference in (1) the level of technology integration between teachers who have high technology skill levels and those who have low skill levels (2) the level of technology integration between teachers with positive beliefs about technology and those teachers who do not (3) the level of technology integration based on the teacher’s gender and (4) the level of technology integration based on teachers’ ethnicity. The results indicate that there was no relationship between teachers’ years of experience in the classroom and teachers’ perceived levels of technology integration in the classroom. The level of technology integration of teachers who had high technology skill levels affects levels of integration. Teachers’ beliefs about technology did not affect
the level of integration of technology into the curriculum. Gender, age and ethnicity did not affect the level of integration. There was a relationship between teacher’s skill levels and their level of integration, in that the higher the skill level was, the more the teacher integrated technology.

Lingchen-Tzy, Jung Chen-Tzu (2006) a study on an examination of attitudes towards teaching online courses based on the theory of reasoned action of university faculty in Taiwan. This study examined attitudes of university faculty specializing in the field of the human resources (HR) in Taiwan towards participation in the teaching of online courses using the theory of reasoned action (TRA). The population targeted for investigation consisted of the full time university faculty in the HR field in Taiwan regardless of their experience of the teaching online courses of any kind. This study revealed that faculty of this study possessed positive attitudes towards the participation in online teaching, and further analyses supported the use of TRA in this research context.

Deniz, L. (2007) studied prospective class teachers’ computer experiences and computer attitudes. The research also investigated the differences between computer attitudes and computer experiences, computer competencies and the influence of genders. Ninety prospective class teachers from
Primary education department of Marmara University at turkey. Computer attitude scale Marmara (CAS-M), and a questionnaire, about their computer experiences, and opinions toward the use of computers in the classroom setting, were administrated. The major findings are as follows: (1) 62% of prospective class teachers have a computer at home; (2) 50% of the computer owners have computers less than three years; (3) No significant differences were found between computer attitudes and gender; (4) Differences were found between general computer attitudes and computer liking attitudes of prospective class teachers based on their computer competencies in favor of more competent ones.

Derar Serhan (2007) did a study on school principals’ attitudes towards the use of technology: United Arab Emirates technology workshop. The purpose of this study was to measure the effectiveness of an educational technology training workshop. The study investigated the attitudes of the participating school principals toward the use of technology in their schools and their willingness to advocate and support its use after attending the workshop. Moreover, it investigated the advantages and challenges using computers in schools. The results of this study revealed that principals had positive attitudes towards the use of technology in teaching, and they are willing to support the use of technology in their schools.
The principals indicated that they had learned from the workshop and that the workshop had motivated them to use new technologies in their schools.

Wong, S. L. and Hanafi, A. (2007) conducted a study on gender differences in attitudes towards information technology among Malaysian students’ teachers. A case study at university Putra Malaysia. This article presents a quantitative study on gender differences in attitudes toward the use of information technology (IT) related tools and applications. The study was conducted in university Putra Malaysia, Malaysia with 73 female and 29 male student teachers involved as participants. They were each presented with a questionnaire to relate their attitudes toward IT before and after undergoing a discrete IT course for the duration of one semester (14 weeks). Attitudes among the respondents were measured in terms of three dimensions namely, usefulness, confidence and aversion. There were no significant differences between female and male students teaching when the pre-and post-test mean scores were compared. Both genders exhibited the same levels of attitudes before and after undergoing the comprehensive IT course. This suggests that the exposure to IT did not contribute to any significant gender disparity. The paired sample t-test results showed improved attitude toward its usage in both females and males after the exposure to IT. The biggest
improvement for both females and males was in the aversion dimension which showed that their initial strong dislike toward IT was greatly reduced at the end of the course. In terms of confidence, female participants exhibited an enhanced confidence level after the course contrary to the male participants. The results support the view that computer experience is gender-based as the increase in IT confidence over time assumed different patterns for females and males.

Timothy Teo (2008) conducted a study on pre-service teachers’ attitudes towards computer use: A Singapore survey. A sample of 139 pre-service teachers was assessed for their computer attitudes using a Likert type questionnaire with four factors: affect (liking), perceived usefulness, perceived control, and behavioural intention to use the computer. The results of this study showed no gender or age differences among pre-service teachers on computer attitudes. However, there were significant differences in computer attitudes by the subject areas that pre-service teachers had been trained during their university education: Humanities, Sciences, Languages and General (Primary). Correlation analyses revealed significant associations between years of computer use and level of confidence, and computer attitudes. Implications for teacher training and suggestions for further research are provided.
Behçet Oral (2008) conducted a study on the evaluation of the student teachers' attitudes toward internet and democracy of the student teachers' attitudes towards democracy. How student teachers' attitudes toward democracy are in terms of their purpose of using internet and benefits provided by the internet. The research is carried in ziyagokalp education faculty at Dide University, Turkey during 2005-2006 academic years by the participation 440 student teachers, in total. They indicate that positive significant correlation was determined between subscales (Using internet in teaching, "Using the internet in research, "liking to use internet in teaching", "using internet in communication" and "using internet in sharing information") of attitude scale towards using the internet and sub scales (inclination to democracy, "devotion to democracy", and "qualities of democracy") of attitude scale towards democracy. However a negative significant correlation is found between the attitudes of student teachers toward" using internet in teaching, using the internet in research, liking to use internet in teaching " and "negative for democracy".

Raju, G. and Bala, R. (2010) studied teachers’ attitude towards the use of new technology in teaching and their interest in teaching. The present study consists of 300 samples from 10 schools from the Ariyalur district in Tamilnadu, India.
The sum forms a representative sample of the total population. Due proportionate weight age was given to gender, age, type of school, experience and level of teaching. The findings of the present study revealed that the teachers have a neutral attitude towards the use of new technology and low interest in teaching.

Vaiyapuriraja, P. and Singaravelu, S. (2011) conducted a study on attitude of the higher secondary school teachers towards using new technology. The normative survey method has been used in the present investigation. The random sampling technique has been used in the selection of the sample of as many as 201 teachers working in higher secondary schools situated in Kumbakonam taluk of Thanjavur district, Tamilnadu, India. The findings of the study show that the majority of the higher secondary teachers were having a favourable attitude towards using new technology. Also, there is no significant difference in attitude towards using new technology between the male and female higher secondary school teachers. There is no significant difference in attitude towards using new technology between the higher secondary school teachers working in the schools located in urban areas and rural areas. There is a significant difference in attitude in attitude towards using new technology between the high secondary school teachers handling the arts subject and science subjects.
Oye, N. D. (2012) conducted computer self-efficacy, anxiety and attitudes towards the use of technology among university academicians: A case study of university of Port Harcourt-Nigeria. The university of Port Harcourt Nigeria was the use as a case study, and 100 questionnaires were administered and collected. The technology usage by the academic staff shows that 74% are willing to use ICT once or more a day. 51% of the respondents said that the use of ICT is voluntary. Three null hypotheses were stated. The findings show that the Unipart academic staff had medium computer anxiousness; they have moderate computer self-efficacy and high attitudes towards use of technology.

Sonal chabra (2012) conducted a study on attitude of teachers towards using new technology in Punjab, India. The findings from the study reveal that, the attitude of teachers irrespective of their gender and the type of schools was a neutral one towards the integration of technology into their teaching. The teachers of today are still not comfortable with the interference of technology in their traditional domain of teacher centered classroom.

Rajasekar, S. and Saravana, S. (2012) conducted a study on techno pedagogical knowledge of teachers working in B.Ed., colleges as related to their attitude towards using technology in teaching. A random sampling technique was used
in the selection of as many as 300 B.Ed., college teachers in Salem district of Tamilnadu, India. The findings of the present study revealed that the teachers have high techno pedagogical knowledge and neutral attitude towards using technology in teaching.

2.05. CONCLUSION:

Though there were very few studies conducted earlier in the area of present investigation, the review of available studies enabled the present investigator to plan his course of research and in the formulation of suitable hypotheses for his study. The description of the tools, the sample and the statistical techniques used in this study are given in Chapter III.