**AN INVESTIGATION INTO THE FUNCTIONING OF INFORMATION TECHNOLOGY LABORATORIES IN TEACHER**

**EDUCATION COLLEGES**

**VINEESH.A.K**

***Dissertation***

***Submitted to the University of Calicut***

 ***in partial fulfilment of the requirements***

 ***for the Degree of***

**MASTER OF EDUCATION**

**FAROOK TRAINING COLLEGE**

**UNIVERSITY OF CALICUT**

**2009**

**Acknowledgement**

The investigator is deeply indebted to his supervising teacher Dr. Jesa.M., Selection Grade Lecturer, Farook Training College, for her constant encouragement, generous help and valuable suggestions combined with expert criticism.

 The investigator would like to express his profound gratitude to Prof. A. Faziluddin, Principal, Farook Training College, for his whole hearted co-operation in extending facilities and encouragement to conduct this study.

 The investigator expresses his thanks to the faculties, the librarian and the supporting staff of the college for their co-operation extended to complete the present study.

 The investigator is obliged to Principals and Teachers of various Teacher Education Colleges in Kozhikode, Malappuram and Wayanad district who extended their support to collect the data related to this study.

 The investigator acknowledges with utmost pleasure his friends and family members who have whole heartedly co-operated with the study.

Farook Training College, **VINEESH.A.K.**

 31-12-2009

**DECLARATION**

I, **VINEESH.A.K.,** do hereby declare that this dissertation **“AN INVESTIGATION INTO THE FUNCTIONING OF INFORMATION TECHNOLOGY LABORATORIES IN TEACHER EDUCATION COLLEGES”** has not been submitted by me for the award of a Degree, Diploma, Title or Recognition before.

Farook Training College **VINEESH.A.K**

31-12-2009

**CERTIFICATE**

 I, **Dr. JESA.M.,** do hereby certify that this dissertation **“AN INVESTIGATION INTO THE FUNCTIONING OF INFORMATION TECHNOLOGY LABORATORIES IN TEACHER EDUCATION COLLEGES”** is a record of bonafide study and research carried out by VINEESH.A.K., under my supervision and guidance. The report has not been submitted by him for the award of a Degree, Diploma, Title or Recognition before.

Farook Training College Dr. JESA.M

31-12-2009 Selection Grade Lecturer

 Farook Training College

**CONTENTS**

|  |
| --- |
| **LIST OF TABLES****LIST OF FIGURES****LIST OF APPENDICES** |
| **Chapter**  |  | **Page****No.** |
| **I** | **INTRODUCTION** | **1-11** |
| **II** | **REVIEW OF RELATED LITERATURE** | **12-24** |
| **III** | **METHODOLOGY** | **25-32** |
| **IV** | **ANALYSIS** | **33-50** |
| **V** | **SUMMARY CONCLUSIONS AND SUGGESTIONS** | **51-59** |
| **BIBLIOGRAPHY****APPENDICES** | **60-63** |

Chapter One

INTRODUCTION

* **Introduction**
* **Need and significance of the study**
* **Statement of the problem**
* **Objectives of the study**
* ***Methodology in brief***
* ***Scope and limitations of the study***
* ***Organization of the report***

Chapter Two

REVIEW OF RELATED LITERATURE

* **Related Literature**
* **Related Studies**

Chapter Three

METHODOLOGY

* **Objective of the study**
* **Design of the study**
* **Selection of sample**
* **Tools used for the collection of data**
* ***Data Collection procedure***

Chapter Four

ANALYSIS AND INTERPRETATIONS

* **Analysis of data based on check list on IT laboratories in teacher education colleges**
* **Analysis of the data based on interview schedule on functioning of IT lab facilities in teacher education colleges**

Chapter Five

SUMMARY,

FINDINGS AND SUGGESTIONS

* **Study in retrospect**
* **Objective of the study**
* **Methodology of the study**
* **Findings of the study**
* **Educational implication of the study**
* **Suggestions for further Research**

BIBLIOGRAPHY

APPENDICES

**INTRODUCTION**

 *‘Every student in Our University should graduate to know how to use the latest technologies for adding their learning process. Universities should equip themselves with the tools like computer-hardware, software, Working laboratory equipment and internet facilities and provide an environment for the students to enhance their learning ability through digital library’(Dr. A.P.J. Abdulkalam).*

 The modern world is equipped with Various technological devices. The Change in every field has been unprecedented. The technological development has helped common man transfer messages to every nook and corner of the world. Earlier, people couldnot event dream of such things. Today the facilities like e-mail, mobile phone and internet have facilitated lightning speed in communication. Technology has been applied in every field of human life. Education, which is an agency of social change, makes use of the technological advantages. The use of scientific knowledge meet the needs of daily life or practical from of scientific knowledge is called technology. In other Words technology maximizes the out put of education with minimum input. Educational technology is a system of education in which machines, materials, media, men and methods are interrelated and work together for the fulfilment of specific educational objectives. It modifies and analyses the various steps of teaching and learning with the help of modern theories of Psychology, of Skineer, Burner, and Gagne. Sociological theories, Engineering, theories of Physical science also the come under the preview of educational technology. Sociological theories explain the role of learner in society. Engineering theories of physical science help technologising teaching - learning process very much. Technology plays a vital role not only in the teaching learning process but also in the entire School environment.

 ‘Educational technology is the application of Scientific knowledge about learning and Conditions of learning to improve the efficiency of teaching and learning’(G.O.M. Leith, 1967). Educational technology addresses both the issues of technology in education and technology of education. Education, as a discipline has undergone many changes. At first there was a shift of education from home to that of an institutions. Thereafter, about 6000 years ago writing was invented. First written book was published in 3000BC which was considered as the third revolution.

**Innovation in Eduational Technology**

 Introduction of computer Assisted instruction (CAI) is the recently devised method of education that has revolutionized the system and has boosted the quality of education throughout the World. Computer assisted learning has facilitated individualized, interactive and diagnostic learning and enhanced learning at all levels of education. In CAI, there is a trend towards student autonomy and Control in the Information and Communication Technology uses the hardware and software for effective management of information, that is storing, retrieval, processing, communication, diffusion, and sharing of information for social, economic and cultural uplift.

**ICT and Higher Education**

 ICT improves different aspects of higher education. Teaching Process is complex in higher education. So proper utilization of ICT can reduce this complexity and it can make the teaching process more effective. With the help of ICT both the teachers and the learners can share any information, so sharing of information is another aspect in higher education. ICT opens the outer world to the learner where they can have access to information on anything and everything. ICT opened the outer world, various researches can be conducted to explore new areas of knowledge. Proper use of ICT will improve the research and development in the field of education. The information from all fields will enrich the knowledge of human being. This can be utilized for human resources development. Another area of higher education is the Distance Education. ICT has wider application in this field. Learners can collect materials and clear doubts with teachers at any time. The transferring of materials become very easy with the help of ICT. ICT improves the total quality of higher education by providing information from all areas of knowledge. ICT helps in bridging gap between the haves and havenots.

**ICT and Teaching**

 ICT is closely related to teaching process. Teaching is the process by which there is sharing of information, knowledge. Technology gives access to different sources of correct and comprehensive information and broadens the information base. ICT Provides variety in the presentation of content and also provides flexibility to learners for quality learning. ICT will bring desirable changes in the four components of educational system: in put, process, out put and feed back. ICT helps in analysing feedback and it could enable us to positively change the entire teaching learning process. Thus it is be agreed upon by all, that technology is a boon for the master minds born from the classroom.

**ICT Education in India**

 India is one of the largest teacher training systems in the World. At present in our country about 40,000 teacher educators engage in teaching training at the pre school, elementary, Secondary and higher secondary schooling. Govt. of India implemented the IT Action Plan 1998. It recommended large scale introduction of computers in schools. The followup programme of the ministry of Human Resources Development, CLASS 2000, has three components: Computer literacy in 10,000 Schools, computer managed learning in 1,000 schools and computer based teaching in 100 smart schools.

**ICT Education in Kerala**

 The Government of Kerala has taken a policy decision to introduce computer education in all secondary and higher secondary schools. Government of Kerala started IT@ school programme implemented by Department of General Education, during the academic year 2002-2003 and it aimed at introducing IT in Secondary School Curriculum in the state-both Government and Private Schools. Presently in the school curriculum, there are no separate appointment of IT trained teachers to handle IT. There has been so many instances of limitations. Other subject teachers are engaging technology session. So Teacher Education Colleges should focus on IT learning, to improve the efficiency of teacher training programme and over come the limitation in the application of technology.

Many programmes have been launched in India in order to equip the teaching community meet the challenges of modernized system of education. The learner who is no more a recipient of knowledge is no more in need of a teacher who used to be a transmitter of knowledge. The system of education, by realizing this truth, started to change mainly through the integration of ICT in the teaching – learning process. A review of the programmes undertaken by different significant agencies and authorities in this field will reflect the impact and scope of technology on the process of education.

 NCERT, along with its multi-faceled developmental programmes for teachers and teacher educatiors, attempted to prepare the teachers to handle subjects with the support of IT labs. CD-ROMs were used to educate the teachers for multi - media class rooms. University and college level teachers could benefit from the programme. A very significant training programme for teacher education was successfully implemented by World Links India through Intel corporation and Schoolnet India. School teachers and teacher educators at the secondary level from Kerala also were among the beneficiarie

In the World Education Report 1998, UNESCO put forward certain suggestions for upgrading the learning and teaching process. The major suggestion evolved in the report were:

* Providing to access to internet and online database
* Digital technology and internet in class rooms
* Self-paced learning through computers
* e-mail, chat session etc.
* Developing high quality digital content
* Developing adequate knowledge and skill among trainees using the digital tools.

**NEED AND SIGNIFICANCE OF THE STUDY**

Ministry of Human Resource Development, Govt. of India, arranged a Round Table Discussion on Capacity Building of Schools and Teachers in 2008. Global schools and communities Initiatives (GeSCI) policy was formulated by the ministry in partnership with the centre for Science Development and Media studies.

In the globalised era teaching requires more attention and Vigilance because a teacher should impart education by recognizing all abilities of the learners. Howard Gardner’s theory of multiple intelligences considered the overall personal development of the learner. Critical Padagogy addresses social issues. Classroom is the miniature form of society. Critical pedagogy provides real life experience in the classroom. Text books have certain limitations to provide such real life experience in the classroom. Education Technology helps tide over this problem. In order to provide life experience in the classroom, as part of critical pedagogy, we could provide such experience with the help of ICT. In teaching learning process in Science and Arts subjects, ICT is widely used to provide life situation resorting electronic devices such as CD’S. In Arts Subject, film shows are most effective to expose social issues to the students in the Classroom. ICT can be applied to boost this overall personal development and it will help us accomplish the goal of education. This again re-inforces relevance of ICT in the educational scenario.

 It is true that a teacher cannot be replaced by technology. It is also true that a teacher who does not makes use of it will be replaced by a teacher who make use of technology. So a big and important question will arise. How will ICT help teacher trainees. The Government of Kerala has launched IT @ school programme in secondary schools. The effectiveness of the programme depends on the IT instructors. For improving the efficiency of instructors qualified teachers are to be needed. For conducting an effective study the investigator should have an awareness about the need for ICT in B.Ed Curriculum, Period allowed for ICT instruction, the aids using ICT instruction, limitation of ICT syllabus. Therefore the investigator included above mentioned items in the interview schedule.

 ICT learning should not be confined to theory only. More over it should be focused on application of ICT. It highlights the need for IT Lab which bridges the gap between theory and practice. Hence the facilities of IT Lab be improved as time goes on. University of Calicut has incorporated ICT in the Re-structured B.Ed Curriculum 2005. This attempt aimed at building a bright future by equipping the prospective teachers for the future classroom.

“Despite advances in computer and information technology the potentials of participants of education remains untapped” (NCF 2005). Hence an investigation into the functioning of the IT laboratories in Teacher Education Colleges.

**STATEMENT OF THE PROBLEM**

 The present study is entitled “AN INVESTIGATION INTO THE FUNCTIONING OF IT LABORATORIES IN TEACHER EDUCATION COLLEGES”

**OBJECTIVES OF THE STUDY**

1. To find out the facilities in IT laboratories in teacher education colleges.
2. To find out the extent of utilization of IT laboratories in teacher education colleges.

**METHODOLOGY IN BRIEF**

 Methodology deals precisely with the sources of data, tool employed for the study and method adopted for the study.

**Sample**

 The study was conduct on 34 teachers who handle ICT in teacher education colleges in Kozhikode, Malappuram and Wayanad Districts.

**Tools used for the collection of data**

 The following tools were used to collect the data.

* Check list on IT Lab facilities in teacher education colleges was prepared by the investigator in order to understand the existing condition of IT Labs in teacher education colleges.
* Interview schedule on IT lab facilities in teacher education colleges was constructed by the investigator with the help of supervising teacher so as to understand the function of IT Labs and utilization of IT Labs in teacher education colleges.

**Statistical Technique used**

 Simple percentage analysis was carried out for the analysis of data collected through interview schedule and check list.

**SCOPE AND LIMITATION OF THE STUDY**

 The present study aimed to find out the IT lab facilities and to investigate into the functioning of the labs in teacher education colleges. The various dimensions, that contribute to effectiveness of the lab, namely infrastructure facilities, resourcefulness of the teacher, extent of application of theory through practical sessions etc are to be investigated in order to make the study meaningful. The study, it is hoped be helpful to educational planners and teacher educators for developing better IT oriented teacher education programme. The study couldn’t realize the expected outcomes due to certain limitation. The investigator could not cover sufficient number of teacher education colleges. The study was confined only to 34 teacher education colleges in Kozhikode, Malappuram and Wayand districts in Kerala. Therefore the study cannot be generalized to all the teacher education colleges recognized by Calicut University. In the aforesaid districts the investigator could interview only a limited number of teacher educators colleges.

**ORGANISATION OF THE RESEARCH REPORT**

 The research report has been organized in to five chapter.

**Chapter-I** of the report contains a brief introduction to ICT education, definitions, need and significance of the study, statement of the problem and objective of the study, Methodology in brief and brief discussion of the scope and limitation of the study.

**Chapter-II** describes related literature, studies related to the functioning of IT Laboratory carries in teacher education colleges.

**Chapter-III** the methodology of the study, the method adopted, tools used to Collect data and statistical techniques used for analysis.

Details of statistical analysis of data, major findings and interpretation, are given in **Chapter-IV.**

**Chapter-V** presents the summary of the study, major findings, conclusions arrived at, educational implications of the study, followed by suggestions for further research in the area.

**REVIEW OF RELATED LITERATURE**

Review of related literature of the study is an important aspect of any investigation. It is necessary for a researcher to make survey of related studies before planning and carrying out the study. A proper study of the related literature would enable the investigator to locate and delve deep into the problem. Review of related literature involves the idea, what is already known and what is still unknown and untested. It helps the researcher to eliminate the duplication of what has been done and provides useful hypothesis and helpful suggestion for significant investigation. In order to get an insight into the theoretical background of the subject of the study, related literature was thoroughly reviewed.

The present study is related to an investigation into the function of IT Laboratories in teacher education colleges. The study comprises of the availability of IT lab facilities and extent of utilization of IT lab in teacher education colleges. The present study called for suggestions from those who handled ICT in Teacher Education Colleges so as to suggest measures to improve the quality of teacher training programme with the help of ICT.

The Investigator conducted a thorough search of related literature on the functioning IT labs in teacher education colleges. It was found that very few studies had been done in this area. Taking this factor into account, the investigator decided to under take the study. The investigator could find out a few relevant research articles and reports of research studies in the area.

**RELATED LITERATURE**

Joshi (2008) published an article on integrating ICT in M.Ed program: an experience. The author describes his experience of integrating technology in the M.Ed program at Bharanger University based on 'Tech to Future' program sponsored by a software company. A total of 46 students were enrolled in his program. It contained 12 modules, which included course content, evaluation scheme and scheduling. The overall effect was that the company has cultivated positive approach towards use of computers in their teaching also opined that all have gained a lot in the area of computer education, and they became reflective practitioners which helped them to improve.

Page and Thorestieinssion (2007) Published a research paper on the topic technology enhanced teaching in Designing and Technology education. This research investigated the role of new media and ICT for design and technology education. It provided a unique insight and recommendation for, how new approaches of analyzing and understanding new media and ICT’s enriched the every day Pedogocical Practice in Design and Technology education. It identified five learning scenarios which employ recent advance learning. They were: student controlled learning, use of wiki technology, dynamic information and design technology.

Kukreti and Sexena (2004) published an article on information technology in teacher training program, need and significance. Investigator explained that single largest factor affecting the use of IT was the unavailability of trained persons and reluctance among the teacher using it. Some of the suggestions given to promote ICT in education were: Integrate ICT in all teacher training programs, organize in-service orientation programs an d refresher courses, vacation and organize collaborative programs between teacher training institutions and technical institution.

MC Farlance (2001) described in an article about perspective on relationships between ICT and assessment. And considered the use of information and communicative technologies (ICT) in schools as a set of skills or competencies, as a vehicle for teaching and learning, and as an agent of change. It discusses the impact of ICT on assessment and concluded that the impact value attributed to learning outcomes determines the role of ICT in schools.

Ravichandran and Sasikala (2001) described an article computer based advanced technologies in education: development, challenges and opportunities about the need and changes occurring due to the development in computer based technology in our education system. The introduction of interactive video, online discussion has improved student creative thinking, analytical skills, collaborative approach and integrative approaches. One of the main challenges faced today are supply of quality course wares. In future, education will be dramatically enhanced by multimedia, computer simulation etc. A global education system will emerge which give opportunity to students and faculties to join together.

Sharma (2001) presented an article on the IT teachers and information technology. This described the various use of IT by teachers and the issues related to the use of IT. It explained different strategies in IT to improve quality in teaching. They were electronic text, audio-video conferencing, interactive television, pear learning, and self learning for effective teaching. Teachers should develop the ability and skills and should alter their teaching strategies. This article emphasises that both teacher and students required professional knowledge skills in the use of IT.

Steve (2001) published an article on information and communication technologies and the teaching role of teachers, which examined the changing role of the teacher in the use of ICT and explored several key issues, including effectives of ICT on teaching and learning. The changing role of the teachers in the constructive learning environment, and new skills teacher may be expected to acquire for the fruitful use of the new technologies.

Wessel (2000) described in an article about technology in classroom and implication for teacher education. This paper explored some of the implications on teacher education of the increased use of ICT in delivering curricula. The paper argued that, ICT was going to become an integral part of instruction in elementary and secondary schools, changing need to be made in pre-in service programs for students and practicing teachers. The initial section described the assumptions used to limit the scope of the paper. The next section was a discussion of teacher education and personal development for practising teachers, including some ideas about distance education. The final section was a proposal for a research facility.

Kadhiravan, S. & Balasubramanian, N (1998) Wrote an article that importance of education to prepare students to be competitive in technology based study. Computer was a medium which centered at the heart of the communication revolution. It was used in education as objective as well as means of instruction. Computer as a tool of learning developed the skills and knowledge that help the younger generation find good jobs in the world.

**Related studies**

Panda (2009) conducted a study on investigation of ICT for professional development of elementary teachers. He revealed that teachers at elementary level had a positive attitude towards integration of ICT as it helped professional developments of teachers but there was a need to pay more attention to encourage the use of ICT in classroom for professional development of elementary teachers and for achieving the set goal of SSA.

Levin and Wadmany (2008) analysed teachers view on factors affecting integration of Information Technology in the classroom: Developmental scenery. This article reported a exploratory, longitudinal study, which, examined six teachers' view on the factors that affect technology use in classroom. The research examined teachers of grade 4, 5 and 6 for three years, studying the teachers both as group and as individual case studies. Three case studies were selected for analysis, with the aim of exploring the relation between the changes that occurred in the teachers educational view and practice as a result of their exposure to teaching and learning process with the aid of rich technology and their view on factors affecting technology integration. The finding pilot to two development patterns in teachers view on the factors affecting technology use in class room. The first is concerned with the “source of influence” on technology adaptation and focuses mainly on the human factors the second is concerned with the “native of the influence” when using technology in the classroom, ranging from technical to cognitive transformation. The three case studies revealed three different profiles of change and demonstrated the complex relations between teachers orientation concerning the condition affecting technology use, and the changes that occur in teacher’s view and practice.

SreeRekha (2008) conducted a study on teachers attitude towards the use of ICT in English language teaching and revealed that the majority of secondary schools English language teachers had positive attitude towards the use of ICT. in English language teaching and impact of technology was universal it's influence was for reaching. Gender, age, race, culture can hardly remain as obstructing agent.

Fl Antony Gracious and P. Anaraja (2007). Conducted a study on computer based learning Chemistry in XI Standard and found that Virtual Reality Modifying Language (VRML) based learning package was effective in teaching chemistry XI Std: students. VRML based learning developed with the help of HITML, JAVA, Script and power point representation were alterative and also motivated the students to understand concepts of law, theories, formula used in Chemistry.

Joshi (2007) conducted a study on educational technological awareness among teacher educators, sample consisted of 52 randomly selected teacher educators doing M.Ed in different universities in Gujarat. E.T awareness scale were adopted which contains 3 components material, methodology and devices and 5 point scale were given varying from 0-4.Pecentage were 68.18, 68.18, 59.09 respectively which showed teachers were moderately aware of educational technology as a subject. It should be accepted as a part of regular classroom activity in all teacher education programme.

L.I. Minnang and Kahpholseng (2007) conducted a study on simulator building as a problem based learning (BPL) approach for teaching students in computer architecture Course in university of Nottingham Malasya and found out the student learning process could be depended and accelerated by creating effective and BPL activities.

Nazhath (2006) examined the utilization of information technology by teacher educators in colleges affiliated to University of Calicut, study was confinded on 200 teacher educators drawn from different training institutions using questionnaires on utilisation of ICT. By using percentage analysis it was revealed that utilization of computer and internet was high in male teachers and high usage of computers were seen in rural area teachers, in the case of utilization of audiovisual aids majority teachers used OHP, Blackboard, Charts for effective teaching-learning process. Male teacher educators used LCD than female teacher educators. Some of the difficulties faced were lack of infrastructure, lack of time, lack of networks, and lack of expertise.

Punamki (2007) conducted a study on use of Information and communication Technology (ICT) and perceived Health in Adolescents. The first aim for this paper was to examine gender and age difference in the intensity of usage of information and communication technology (ICT: computer for digital playing, writing and e-mailing and communication, and Internet surfing, and mobile phone). Second was to check whether there is any association between ICT usage and perceived symptoms health status. The result showed that boys played digital games and used Internet more than girls, whose mobile phone usage was more intensive, intensive computer usage form a risk for boys, and intensive mobile phone usage for girls created health problem also.

Baheerathan and Kumaravel (2004) conducted a study on the topic internet awareness among the teachers of Mathematics at high school level with the objective, to study the level of internet awareness among the teachers of Mathematics and to find if there is any significant difference between male and female teachers, under - graduate and post Graduate teachers, urban and rural teachers. The investigator selected 117 teachers using simple random technique from Thanjavor district and used internet awareness questionnaire which contained 25 objective type questions developed by the investigator, adopted t-test for statistical analysis. The findings reveal that awareness was not sufficient due to poor access to connected computers and lack of training. Study showed no significant difference between male and female teachers, under graduate and post graduate teachers, urban and rural teachers. They recommended that ICT should be made compulsory component for all teacher training programmes.

Dey, et.al (2005) conducted a study on internet knowledge of teacher trainee and found that there is no gender difference in knowledge about the internet among the sample, but there is significant difference between rural and urban sub samples in fevour of urban group. A sample of 130 students studying in teacher training institutions of Ghaziabad, UP was selected. An internet knowledge inquiry questionnaire were developed which contained 20 items of yes/no type question test were used.

Anbazhagam (2002) described the attitude towards information technology among teachers and students of Bharatidasan University through a study. It was found that interest in learning computer and the practice of using computers in day to day work had lead to from positive attitude towards IT.

Gopish (2002) conducted a study on the extent of utilization of computer and internet facilities by P.G students of CUSAT and Calicut University. Percentage analysis and test of significance of percentage done on the levels of utility of computer and internet showed that P.G students in CUSAT and Calicut University are highly exposed to computer and internet facilities and they have much better facilities for the same.

Joy and Shaiju (2005) conducted a study on developing a computer assisted teaching material in history at higher secondary level and its effectiveness with the objective to test the effectiveness of CAI and lecture method, also to verify the impact of gender, type of school on the effectiveness of teaching method. A sample of 162 students of 11th standard from 3 higher secondary schools of Trivandrum district were randomly selected. Tools for the study included the development of CAI achievement test in history. A comparison of post test scores showed computer assisted teaching group came superior over lecture method taught group without any gender difference, performance of urban students was better than rural students, also students of private school performed below than that of Government school, the investigator reasoned that it may be due to sample selected which consisted of more private schools in rural area.

Volman (2005) conducted a study on New Techniques, New differences. Gender and Ethnic difference in pupils' use of ICT in primary and secondary education. This study investigates the accessibility and attractiveness of different types of ICT application in education for girls and boys and for pupils from families with an ethnic minority background and from the majority population in the Netherlands. A study was conducted in seven schools. Data were collected on participation, ICT skills and learning results, ICT attitudes and learning approach of pupils. A total 213 pupils completed questionnaire and interviews were held with 48 pupils and 12 teachers. Gender difference especially in primary education, appeared to be small. In secondary education, the computer attitude of girls seems to be less positive than that of boys, girls and boys take on different tasks when working together on computer and they take ICT take differently. Pupils from an ethnic minority background in both primary and secondary education appear to consider themselves to be less skilled ICT users than pupils from the majority population. They found ethnic difference in participation in ICT activates at school in both educational sectors. Pupils from an ethnic minority background use the computer at school less for gathering information and preparing talks and papers and more for drill and practice. Difference between pupils from an ethnic minority background and from the majority population to certain from of ICT use are confirmed at school instead of being compensated for. The paper concludes with some recommendations on a diversity oriented ICT policy at schools level.

Raja Sheker and Sentil Kumar (2004) conducted a study on Internet knowledge among higher secondary school students and found that girls have higher internet knowledge than boys, rural students score higher than urban students and no significant difference between Govt. and private schools. Internet knowledge test was constructed having 29 multiple choice theoretical aspect of internet, fundamental concepts of web, and basis of e-mail. A sample of 400 higher secondary school students in Chemistry were selected from Chidambaram town and neighboring schools using cluster sampling technique, test of significance was the statistical technique used.

Kadhivaran (2004) conducted a study on IT awareness among student teachers of colleges of education in Tamil Nadu and found that IT awareness was inadequate for effective teaching-leaning Process.

Azeez (2002) conducted a study on teacher’s awareness on educational informatics, higher secondary school teachers were selected as sample. The finding revealed that 61% of the whole sample were aware of revolutionary effect of informatics in the management of impact of ICT in education.

Elfrich (2000) conducted a study to determine the attitude and motivation towards ICT and the main barriers to integrate information and learning technology (ILT) into the college curriculum. The result Suggested that the staff had positive attitude and high motivation in using ICT in teaching.

Kaswekar, P. Aratee.(1996) attempted to study the effectiveness of multimedia package to develop population awareness in the trainees of primary teachers training institution and found that multimedia package was more effective in changing the attitude of teacher trainees towards population education as compared to lecture method.

Mahajan, Sanjay.L (1994) conducted a study on effectiveness of computer-assisted instruction for teaching singular and plural at II Grade and found that CAI was effective for teaching singular and plural as compared to traditional method.

The review of related literature and related studies attempted so far, gives a perspective of the work done in the specific area under study. Most of the studies revealed that ICT was effective in the teaching learning process. Some studies showed that ICT helped the teacher educators to improve their teaching. A few studies were focused on the utilization of ICT in teaching learning process. Apart form these few studies, no attempt has been made to investigate into the IT Lab facilities in teacher education colleges in Kerala. Hence the investigator found it relevant to conduct an investigatory study in the functioning of IT Laboratories in teacher education colleges.

**METHODOLOGY**

Research refers to the activity of collecting information in an orderly and systematic fashion. Methodology finds a major place in any type of research work. Research Methodology consists of procedure and technique for conducting a research study. It discusses largely suitability of methods, tools and technique used for collecting data. It helps the investigator to carry out the work in a scientific and valid manner. All researches are using proper methods and tools, systematic procedure and suitable techniques. The method to be adopted depends upon the nature of the study, the purpose of the study and type of the data required. The present study is an attempt to find out the functioning of IT Laboratories in teacher education colleges. The methodology followed in the study is described under following heads.

**OBJECTIVES OF THE STUDY**

1. To find out the facilities in IT laboratories in teacher education colleges.
2. To find out the extent of utilization of IT laboratories in teacher education colleges.

**DESIGN OF THE STUDY**

For the present study the investigator formed a survey as the most suitable Method because survey method can analyse political, social and economical conditions. Survey Method was the suitable means through which the investigator could understand the existing conditions of IT labs in teacher education colleges.

**SELECTION OF SAMPLE**

 The population of the present study are teachers in teacher education colleges in Kozhikode, Malappuram,and Wayanad districts. The sample for the study constituted 34 teachers who handle ICT, in teacher education colleges Stratified random sample technique was used to collect data from 34 teacher education colleges of which 7 were university teacher education colleges 25 self financing colleges and 2 Government/Aided colleges and selected 34 teachers who handle ICT in teacher education colleges. The next major decision to be taken regarding sampling was the factors to be represented in the sample selection. The investigator decided to give representation to the following factors in the same sample selected.

**Type of Management**

1. Calicut University Teacher Education Centers
2. Self Financing Colleges of Teacher Education
3. Government/Aided Colleges of Teacher Education (List of the institutions is given as Appendix No.iii)

**TOOLS USED FOR THE COLLECTION OF DATA**

 For the present study the investigator prepared following tools to collect the data on IT lab facilities in teacher Education College.

1. Interview schedule on IT lab facilities in teacher education colleges (Appendix I )
2. Check list on IT lab facilities in teacher education colleges refer (Appendix ii)

**Check List on IT lab Facilities**

 Check list is a device consisting of prepared list of items, which are thought by the researcher to be relevant problem. Check list is an important tool for the present study because the investigator checked the different items in connected to IT Lab facilities. If the item was present total number of that items also was noted. The investigator used check list to ascertain the validity of the information gathered through the interview. All the information gathered through the interview may not be always true. In addition to this checklist helps the investigator to have a broad understanding about the facilities in the ICT, such as number of periods allotted, number of systems used, soft wares and so on. The investigator referred to various books on ICT, IT journals, report of various Education Commissions and the publication of NCERT, SCERT, C-DIT for getting clear idea regarding IT Laboratories and their requirement. In addition, the investigator also consulted the concerned expert for preparing the tool keeping in mind the characteristics of a checklist, the investigator prepared a checklist regarding the various components of IT Lab facilities, which are required to collect information on teacher education colleges. The checklist consisted of general facilities that is number of systems, boot using software, and number of period allowed for ICT. The integral part of IT Lab consists of the facilities like adequate number of systems, software such as MS office, Word, Excel, Power point, Edusat internet facility like instruments presents. In IT Labs such as printer, scanner, LCP projector. Hence the investigator included these facilities in the checklist. Total number of items included in check list are 10. The statement in the checklist were analysed and the data related to various facilities available in the B.Ed colleges were noted.

**The Interview Schedule**

 The interview schedule is an important data gathering tool, the interview gives the information face to face. Preparation for the interview schedule is a major step in the procedure. Interviewers must have a clear idea of what information they need. They must clearly outline the best sequence of questions and stimulating comments, so as to bring out the desired responses. A structured form of questions are provided in order to get important and relevant responses. These responses should be noted.

 The interview in a sense an oral questionnaire. In the present study the tool used was open-ended interview schedule. The tool was used for gathering information from the teachers. In open-ended interview in which the subject is encouraged to answer in his own words at some length is likely to provide depth of response.

 The investigator used interview schedule to find the function of IT Laboratories by collecting information from the teachers who handled ICT at the teacher education colleges. This interview facilitated to know the conditions of IT Labs in teacher education colleges.

 The teachers handled ICT in teacher education colleges could suggest valuable measures to improve the ICT education in the teacher education colleges. Hence investigator used the interview schedule as the most appropriate tool for conducting an effective study. “An investigation into the functioning of IT Laboratories in teacher education colleges”.The investigator should have awareness about the need for ICT. In B.Ed curriculum, period allotted for ICT instruction the aids using for ICT instruction, drawbacks of present ICT syllabus, suggestion for better ICT syllabus. Therefore the investigator included the above mentioned item in the interview schedule.

 There were altogether 12 items in the schedule. The first item was intended to obtain information regarding the need for incorporating ICT in Secondary School Teacher Training Programme. The Second question was focused on the relevance of the existing curricular content in ICT. The investigator interacted with teachers who handle ICT in teacher education colleges. The investigator prepared interview schedule only after consulting with experts in the ICT education. The investigator received the valuable suggestions from these experts and modified the interview schedule.

 After preparing the tool the investigator visited five teacher education colleges and constructed a pilot study. This facilitated the investigator to eliminate irrelevant questions and to ascertain whether the responses aired by the interview are correct and appropriate. This has helped the investigator to modify the tool and to make the tool better one. Course content is adequate for making an awareness among the prospective teachers about IT based teaching the third question was focused on the relevance of ICT in B.Ed level. During the under graduate level students were not getting proper awareness on ICT. Hence this question was focused on the need of incorporating ICT in the B.Ed syllabus. The facilities like internet, Edusat etc. are the integral part of any IT lab. The fourth question was aimed at the facilities available in the IT labs teacher education colleges. A proper time period is necessary for ICT instruction. Hence the fifth question was focused on the total number of periods and the duration of each period allotted for ICT. The sixth question was indented to collect information regarding various programmes like Word, Excel, Power point given to the teacher trainees. The seventh question was about the utilization of library and internet for ICT learning by both teacher educators and teachers. Apart from the various programmes given to the teacher trainees, the use of various instruments are necessary in the classroom. Hence eight question was regarding the proper use of IT based in equipments like OHP, LCD projector etc… in the criticism and demonstration classes. The second part of the sample question was focused on whether teacher trainees have got opportunities to use these instruments. The ninth question was intended to know the number of teacher trainee who have done computer courses like PGDCA etc. This question was seeks if ICT instructor make use of these teacher trainees for ICT instruction. The tenth question was relating to the nature of ICT instruction. The nature of ICT instruction means how the theory and practical classes are being conducted with the help of IT Lab. The eleventh question was aimed at the evaluation procedure of ICT. Teachers evaluated. That can be explained through this question. The twelfth question was intended to collect information regarding the defects of present ICT syllabus. The second part of the same question was focused on the modification essential for solving the defects of ICT syllabus at theory level. The third part focused on the essential modification that should be brought to practical level the syllabus.

**DATA COLLECTION PROCEDURE**

 Investigator prepared a list of B.Ed colleges in Kozhikode, Malappuram and Waynad district to be visited. After finalizing the sample and tools the investigator visited the selected B.Ed colleges. The investigator met teachers who handled ICT at teacher education colleges and had discussion with them and their co-operation during the study was assured.

 The investigator explained the aim and scope of the study of the subject and appealed to their participation and co-operation. During the study investigator filled up the check list by directly observing the facilities in the IT labs in teacher education colleges, the interview schedule was administered to the teachers who handle ICT in teacher education colleges.

**ANALYSIS AND INTERPRETATIONS**

 ‘The analysis and interpretation of the data involve the objective material in the possession of the researcher and his subjective reation and derive from data, the inherent meaning in their relation to the problem’. The data may be adequate, valid and reliable to any extent but it does not serve any worthwhile purpose unless it is carefully edited, systematically classified and tabulated, scientifically analysed, intelligently interpreted and rationally concluded.

 The present chapter deals with statistical analysis of the collected data and the discussion of result based on it. The data collected have been analysed statistically with reference to the objectives set for the study.

1. To find out the facilities in IT laboratories in teacher education

 colleges.

1. To find out the extent of utilization of IT Laboratory in teacher education colleges.

**ANALYSIS OF DATA BASED ON CHECK LIST ON IT LABORATORIES IN TEACHER EDUCATION COLLEGES**

Detailed analysis of the data collected through the checklist on facilities available in IT lab is presented

1. **Details of instruments Present**

Details of instrument present in IT laboratories is given below

**TABLE 1**

**Details of instruments**

 **Present in IT Laboratories in teacher**

**education colleges based on type of management**

|  |  |
| --- | --- |
| Type of teacher education colleges | Instruments presents |
| Modem | % | Printer | % | Scanner | % | LCPprojector | % | UPS | % |
| University Centre | 6 | 42 | 7 | 100 | 3 | 42.85 | 4 | 57.14 | 7 | 100 |
| Self financing | 23 | 92 | 23 | 92 | 15 | 60 | 23 | 92 | 25 | 100 |
| Govt./Aided | 2 | 100 | 2 | 100 | 2 | 100 | 2 | 100 | 2 | 100 |

Table. I reveals that in the Government/Aided colleges of teacher education, 100% of the colleges have modem where as in the self financing colleges of teacher education, 92% of the colleges have modem. But in the university Teacher Education Centres only 42% of the Colleges have Modem this facility.

 In the Government /Aided Colleges of Teacher Education and in he University Teacher Education Centres, 100% of the Colleges have the facility of printer. But in the self financing Colleges of Teacher Education, 92% of the colleges have printer.

 In the Government /Aided Colleges of Teacher Education, 100% of the colleges have scanner. Where as in the self financing colleges of Teacher Education, 60% of the colleges have Scanner. But in the university Teacher Education Centres only 42.85% of colleges have scanner.

 Regarding LCD Projector, In the Government and Government/Aided Colleges of Teacher Education100% of the colleges have this facility. Where as in the self financing colleges of Teacher Education, 92% of colleges have LCD projector. The lowest number of LCD Projector available among the teacher education colleges is in the university teacher education Centres having only 57.14%.

 As UPS is inevitable in IT labs.100% of the university Teacher Education Centres, Self financing Colleges of Teacher Education and Government /Aided Colleges of Teacher Education have UPS in their labs.

 This reveals that the number of printer, scanner and LCD projector in the IT labs maintained above are insufficient for smooth functioning of IT Labs in the teacher education colleges more printer, scanner and LCD projector may be used.

**Figure I**

**Data can be graphically represented**

**Details of instruments Present in IT Laboratories in teacher education colleges based on type of management**

University Centre

Self financing

Govt./Aided

**b) Details of lab facilities available.**

Details of lab facility available in teacher education colleges given below

**TABLE 2**

**Details of lab facilities**

**available in teacher education**

**colleges on the base of type of management**

|  |  |
| --- | --- |
| Type of teacher education colleges | Lab facility available |
| Internet present | % | Type of NET connection | Edusat | % | Web- site | % |
| Broadband | % | Dial -up | % |
| University Centre | 6 | 42 | 5 | 71.43 | 1 | 14.3 | 1 | 14.3 | 3 | 42.85 |
| Self financing teacher education college | 23 | 92 | 20 | 80 | 3 | 42.85 | 11 | 44 | 17 | 68 |
| Govt./Aided teacher education colleges | 2 | 100 | 2 | 100 | 0 | 0 | 1 | 50 | 2 | 100 |

 Table 2 reveals that In the Government /Aided Colleges of Teacher Education, 100% of the colleges have got internet facility in their IT Labs. Whereas in the self financing colleges of Teacher Education, 92% of the Colleges have got internet facility. But in the University Teacher Education Centres only 42% of the colleges have got internet facility.

In the Government /Aided Colleges of Teacher Education , 100% of the colleges have Broad band connection. Where as in the self financing colleges of Teacher Education, 80% of the colleges have Broad band connection. But in the university Teacher education Centres only 71.43% of the Colleges have Broad band connection. In the self financing colleges of Teacher Education, 42.85% of the colleges have Dial-Up internet connection. But in the university Teacher Education Centres, Only 14.3% of the colleges have Dul-up internet connection.

Edusat is inevitable in IT Labs, In the Government and Government/Aided Colleges of Teacher Education, 50% of the colleges have Edusat whereas in the self financing colleges of teacher education, 44% of the colleges have Edusat facility. The Lowest number of Edusat facility available among the Teacher Education colleges is in the University Teacher Education Centres having only 14.3%.

Regarding website facility, in the Government and Government/Aided Colleges of Teacher Education 100% of the colleges have web site in their labs whereas in the self financing colleges of Teacher Education,68% of the colleges possessed own web site, But in the university teacher education Centres, Only 42.85% of the colleges have website in their IT labs.

This reveals that Internet facility, Edusat Facility in the IT labs mentioned above are insufficient and better ICT Education Internet facility are to be boosted up.

**Figure II**

**Data can be graphically represented**

**Details of lab facilities available in teacher education colleges on the base of type of management**

**Details of software available**

University Centre

Self financing

Govt./Aided

Details of software available in teacher education colleges

**TABLE 3**

**Details of software available**

**in teacher education colleges on the bases of type of management**

|  |  |
| --- | --- |
| **Type of teacher education colleges** | **Soft ware available** |
| **Word** | **%** | **Excel** | **%** | **Power point** | **%** | **Linux** | **%** |
| University Centre | 7 | 100 | 7 | 100 | 7 | 100 | 1 | 14.3 |
| Self financing teacher education college | 25 | 100 | 25 | 100 | 25 | 100 | 3 | 42.85 |
| Govt./Aided teacher education colleges | 2 | 100 | 2 | 100 | 2 | 100 | 1 | 50 |

Table 3 reveals that 100% of the university Teacher education Centres, 100% of the self financing colleges of teacher Education and 100% of the Government Aided Colleges of teacher Education have software Word, Excel, and Power point in their IT labs.

In the Government /Aided Colleges of Teacher Education, 50% of the colleges have software Linux in their IT Labs. Where as in the self financing colleges of Teacher Education, 42.85% of the colleges have software Linux in their IT labs. But in the university Teacher Education Centres, only 14.3% of the Centres have soft ware Linux in the IT labs. This reveals that for smooth function of IT Labs, in teacher education Colleges aforesaid University Teacher Education Centres, Self financing colleges of Teacher Education and Government /Aided Colleges of Teacher Education the existing facilities are inadequate. Hence software like HTML, Linux etc may be provided.

**Figure III**

**Data can be graphically represented**

 Details of software available in teacher education colleges on the bases of type of management

University Centre

Self financing

Govt./Aided

1. **Details of period allowed/week**

Details of period allowed/week is given below

**TABLE 4**

**Details of period allowed/week in teacher**

 **education colleges on the bases of type of management**

|  |  |
| --- | --- |
| **Type of teacher education colleges** | **Number of period allowed/week** |
| 1 | % | 2 | % | 3 | % | 4 | % | 5 | % | 6 | % |
| University centre | 0 | 0 | 1 | 14.28 | 2 | 28.57 | 1 | 14.28 | 2 | 28.57 | 1 | 14.28 |
| Self financing teacher education colleges | 0 | 0 | 3 | 12 | 9 | 36 | 10 | 40 | 2 | 8 | 1 | 4 |
| Government/Aided | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 50 | 1 | 50 | 0 | 0 |

Table 4 reveals that 7 University Teacher Education Centres Provide periods for ICT as shown . One Centre provides 2 periods, 2 Centres provide 3 period, one centre provides 4 periods, 2 centre provide 5 periods, one centre provides 1 period. This means that 1 centre provides 14.28%, 2 Centres provide 28.57% 1 Centre provides 14.28%, 2 Centre provided 28.57% and one centre provides 14.28% of ICT Periods per week.

Table 4 reveals that 25 Self Financing Colleges of Teacher Education provided periods for ICT as shown hereunder 3 colleges provide 2 periods, 9 colleges provides 3 periods, 10 colleges provide 4 periods, 2 colleges provided 5 period and 1 one colleges provides 6 periods. This means that 3 colleges provide 12% periods, 9 college provide 36% periods, 10 colleges provide 40% 2 colleges provide 8% and college provides 4% for ICT Periods per week.

One out of 2 Government and Government/Aided College of Teacher Education provides 4 Periods for ICT and 1 out of 2 Government/Aided College of teacher Education Provide 5 Periods for ICT per week. This means that one Government /Aided Colleges of Teacher education Colleges Provide 50%, Remaining 1 Government/Government/Aided Colleges provides 50% of ICT periods per week. It is obvious that the period allowed for ICT in university Teacher Education Centre, self financing Colleges of Teacher Education and Government and Government/Aided Colleges of Teacher Education are quit insufficient and this calls for an urgent need for the increase of periods for ICT in teacher education colleges.

**FIGURE IV**

**Data can be graphically represented**

**Details of period allowed/week in teacher education colleges on the bases of type of management**

University Centre

Self financing

Govt./Aided

1. **Details of number of systems used**

Details of number of systems used is given below

**TABLE.5**

**Details of number of systems used based on students strength**

|  |  |  |
| --- | --- | --- |
| Type of teacher education colleges | Students strength | Number of systems stems used |
| University Centre | 100 | 4 |
| 4 |
| 8 |
| 8 |
| 6 |
| 115 | 4 |
| 120 | 5 |
| Self financing teachers education colleges | 100 | 4 |
| 5 |
| 5 |
| 6 |
| 6 |
| 6 |
| 7 |
| 7 |
| 8 |
| 10 |
| 10 |
| 10 |
| 10 |
| 10 |
| 12 |
| 13 |
| 13 |
| 14 |
| 15 |
| 16 |
| 20 |
| 25 |
| 90 | 10 |
| 130 | 8 |
| 150 | 10 |
| Govt./ Aided Teacher Education Colleges | 120 | 13 |
| 250 | 15 |

Table 5 reveals that out of 25 self financing colleges of Teacher Education, 20 have 100 students. In the 20 colleges, they have systems. Ranging from 4 to 24; Out of 25 self financing colleges of Teacher Education one college have 10 systems for 150 students, one college has 8 systems for 130 students and one colleges have 10 systems for 90 students.

Out of 7 university Teacher Education Centres, 5 Centres have 100 students. In 5 Centres, they have systems as per details given below. 2 Centres has 4 systems, 2 Centres have 8 systems and one centre have 6 system. Remaining 2 University Teacher Education Centres, 1 Centre have 4 systems for 115 students, One centre have 5 systems for 120 Students.

But in the Case of Government /Aided College of teacher education only have 15 systems for 250 students and 13 systems for 120 students.

This reveals that number of system used in University Teacher Education Centres, Self Financing Colleges of Teacher Education and Government Aided Colleges of Teacher Education are in sufficient and this calls for an urgent need for the increase of the number of systems in IT Labs for better ICT Education.

**ANALYSIS OF THE DATA BASED ON INTERVIEW SCHEDULE ON FUNCTIONING OF IT LAB FACILITIES IN TEACHER EDUCATION COLLEGES**

Detailed analysis of the data collected through the interview schedule on facilities available in IT lab is presented

ICT in cooperated in B.Ed syllabus helps in IT @ school programme. This view was shared by 28% of Teachers who handled ICT at University Teacher Education Colleges and 28.57% of teachers who handled ICT at Self Financing Teacher Education Colleges.

ICT will help effective teaching. This view was shared by 42.85% of teachers who handled ICT at University Teacher Education Colleges 50% of teacher who handled ICT at Self Financing Teacher Education Colleges and 100% of teachers who handled ICT at Government/Aided teacher education colleges.

ICT helps in making effective learning process. This stance was shared by 42.85% of ICT teachers in University Teacher Education centre, 24% of ICT teachers in Self Financing Teacher Education Colleges and 50% of teachers handled ICT at Government/Aided Teacher Education Colleges respectively.

**Comments on present ICT syllabus**

Present ICT syllabus inadequate. This opinion was shared by 28.57% of teachers who handled ICT in University Teacher Education Colleges, 8% of teachers who handled ICT at Self Financing Teacher Education Colleges.

 Present ICT syllabus is adequate to same extent. This view was shared by 85% of teachers who handled ICT at University Teacher Education Colleges, 36% of teachers who handled ICT Self Financing Teacher Education colleges.

 Present ICT syllabus is not adequate. This stance was shared by 28.57% of teachers who handled ICT at university teacher education colleges, 56% of teachers at self financing colleges and 100% of teachers who handled ICT at Government/Aided teacher education colleges.

 This menace that majority of the University Teacher Education Centres in the teacher who handled ICT of the opinion that present ICT syllabus is adequate to some extent. In the case of self financing teacher education colleges, teachers who handled ICT were of the view that ICT syllabus is not adequate. Majority of the Government/Aided teachers in teacher education colleges who handled ICT opined that. present ICT syllabus is not adequate

For betterICT Education we resort to library facilities. This was opinion shared by 100% of teachers who handled ICT at University Teacher Education Colleges Government/Aided teacher education colleges and Self Financing Teacher Education Colleges.

**Application of ICT in Criticism and demonstration classes**

Criticism and demonstration classes were most important in teacher training programme using ICT equipped instrument help boost up the criticism and demonstration section. 100% of teachers who handled ICT in university teacher education colleges, self financing colleges and Government/Aided teacher education colleges use IT equipped instrument for Criticism and demonstration classes.

Majority of the teachers who handled ICT at university Centres did not provide IT instruments for criticism and demonstration classes to the students. That is 57.14%, 56% of teachers who handle ICT in Self Financing Teacher Education Colleges not provide IT equipped instrument to student for criticism and demonstration classes. 100% of teacher who handled ICT at Government/ Aided teacher education colleges provided IT equipped instrument to the students for criticism and demonstration classes. So it is clear that for effective teaching learning process both teachers and students may use IT equipped instrument for Criticism and demonstration classes

**Limitation of ICT syllabus theory part**

There are a number of limitations that exist in present ICT theory part, unstructured nature is one of the limitations present ICT syllabus. This view was shared by 42 % of teachers who handled ICT in University centres and 32 % who handled ICT in Self Financing Teacher Education Colleges

 Another limitation in present ICT syllabus is that theoretical aspects are not presented in systematic way. This opinion was shared by 85%, 56% 100% of teachers in university teacher education colleges, self financing teacher education colleges and Government/Aided teacher education colleges respectively. This means that majority of the teachers who handled ICT at university teacher education colleges and Government/Aided teacher education colleges agree with the aforesaid limitation of present ICT syllabus.

 An important limitation of ICT syllabus in B.Ed courses is that content is not related to present syllabus. This view was shared by 28.57% of teacher who handled ICT in university teacher education colleges, 36% of teachers who handled ICT at self financing teacher education colleges 50% of teachers how handled ICT at Government/Aided teacher education colleges.

**Need for a revision of the syllabus**

 The present ICT syllabus in B.Ed should be revised. This view was shared by 85.71% of teachers who handled ICT in university teacher education colleges, 96% of teachers who handled ICT in self financing teacher education college and 100% in Government/Aided teacher of education colleges. This reveals that majority of the teachers who handled ICT in university teacher education colleges self financing teacher education colleges and Government/Aided teacher education colleges were of the opinion that the syllabus should be revised for better ICT education.

**Need for practical exam in ICT Education**

 Practice exam is needed for the well functioning of ICT education. This view was shared by 28.57% of teachers who handled ICT in university teacher education colleges. 36% of teachers who handled ICT in self financing teacher education colleges and 100% of teacher who handled ICT in Government/Aided teacher education colleges have agreed to need for practical exam for better ICT instruction.

**SUMMARY,**

**CONCLUSION AND SUGGESTIONS**

 This chapter provides a retrospective view of the study, major findings, educational implications and suggestion for further researcher.

**STUDY IN RETROSPECT**

 The present study is entitled “AN INVESTIGATION INTO THE FUNCTIONING OF IT LABORATORY IN TEACHER EDUCATION COLLEGES”

**OBJECTIVES OF THE STUDY**

1. To find out the facilities in IT laboratories in teacher education colleges.
2. To find out the extent of utilization of IT laboratories in teacher education colleges.

**METHODOLOGY IN BRIEF**

1. **Sample**

The study was conducted on a sample of 34 teacher education colleges in Kozhikode, Malappuram and Wayanad Districts.

1. **Tools used for the collection of data**

The following tools were used to collect the data.

* Check list on IT Lab Facilities in Teacher Education Colleges was prepared by investigator, in order to understand the existing condition of IT Labs in teacher education colleges.
* Interview schedule on IT Lab facilities in teacher education colleges was constructed by the investigator with the help of supervising teacher so as to understand the functioning of IT Labs and to know the present condition of IT Labs in teacher education colleges.
1. **Statistical techniques used**

Simple percentage analysis was carried out for the analysis of data collected through interview schedule and checklist.

**FINDINGS OF THE STUDY**

The major findings of the study arrived at, as a result of analysis of the collected data are based on the facilities available in IT laboratories of teacher education colleges and on the interview with the teacher educators who handle ICT subject in these colleges. Irrespective of the type of the institutions, certain generalizations who could be derived. The findings are presented as two categories, viz based on the lab facilities and also based on the interview on the functioning of the lab along with the major suggestions

**a) IT lab facilities in teacher education colleges**

 ICT education in the B.Ed colleges does not have many problems. There is no permanent staff for ICT in these colleges. This is one of the important problems of ICT education in the B.Ed Training Colleges. ICT is a fast growing subject and there occurs tremendous change in this field. But the existing syllabus is outdated. Hence there is an urgent need for the modification and revision of the existing syllabus in order to fulfill the requirements of the modern world.

 The periods allotted for ICT in the teacher education colleges are insufficient. Hence more periods should be allotted for ICT. There are no competent teachers for the ICT in the teacher education Colleges. In majority of the teacher education colleges, the teachers who handle ICT do not have special qualification in ICT. Only one teacher education college has a teacher who is professionally qualified in teaching ICT. There is no prescribed text book for ICT and the existing syllabus does not have any connection with the syllabus of IT school. This will adversely affect the efficiency of the trainees who are supposed to handle IT school and who in incorporating technology in teaching different subject.

In the syllabus of ICT, there is no reference to the Edusat, Victers etc. At present these sources play a paramount role in imparting vast amount of information to the teachers at different levels.

Laboratary facilities are inadequate in many teacher education colleges. Lab facilities should be stepped up. The number of systems available in the labs are also insufficient. More systems should be made available in the labs, at lest one system should be provided for five students. As regards software available in the labs at present only word, excel, powerpoint are supplied. These are found to be inadequate. Steps may be taken to provide more software in the labs.

**2. Functioning of the IT labs**

Majority of the teacher educators were quite sure about the need for ICT and its relevance in the teaching – learning process. The curricular content of the ICT included in the B.Ed syllabus seemed adequate for a very few, while majority opined that it was not at all adequate to equip the prospective teachers. Teachers were unanimous in their brief that even though ICT is taught at the Bachelors Degree Level, applications of the same in the teaching learning process is to be emphasized in the teacher-education programme.

It was found that in majority of the institution, ICT facilities are the minimum, especially the use of internet and Edusat. Very few programmes are made familiarized, namely, word, excel and power point. But majority of the teacher education and prospective teachers make use of laboratory facilities adequately, to be up-date. And teachers ague that they take demonstration and criticism classes by incorporating technology, but they do not provide such facilities to the prospective teachers during criticism session. Since almost 100% of the teacher education in ICT are all other subject teachers, they seek the help of those trainees who are already computer literates.

ICT, being a science subject needs to be practiced and understood. But unfortunately, in almost all the institutions, theory part is discussed without lab support. Teachers are quite aware that this should not happen. The evaluation process is based on the prescribed items under practicum, seminars, assignments and on tests. The interview mainly brought to light the dire need for a through revision of the ICT syllabus by the incorporation of recent developments and who by giving due stress on practical.

**MAJOR SUGGESTIONS ON ICT SYLLABUS**

**Modification in theory part of ICT syllabus**

The theory part of the existing ICT syllabus is not simple, it is too deep in nature. The syllabus is presented in a haphazard manner and not in order, it should be sequenced properly. The existing syllabus gives undue importance to the basic things and it is overloaded with the basic things. Theory part has been given more importance, in the syllabus, than practical. It is a fast growing subject hence the syllabus should be updated in order to cope with the demand, and of the present day situations.

The theory part of the existing ICT syllabus is not compatible with the syllabus of IT @ school. The B.Ed tainees who learn the theory as part of their training are supposed to handle IT @ school. These teachers may not be capable of handling the sessions effectively if they don’t get proper training in B.Ed colleges.

One of the main handicaps of existing IC T syllabus is that the syllabus is not constructed in the nature of simple complex, the existing syllabus should be graded so as to make the syllabus more meaningful.

**Modification in practical part of ICT Syllabus**

The syllabus of ICT for practical is not well planned. It suffers from many limitations. The theory part is given more importance that the practical part in the existing syllabus. ICT is learning by doing and hence more periods should be allotted for practical. In the existing syllabus there are practicum items for 20 marks but there is no suggested practical. In the syllabus of IT@ school more importance is given to practicals. Hence there should be an examination for practical and the existing syllabus of the ICT should be modified accordingly.

In the existing syllabus of ICT there is no scope for learning any computer languages. The computer languages like C, C+ etc may be incorporated in the syllabus.

Present day world is a world of knowledge explosion. The electronic media like computer and Internet have facilitated these kind of accessibility to any levels of information. In the existing syllabus of ICT internet is taught to the students. But they have no access to its.

**EDUCATIONAL IMPLICATION OF THE STUDY**

 Teacher education colleges are centres where the future teachers are moulded. Society keenly observes these colleges with much expectations. Each and every activity of teacher education colleges has its own importance. The future of a nation is moulded in the classrooms.

Teachers are the torch bearers in moulding such a good society and good nation. In this circumstance, it is of vital importance that the teachers should be given better training in the teacher education colleges.

In the light of the analysis, it was observed that the functioning of IT labs in the teacher education colleges were not efficient. The infrastructural facilities of these labs are to be improved so as to cope with the demands of present day situations. Better IT laboratories provide better ICT education. Hence the functioning of IT labs should be developed appropriately.

Revision of the syllabus of ICT education both in theory part and practical part is inevitable so as to meet the requirement of the fast growing IT. Better training programmes should be incorporated in the B.Ed syllabus inorder to overcome the handicaps in the existing ICT syllabus.

Any system of learning should satisfy the requirements of the existing society. If it cannot meet such requirements, that system would become out dated. Hence the need of the society should be reflected in the syllabus and it could be capable of satisfying such needs. ICT could be used in the teaching learning activities to reflect the social needs vividly and appropriately.

On the basis of the analysis it can be concluded that the lab facilitates of the existing IT should be developed so as to make the ICT education more efficient. The investigator hopes that the result of the analysis will be helpful for bring to notice the problems of ICT education and authorities would take requisite steps for the development of IT laboratories in the teacher education colleges and to remedy the important handicaps present in the existing ICT education. This will enable the teacher trainees to get better ICT education which will have social commitment and more responsibility.

The study report may be informative for various agencies and authorities like the NCERT, SCERT, DIET Curriculum Committees etc. at the time of review programmes. The vital suggestions put forward by the teacher educators in the field will be of great help in the total programmes.

**SUGGESTIONS FOR FURTHER RESEARCH**

 The investigator has studied the functioning of IT laboratories in teacher education colleges in Kozhikode, Malappuram and Wayanad districts. The study obviously was limited and hence the findings would be looked up as a small part of the total picture. In order to get the complete picture, further studies are required in this topic. In the light of the evidence gained by this study desirable areas of further research are given below:

1. The area of this study may be extended to all the teacher education colleges under the University of Calicut.
2. Study can be conducted to know whether the teacher trainees are using the IT labs beneficially or not.
3. Study can be conducted to know how the science teacher trainees and Arts teacher trainees are using the IT Labs.

**BIBLIOGRAPHY**

Abdulkalam, A.P.J. (2004). *Challenges for knowledge society* (convection address), University news, 42 (37), Sep.13-19,16-18

Antony, F.l & Annaraj,P.(2007). *Computer-based learning chemistry XI std*. International Educator, 19.

Baheeratan, M & Kumaravel, K.R. (2004). *Internet awareness among teachers of mathematics at high school level.* Experiments in Education, 32(11), 217-219.

Dey, B.(2005). *Internet knowledge of teacher trainee*: An Empirical Study. Experiments in Education 133(8), 161-164.

Dhaka,B.L.(2004).Cyber Extension: *Emerging trends in Information sharing*, University News,42 (34), Aug. 9-12,23-29.

Gopish, A.G.(2002) *Utilization of computer and internet facilities by PG Students in Cochin Universities of science and technology and University of Calicut*. Unpublished M.Ed dissertation, University of Calicut.

Joshi, B.H (2008) *Integrating ICT in M.Ed*. *Programme: An experience.* Experiments in Education, 36(1), 5-8.

Joshi, B.H.(2007) *Educational technology awareness among prospective teachers*. Experiments in Education, 35(3), 57-60.

Joy, B.H.H. and Shaiju, S.L(2005). *Development of computer assisted teaching material in history at higher secondary school level and its effectiveness*. Journal of Educational Research and Extension, 42(1), 53-66.

Kashiravan, S.P Balasubramanian, N.(1998). *Constructs of computer related attitude:* *Correlation of achievements,* International Education, 13(1), 35-40.

Kashiravan, S.P Balasubramanian, N.(2004). *IT awareness among student teachers of college of Education in Thamil Nadu*. International educators, 32 (8):149-151.

Kaswekar, P.A.(1996). *Effectiveness Multimedia package to develop population awareness in the trainees of Primary Teacher Training Institute*. Indian Education abstract, 10 (3), 15-21.

Kukreti, B.R. Saxena, M.K. (2004). *Information technology in teacher training program:* *Need and Significance*. Experiments in Education 32(8), 152-154.

Levin, T.R Wadmany R. (2008). *Teacher’s views on factor affecting integration of information technology in the class room:* *Developmental scenery*. (ERIC Document Reproduction service No. E5784010).

Mahajan,S.L.(1994). *Effectiveness of computer assisted Instruction for Teaching singular and plural II Grade*. Indian Educational Abstract, 13(1),29-32.

MC Farlance, A (2001). *Perspectives on the relationship between ICT and assessment* (ERIC Document Reproduction service No.EJ 635390).

Nazhath, S.M.(2006). *Utilization of information technology in colleges affiliated to University of Calicut*. Unpublished M.Ed dissertation, University of Calicut, Calicut.

Page, T. Thorsteinsson, G. (2006). *Technology enhanced learning indesign and technology education*, Journal of Education Technology, 4(2), 23-35.

Pumamak; R.(2007) *Use of information and communication technology (ICI) and perceived health in adolescence*: The role of sleeping habits and waking time trendes. (ERIC Document Reproduction service No.EJ 768839).

Ravichandran and Sasikala (2001). *Computer advanced technology in education:* *Developments, challenges and opportunities*. Journal of Indian Education, 27(2), 25-30.

Sharma (2001). *Teachers and information technology*. Quest in Education 25(2), 13-22.

Sree Rekha,R.(2009). *Teacher attitude towards the use of ICT in English language Teaching*. International Educators, 20(1), 40-43.

Sushanta ,K.P (2009). *Integration of ICT for professional development of Elementary teachers*. Experiment in Education, 4(15),19-23.

Steve, W. (2001). *Information and communication technologies and the chaning role of the teacher.* (ERIC Document Reproduction service No. EJ 645609).

Volman, M.(2005). *New technologies, new differences, gender and ethnic differences in pupils use of IET in primary and secondary education*. (ERIC Document Reproduction service No. EJ 731966).

Wessel, W.E. (200). *Technology in the classroom: Implications for teacher Education* (ERIC Document Reproduction service No. ED444484).

**APPENDIX I**

**AN INVESTIGATION INTO THE FUNCTIONING**

**OF IT LABORATORIES IN TEACHER EDUCATION**

 **COLLEGES**

**INTERVIEW SCHEDULE FOR TEACHER EDUCATORS**

**Dr. JESA.M VINEESH.A.K**

Selection Grade Lecture M.Ed Student

Farook Training College Farook Training college

 This is an interview schedule for gathering information form the teacher educators. There are twelve items in the interview schedule.

1. ICT is incorporated as a mandatory subject for the Secondary School Teacher's Training Programme under the University of Calicut. Could you please explain its usefulness?
2. As a teacher, who handles ICT, would you think the core areas of the existing syllabus would help producing prospective teachers for IT based teaching?
3. At the degree level students get awareness of IT. If so would you explain the usefulness of IT at B.Ed. level?
4. Will you please explain the facilities of ICT such as internet, Edusat etc. available in your institution ?
5. Would you mind explaining the time schedule allotted for ICT in your institution?
6. I would like to know about the programmes given to teacher trainees, could you please explain?
7. Do you use library, internet etc for ICT teaching? Do the trainees use library and internet of learning of ICT?
8. Do you use IT based instrument in the Criticism and demonstration classes? Do the trainees get these facilities?
9. Howmany trainees in your institution have completed course like PGDCA, How do you use their service?
10. Could you please explain the nature of instruction of theory and practical of ICT in your institution?
11. Will you please explain the evaluation Procedure of ICT?
12. Could you explain the limitations of the present ICT syllabus?
13. What are the modifications to be effected in the theory level in order to remedy the limitations? Could you please explain your opinion?

b) What are the modifications that can be effected in the practicals?

**APPENDIX II**

**AN INVESTIGATION INTO THE FUNCTIONING OF IT LABORATORIES IN TEACHER EDUCATION COLLEGES**

**CHEKLIST**

Dr. JESA.M VINEESH.A.K

Selection Grade Lecture M.Ed Student

Farook Training College Farook Training college

1. Name of the College:
2. Govt. Govt. Aided Private Self Financing University Centre
3. Student Strength
4. Whether College has of it’s own IT Lab Yes No
5. Total number of systems in the Lab
6. Number of Booths in the Lab
7. Number of periods allowed for ICT
8. IT lab has:

a) Modem Yes No Number

b) Printer Yes No Number

c) Scanner Yes No Number

d) L.C.D. Projector Yes No Number

e) U.P.S Yes No Number

9. IT Lab has the facilities

a) Internet Yes No

If yes Dial-Up Broad Band

d) Edusat Yes No

e) Website Yes No

d) Specified the additional facilities:

10. Software available

1. Word Yes No
2. Excel Yes No
3. Power Point Yes No
4. Linux Yes No
5. Any other

**APPENDIX III**

**LIST OF INSTITUTIONS VISITED**

**CALICUT UNIVERSITY TEACHER EDUCATION CENTRES**

|  |
| --- |
| UTEC, Zamorin’s H.S.S. Thali Calicut |
| UTEC, Adjacent to PWD Rest House, Badagara |
| UTEC, Near Chakkittapara, Calicut |
| UTEC,K.K.B, Buildings, Manjeri |
| UTEC,Kootilangadi, Malappuram |
| UTEC,GHSS Compound, Wayangad |
| UTEC, Hoy cross Charch Building, Sulthan Bathery |

**SELF FINANCING COLLEGE OF TEACHER EDUCATION**

|  |
| --- |
| AWH College of Education, Kozhikode |
| Batakhy Yatheem Khana B.Ed Training College, Malappuram |
| Bhavan’s Ramakrishna Institute of Teacher Education, KozhikodeC.K. Raghavan Memorial College of Teacher Education, Waynad |
| CICS College of Teacher Education, Kozhikode |
| Darul aloom Teacher Education, Malappuram |
| Devaki Amma Memorial Teacher Education College, Malappuram |
| EMEA Training College, Malappuram |
| Farook B.Ed College, Malappuram |
| ISS College of Teacher Education, Malappuram |
| Jamia Nadaviyya Training College, Malappuram |
| KET College of Teacher Education, Kozhikode |
| KMCT College of Teacher Education, Kozhikode |
| KPPM College of Teacher education, Malappuram, |
| Kunnathmma Memorial College of Teacher Education, Malappuram  |
| Mayma’s Training College, Malappuram |
| Mars Basecos B.Ed College, Wayanad |
| MCT Training College, Malappuram |
| Mercy College of Teacher Education ,Vadakara |
| Mother Teresa Training College, Kozhikode |
| Oriental College of Teacher Education, Kozhikode |
| Providence College of Teacher Education, Kozhikode |
| Sree Narayana College of Teacher Education, Kozhikode |
| St Gregories Teacher Training College, Waynad |
| Sullmasalam College of Teacher Education, Malappuram |

**GOVERNMENT/ AIDED COLLEGES OF TEACHER EDUCATION**

|  |
| --- |
| Govt. College of Teacher Education, Kozhikode |
| Farook Training College, Kozhikode |

**LIST OF TABLES**

|  |  |  |
| --- | --- | --- |
| TableNo.  | Items  | PageNo. |
| 1 | Details of instrument present in IT laboratories in teacher education colleges based on type of management  | 34 |
| 2 | Details of lab facilities available in teacher education colleges based on type of management | 37 |
| 3 | Details of software available in teacher education colleges based on type of management | 40 |
| 4 | Details of period allowed / week in teacher education colleges based on type of management | 42 |
| 5 | Details of Number of systems used based on students strength  | 45 |

**LIST OF FIGURES**

|  |  |  |
| --- | --- | --- |
| FigureNo. | Items  | PageNo. |
| 1 | Details of instrument present in IT laboratories in teacher education colleges based on type of management  | 36 |
| 2 | Details of lab facilities available in teacher education colleges based on type of management | 39 |
| 3 | Details of software available in teacher education colleges based on type of management | 41 |
| 4 | Details of period allowed/week in teacher education colleges based on type of management | 44 |

**LIST OF APPENDICES**

|  |  |
| --- | --- |
| AppendixNo. | Items  |
| 1 | An investigation into functioning of ‘IT’ laboratories in teacher education colleges interview schedule for teacher educators |
| 2 | An investigation into functioning of ‘IT’ laboratories in teacher education colleges checklist |
| 3 | List of institutions visited |