Teacher Education Curriculum in context of Information &Communication Technology

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Abstract: Today's teachers need to update their knowledge and skills as the school curriculum and technologies are changing rapidly. Shift from Blackboard to Smart classrooms had changed the facet of the modern classrooms. Information Communication Technologies (ICTs) can substantially support the education system if a teacher is enough competent to use the tools. For this the curriculum of teacher education system should also contribute for preparing prospective teachers. This research has been done to identify the gaps in the curriculum of teacher education system in context of ICT in perspective of the National Policies and Documents. The researcher has content analyzed the curriculum of 5 major universities in Delhi and National Capital Region (NCR) and tried to give the suggestions for inserting component of ICT while preparing new curriculum for B.Ed. course.

1. INTRODUCTION

India's image is rapidly changing due to the emergence of ICT. More recently, online retailing, cloud computing and e-commerce are emerged as the major growth drivers in every sector. Significant changes over the past decade in ICTs have impacted many aspects of our lives.ICT has also been introduced in education system of our country from past decade and allowed the educationists, administrators, teachers and students to collaborate and create learning networks. It has allowed all to use hardware and software

tools to create content during their learning processes.For this every teacher plays a very important role to develop the learning atmosphere through innovating himself/herself. Above all it is a duty of Teacher Education system of any nation to prepare the prospective teachers for these skills. The teacher education system through its initial and continuing professional development programmes is expected to ensure an adequate supply of professionally competent teachers to run the nation's schools. The National Council for Teacher Education (NCTE) is a statutory body vested with the responsibility of maintaining quality standards in teacher education institutions.This will be maintained by the norms and standards devised by the body especially the nature of curriculum framed by them. NCTE has developed the curriculum framework in 2010 i.e. National Curriculum Framework for Teacher Education (NCFTE) which guides all the universities to develop the curriculum for B.Ed. course. [9]This also elaborates the context, concerns and vision underscoring that teacher education and school education should have a symbiotic relationship and developments in both these sectors mutually reinforce the concerns necessary for qualitative improvements of the entire spectrum of education including teacher education as well. Teacher Education has to maintain this relation with school education and for this to frame a curriculum is one of the most complex tasks, so that it serves the field of education in the most efficient way. [5] e-Learning is an effective tool in the curriculum to highlight the learning efficiently and aspiration among the students in days it come. Educational curriculums at all levels were very narrowly defined for students in many developing countries specifically in the era of the information technology. We have to prepare our Pre-service teachers for their complex and increasingly technological futures who aspire to build their career in the field of teaching.

Today we have to prepare competent teachers who have a whole new set of resources and techniques that evolve around the use of technology. Teachers at pre-service level should be given the opportunities to teach in modern classrooms for gaining the practical experience related to technology also. There has been lot of debate for the quality development of teachers at pre- service level and accordingly NCTE is continuously taking action in many ways. [8] The National Curriculum Framework (NCF) -2005 has also highlighted the importance of ICT in school education. It is desirable that affordable ICT tools and techniques should be integrated into classroom instructions right from primary stage so as to enable students develop their requisite skills. [1] The curricula should contain all the basics like M S Office (word, PPT, excel, one note etc.), internet resources like web tools and social networking sites etc. these thing are the essentials to educate teachers with methodological issues

and their remedies. ICTs should be infused into the entire curriculum. The focus seems to be on the classic 'Maths, Science, English' package, giving the dangerously wrong impression that ICTs cannot be integrated in all other subjects. The integration itself tends to be focused on technology rather than on information and communication. All other streams have already started using ICT and they are shaping the future of the globe, but the very same concept of technological interface is missing in teacher's education. It must be ensured that all prospective teachers should have access to technology in every way, if it will be embedded as a part of the curriculum. Besides the basic computer knowledge the new web 2.0 & 3.0 tools should be practiced at the pre-service level. Though e-learning has become the center stage of almost all the curriculum but the related things are not defined well in every curriculum. The curriculum includes many subjects of foundation, pedagogy and internship along with the various practical parts. Teacher educators of the nation have to transact this curriculum and develop the future teachers skilled in every aspect.

2. NEED OF STUDY

Teacher education curriculum should be designed to ensure that pre-service teachers develop the competencies required by proficient teacher. [2]A key question need to be addressed by teacher's education program such as how teachers learn and refine knowledge, skills and proficiency to teach such digital literate audience.[3]The status of parameter student teachers developing for ICT based teaching learning. This parameter is found mostly neglected in curricular practices of pre service teacher education. It is clear that collegesof education are not paying much attention towards preparing student teachers for ICTbased teaching learning. If they were not prepared to meet the increasingly digital demands of the twenty first century then their survival for the future will be challenging. [11] ICT has been included as a core course at the B.Ed. level in the colleges. However, fundamentals of computer knowledge were included in the curriculum. All the respondents said that ICT is not included as a compulsory core course. [10] Inview of trainee teachers for computer paper that was introduced by the state of Andhra Pradesh as a compulsory paper in the common core curriculum for B.Ed. course was necessary and there was great level of satisfaction. The students realized the importance of teaching computer education and its various topics were appropriate at B.Ed. level. Presently there is a gap between modern teaching methodology and existing traditional teaching methodology. This gap is visible when the degree holders of teacher education enter into the

school education system where they seem to be alienated in terms of ICT usage. A significant gap in usage automatically appears when a student enrolls himself/herself in teacher education course after his/her graduation. It is now time for future oriented teacher's preparation programs that will lead them to success in the world of e-learning also. Along with the role of NCTE, The National Curriculum Framework (NCF) 2005 places different demands and expectations on the teacher, which need to be, addressed both by initial and continuing teacher education. A teacher education curriculum framework needs to be in consonance with the curriculum framework for school education also. [1] Restricting technology experiences to a single course or a separate area of teacher education will not prepare students to be technology-using teachers. [4] Main barriers to technology implementation perceived by the teacher educators and teacher trainees in the study are the mismatch between ICT and the existing curriculum and the class-time frame. Thus, policy makers should provide additional planning time for teachers to experiment with new ICT based approaches. For this researcher planned to identify the gap in context of ICT between the curriculum and national documents, so that this gap can be filled by the universities by revising their curriculum.

3. STATEMENT OF PROBLEM

It was identified from the review that the component of ICT was present in the curriculum of B.Ed. course but that component has to be according to the 21st century skills. The curriculum should fulfill the need of future learners in every way that leads to globalization. All the national documents on the basis of which curriculum was designed has to be analyzed in context of this and the curriculum of B.Ed. course is following those documents. This is the gap which the researcher has identified and stated her problem, to analyze the current policy documents and curriculum of universities with reference to ICT content.

4. RESEARCH QUESTIONS

- Is the component of ICT is embedded in the curriculum of B.Ed.?
- Which subjects in the B.Ed. course of these universities had a component of ICT embedded?
- In how many subjects the component is embedded i.e. in Foundation/Core; Methodology/Pedagogical; Elective or Practical & School Experience Programme?

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- Is the curriculum developed according to the guidelines mentioned in National documents?
- What is the gap between the existing B.Ed. curriculum and National Documents?

5. OBJECTIVE

- To analyze the curriculum of Teacher Education Course i.e. Bachelor of Education (B.Ed.) in context of ICT.

6. PROCEDURE

- Content analysis was done of the syllabus of above said 5 universitiesin Delhi and National Capital Region (NCR) has been analyzed i.e. University of Delhi (DU), Guru Gobind Singh Indraprastha University (GGSIPU), JamiaMiliaIslamia(JMI) in Delhi; ChaudharyCharan Singh University (CCS), Meerut, Uttar Pradesh and MaharshiDayanand University (MDU), Rohtak, Haryana. All the subjects were analyzed thoroughly in context of the terms related to ICT, e- learning tools etc.
- 4 National documents i.e. National Curriculum Framework (NCF) -2005; National Curriculum Framework for Teacher Education (NCFTE) -2009; Report of the Working Group on Teacher Education for the 12th Five Year Plan (2012-17) &National Policy on Information and Communication Technology (ICT) In School Education (2013)were analyzed in context to the syllabus which was content analyzed in terms of ICT.

In this study the researcher followed the process of analyzing the documents and syllabus in context of Information and communication Technology (ICT). Syllabus of all the universities have been divided into various subjects majorly categorized as Core, Pedagogical, Elective and Practical in nature. Some keywords like ICT, CAI, ET, Computers, internet, e-learning, audio visual, media etc. all these keywords were identified and the statements were listed in the form of table according to the nature of subject under the subject categories of all the five universities whose syllabus has been taken for analysis. In the similar way in the national documents the keywords like ICT, Internet, computers, media and the terms related to the same meaning were identified and the part of that chapter has been listed. These syllabuses in context of national documents have been critically analyzed by the researcher. The researcher described the context in documents and analyzed in terms of presence and non-presence of the context in the curriculum.

7. ANALYSIS

All the documents were analyzed and on the basis of that few conclusions were drawn-

8. NATIONAL CURRICULUM FRAMEWORK (NCF)-2005

School curriculum should include reforms which will facilitate the practice of the widely acknowledged curricular principles of moving from "local to global". For this purpose, the concept of critical pedagogy has to be practised in all dimensions of school education, including teacher education. Learners should actively construct their own knowledge by connecting new ideas to existing ideas on the basis of materials/activities presented to them (experience). Due to exposure of media and we can say World Wide Web knowledge can be constructed. So trainee teachers should be provided training in knowledge construction. Children should have the basic capabilities for work and action that involves the coordination of bodily movement with thought and volition, drawing on skill and understanding, and directing oneself to achieve some purpose or create something. It should also involve handling tools and technologies and for this the teachers should themselves have to handle technologies in a healthy manner. Besides this, many other points have been mentioned in the framework that can be included in the curriculum at pre-service level.

POINT/CLAUSE	CRITICAL ANALYSIS
2.7 Children's Knowledge and Local Knowledge- Participating in the generation of knowledge- There should be provision of creating publicly accessible website where the results of various projects, practices should be uploaded for generation of knowledge thereby creating a transparent and comprehensive database on India's environment. By inviting not only experts, but also all interested citizens to assess the quality of such projects and augment their results, a self-correcting system could be set up that would lead to an organic growth of our understanding of the Indian environmental scenario and concrete ways of undertaking positive action.	In this context very less work has been introduced in the curriculum of B.Ed. course. In GGSIP University syllabus the students are told to upload their CCA work in social networking websites and in one of the elective there is Writing and Sharing Research Report Sharing Research Experiences: Need and Modes (including Educational Journals, Paper presentations, Authoring Books, Online interactive groups/networking websites).In MDU the practical work of computer involves knowledge navigation, Classification of the modes: searching for information and exchanging information. Other universities i.e. DU, JMI, CCS have not suggested anything like this in the curriculum.

POINT/CLAUSE	CRITICAL ANALYSIS
3.3.-Science- In teaching of sciences and various other branches of science, Information and Communication Technology (ICT) is an important tool for bridging social divides. ICT can be used for connecting children and teachers with scientists working in universities and research institutions that would also help in demystifying scientists and their work.	There is no provision of creating such discussion forums for science trainee teachers in pedagogy of science subject. Trainee teachers can create such groups at training level and it can be extended up to their school job.
4.6.2- Libraries- There should be access to the new information technology to enable children and teachers to connect with the wider world.	In curriculum the activities can be assigned for the usage of libraries to connect wider world. But none of syllabus has mentioned it.
4.6.3- Educational Technology- Providing children more direct access to multimedia equipment and Information Communication Technology (ICT), and allowing them to mix and make their own productions ….. Interactive, Net - enabled computers, rather than only CD-based computer usage, would facilitate a meaningful integration of computers and enhance the school curriculum in rural and remote areas by increasing connectivity and enhancing access to ideas and information. Rather …. animating lab experiments, ET could realise far better potential ……. to the knowledge web progressively.	According to this part of framework the component of ICT should be compulsory in each part of the syllabus at B.Ed. level. For example during the phase of practice teaching there should be a compulsion for every student to use ICT for their teaching process. But ET is an elective subject in all the universities so how the trainee teachers can be trained for using ICT devices
4.6.3- Educational Technology - Materials such as textbooks, workbooks and handbooks for teachers can be designed with the awareness of existing stocks of good-quality audio or video material and sites where extra resources are available on the Net and to be viewed on a nationally managed website.	Trainee teachers should make audio visual material which can be used as open educational resources in future. But for this along with basic MS Office curriculum should embed some software's like adobe Photoshop or flash etc. so that much beneficial content or learning material can be prepared by them. For this computers in education should be a compulsory paper or practical paper in the course. Only GGSIPU and MDU provide this subject to all the trainee teachers.
5.5.3 -The Use of Technology- The increasing use of the Internet has enabled the sharing of information and provided space for debate and dialogue on diverse issues hitherto unavailable on such a scale. Technological innovations are also necessary for appropriate equipment and aids for meeting the learning requirements of children with special needs.	The concept of inclusive education have been already introduced at every level of school and teacher education, trainee teachers should be trained to prepare some audio material and special material for slow learners and variety of resources so that they can deal with these students in future. For this the some practical work can be introduced in curriculum which was not done till now.

9. ACCORDING TO NATIONAL CURRICULUM FRAMEWORK FOR TEACHER EDUCATION (NCFTE)-2010

POINT/CLAUSE	CRITICAL ANALYSIS
Forums that allow and encourage teachers to exchange ideas, information and experiences including a web-based portal should be developed.	There were no training provided to develop any web based portal in any part of curriculum.
1.7- ICT in Schools and e-learning- With the onset and proliferation of Information and Communication Technology (ICT), there is a growing demand that ……. the child. Teacher education needs to orient and sensitize the teacher to distinguish between critically useful, developmentally appropriate and the detrimental use of ICT. In a way, ICT can be imaginatively drawn upon for professional development and academic support of the pre-service and in-service teachers.	There is imbalance in the component of ICT in various universities. Variation of component in subjects whether Core, Pedagogical, Elective and Practicals. So we cannot develop a professional teacher who can use ICT successfully until they will be exposed to the knowledge and skill of ICT through any one compulsory subject in B.Ed. course.
1.2.3- Curricular Provision: Theory In-built field-based units of study can provide sustained engagement with content through the close examination of select concepts. Science, for example, ……. with children. Student teachers can undertake projects in oral history; alternative medicine; appropriate technologies; pedagogies of informal learning situations in order to grasp the diverse nature of knowledge.	Every pedagogical subject is not having ICT. It was usually said that each and every topic cannot be taught by ICT. And many subjects like Hindi, Sanskrit and social sciences etc. were having no component of ICT.
3.4(b)- Evaluating the Developing Teacher- one of the Evaluation Protocol should be Assessing a repertoire of skills that includes skills of handling audio-visual equipments.	If a trainee teacher doesn't opt for the subject like Educational Technology which is elective in nature in all the universities then how this skill can be acquired.
4.4. - Routes Towards Teachers' Continuing Professional DevelopmentUse of Distance Media-ICT including TV, radio, telephony and internet are useful as resources and providing access to ideas or for the wider dissemination of information. Distance media can be effectively used to keep teachers in touch with other professionals in the field and to give access to professionals in education as well as in pure academic disciplines (within universities). This would go a long way in breaking the isolation of teachers while promoting a 'culture' of seeking academic support and collaboration.	There are many e-learning tools which can be successfully integrated for collaboration and dissemination of information, but the usage should be embedded in curriculum also.

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10. ACCORDING TO NATIONAL POLICY ON INFORMATION AND COMMUNICATION TECHNOLOGY (ICT) IN SCHOOL EDUCATION (2013)

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According to this teachers and students should be encouraged to develop digital learning resources collaboratively and contribute to the proposed digital repositories, collectively owning it. Teachers and students should be oriented to prevailing copyright regimes, different types of restrictions on reuse of content and the need to respect copyright. Teachers and students will also be educated about alternate forms of licenses like the creative commons and encouraged to use them. Teacher educators should be suitably oriented and trained to use ICT in their pre-service teacher training programmes. They should also be expected to enable pre- service teachers to be sensitized to and practice the use of ICT. The existing curricula for pre-service teacher's training should be revised for including appropriate and relevant applications of ICT. All teacher trainees passing out of teacher education programmes should obtain adequate levels of competency in ICT and ICT enabled education. This proficiency will gradually form a part of the eligibility criteria for teacher appointments.	In the curriculum of universities very less has been introduced like this. Component of ICT has been introduced in all the universities but in unequal basis. In some the component is as compulsory subject, and in some on electivebasis. There is lot of variation in the pedagogical subjects also. As every teacher should be trained for ICT, if there is no ICT in particular school subject then how a teacher will be using that in future classrooms. Even the Teacher Educators are not including ICT in their Pedagogies.

11. ACCORDING TO REPORT OF THE WORKING GROUP ON TEACHER EDUCATION FOR THE 12TH FIVE YEAR PLAN (2012-17)

According to 12th Five Year Plan (2012-17) encourage flexibility and diversity rather than uniformity across teacher education programmes and institutions for the conduct of pre-service teacher education. Teacher education institutions to be given the space to formulate innovative models for pre-service course structure, content and design. The Central Government shall provide technical support and resources to the State Government for promoting innovations, research, planning and capacity building.

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2.3- Suggested Strategies based on Policy and Educational Context- 2.32- (i) Addressing Systemic Gaps- Establish networking and coordination mechanisms for national and state level teacher education institutes.	Networking and coordination can be established if the curriculum allows to do that. In curriculum of GGSIPU, the trainee teachers are required to share their activities on social networking sites. Other universities have no such component.
2.32 ii) Addressing Gaps in Content - Empower teachers and teacher educators to use ICT as a tool through easy electronic institutional access to curriculum materials and for training teachers.	The curriculum should motivate teachers to prepare their own content in electronic form. In GGSIPU the trainees have to develop a Multimedia Lesson Plan which can be accessed by other students later. But other universities are not bounded to do the same. It depends on teacher educators to give assignments like this.
3.5(g) - Curriculum and syllabus of pre-service teacher education courses should be revised in the light of NCF−2005.	As already discussed the curriculum has not been totally revised according to the document.
5.1.2 -DIET as an Innovation Centre- 5.2.1.2-There should be greater use of ICT for promoting innovation. A web based portal should be created to highlight innovations in educational activities undertaken in the various States of the country. • The ICT should be utilized extensively to facilitate talks by experienced speakers on innovations in education for the DIET teachers.	How a web portal is made and how the teachers can organize web conferencing is not embedded in the curriculum.
5.7 Training of Untrained Teachers- 5.7.5- Development of Open Educational Resources: The Open Educational Resource (OER) materials are the digitized version of the learning materials that are available freely and openly for learners, teachers and scholars to use and re−use for teaching learning and research activities. The customized learning materials are developed through groups of experts and give ample scope for appropriate free content license, which is in use.	The term open educational resource has only been mentioned in the curriculum of GGSIPU where teacher educators are said to motivate the learners to use OER. But in any other university syllabus this has not been mentioned. And in the present scenario the expansion of OER is taking place regularly. Licensing issues are very important if we talk about OERs. Trainee teachers are not even aware of these terms.

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5.9 Technology in Teacher Education- 5.9.1 ICT for Teacher Education: In 12th FYP, an important thrust area would be to introduce technology in teacher education in order to promote openness for adaptability to new technology for developing professionalism. The central theme of the deployment of technology in teacher education is bringing transformations in the institutes of teacher education responsive to the technology and effective support to teacher training programmes, including SCERTs and DIETs. The ultimate purpose of ICT supported teacher education programme is to create (ICT) empowered teachers. An ICT empowered teacher should be:	
• Able to use computer without being computer expert - do word processing, use spreadsheet, prepare PPTs, etc	This can be done if trainee teachers will study the basic computer but in DU, CCS and JMI computer as a subject is given on elective basis not compulsory then the students who have anxiety to use computers will not select it and how they can become computer expert.
• use simple other technologies like mobile phone effectively – almost 90% features of mobile phones today have educational features.	Mobile learning has not been introduced in the curriculum of B.Ed. So how will the teachers use this technology effectively.
• quickly adapt to new software e.g Open Source Software, branded software of different generation, Web 3.0 technologies like digital pens, digital readers, handheld projectors, etc	Web 3.technologies like digital pens, digital readers, handheld projectors, etc. new software's have not been introduced in the entire curriculum. University like CCS has still mentioned VCR in the curriculum that is totally outdated. Even overhead projectors and epidiascope are not frequently used now a day in any institutions. Tape recorders have been mentioned in curriculum but it has been replaced by language laboratory where the language software has to be updated and used. And digital pens, digital readers and web 3.0 technologies not been introduced at any part of curriculum. Still web 2.0 technologies are not completely implemented.
• Access and effectively use Internet for learning.	

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• Use computers, various features of mobile phones (calculator, video and still photography, audio recording, FM radio, stop watch, converters, dictionary, note pad, etc.) and other technological devices to make his/her job easy and enriched.	The skills in handling these equipment's is in Educational Technology but this subject is elective so all the students will not able to acquire these. skills.
• access Internet regularly for research, learning resource material development, sharing slides and audio-visual material, etc.;	Creating audio visual material should be part of subject like Educational Technology or pedagogical subjects, but all the subjects in all the universities have this component
• uses Web 2.0 tools like Blogs and Wikis for professional purposes;	Blog term has been introduced by curriculum of GGSIPU, but how to use and create it was not included in detail.
• resort to telephone and video conferencing through computer and mobile telephony for professional purposes;	Video conferencing is again not included in the curriculum, so there is a gap how to organize it.
5.9.2 In 12th FYP the ICT based teacher education programme should create an ICT based on-demand teacher support system, including modular self-learning modules. These need to be online, as well as through CD and paper-based versions. • videos of teachers teaching that topic	Curriculum should train teachers for this aspect that how to develop their video lectures for future scenario, but nothing has been introduced in the curriculum.
5.11.4 (iii)- ELearning platforms- Many large private sector organizations have developed e-learning platforms for school teachers but still the teacher training institutes are not having these platforms in the institutions. And these platforms will provide the necessary training to future teachers to adapt the technology easily in future. There are a host of private sector organizations developing e-learning modules and e-learning management systems as well.	The term like Learning Management System has not been introduced in the curriculum.

12. RESEARCHERINTERPRETATIONS

1. Researcher has interpreted that all the 5 universities have embedded the component of ICT in different forms in the curriculum of the course but the component specifically various e- learning tools which is important in the present and the future scenario has not been introduced in the curriculum of all the universities. The subject of various universities in which the component of e-learning is embedded mentioned as follows-.

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- In curriculum of University of Delhi, the terms like internet as a resource, websites, e- learning environment, e -commerce, online learning and networking are given in 5 pedagogical subjects out of 29 i.e. Biological science, Physics, Chemistry, Science, Commerce and in one elective out of 19 i.e. Educational Technology but in subject of Computer Education these terms were not introduced.

- In JamiaMilliaIslamia University the terms like e- mail, internet searching, internet, email are given in 2 pedagogical subjects i.e. Teaching of Home Science and Geography and 1 elective i.e. Computer Education.

- In Guru Gobind Singh IndraPrastha University terms like Internet and Mobile Technology, iNtegrating Technology for inquiry (NTeQ), Use of online resources, Internet: Use of Internet in Education, Research & Communication; including e-learning and Educational uses of search engines, e-mail, educational chat rooms, blogs, discussion groups/boards, e – conferencing, Managing student's access to Computers (Hardware and Software) and the internet, Ensuring safety and security (including safety of the data) on computer and internet, Integrating Internet and application software, use of Open Educational Software, E-Learning, E-Readers, I-Learning, Online interactive groups/networking websites, social networking website are given in 2 foundation subjects out of 6 i.e. Curriculum, Instruction and Evaluation and ICT Mediated Education, 5 pedagogical subjects out of 18 i.e. Mathematics, Science, Integrated Science , Business Studies, Life Science and 3 elective out of 16 i.e. Educational Technology, Conducting Classroom Research Developing Computer Assisted Instructions. And in practical work i.e., Integrating Technology with Education, Participation in Societal Development, Educational Evaluation in School Environment.

- In ChaudharyCharan Singh University terms like e-mail, internet is given in 1 compulsory subject out of 4 i.e. Essentials of Educational Technology and Management. Computer education is one of the elective subject in which nothing has been given in terms of e-learning tools or the new technologies. Also there is no practical subject of ICT which can enable to learn computers.

- In MaharshiDayanand University terms like Internet and its Working-WWW, Educational website, E-mail, E-learning and Virtual Classrooms, Internet, the WorldWide Web, e-mail, file exchange, discussion groups, live-conferencing (chat) and knowledge navigation was given in 1 elective out of 11 i.e. Information, Communication and

Educational Technology, and in 1 practical i.e. ICT enabled practical/ projects.

2. ICT as a subject is a compulsory paper in 2 universities i.e. GGSIPU and MDU and in rest universities elective. This will lead to student's perception or even anxiety that they will not opt for the subject and the result will be no training in the part of ICT.

3. In the syllabus of CCS university still the terms like VCR, Gramophone is used and we know these are not present in today's scenario so why to include these outdated objects.

4. In MDU two application MS Front page and photo page was mentioned and both are discontinued in new windows, so why still retained in the curriculum.

5. In JMI computer education has a topic of DOS and this has been discontinued since the GUI system.

6. In the curriculum of all the universities the component of Audio visual aids was mentioned which comprises of various aids like print and non print media but in actual practice mostly they consider this as charts, models, maps, graphs, television, overhead projector, computers. But the e- learning tools part is totally missing in the aids.

7. For the entire subject teachers training in ICT is important but out of many pedagogical courses hardly 4-5 subjects have the component. So this is not balanced and due to this there are particular group of subject teachers who are still reluctant to use ICT while teaching.

8. Ethical issues related to use of ICT especially in the internet is important for safety measures should be mentioned and taught but nothing like this was given in the syllabus.

9. Free software, Open source software, I learning, mobile learning, smart classes, tablets, and various other new terminology has been introduced by only one university.

10. By analyzing NCF-2005 it can be concluded that there should be a database for teachers, practical training in ICT devices, making audio video programmes, ICT in pedagogical subjects, focus on special need children through ICT, collaboration with world through libraries should be there in curriculum. But there is a gap in all the points mentioned in NCF as training at proper level was not provided due to absence of topics in B.Ed. curriculum and due to nature of subjects in the course.

11. According to NCFTE 2009, Teacher education needs to orient and sensitize the teacher to distinguish between critically useful, developmentally appropriate and the detrimental use of ICT. There should be forums, skills for handling devices, usage of ICT in distance

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mode and usage in pedagogical subjects. And there is a gap as all the skills for ICT was not developed in trainee teachers in all the universities.

12. According to National policy on ICT in school education teachers should be trained for digital repositories, copyright issues, creative commons licenses and teacher educators should also be competent to use ICT. Many of these terms are very new to both teacher educators and trainee teachers as they are not in the curriculum of any university.

13. In 12 FYP it has been mentioned that the teacher education should be networking in teachers through ICT, web portals, usage of ICT by teacher educators, expansion through OER & adaptability from basic computers, mobile learning, wikis, blogs, video conferencing, web 3.0 tools to e-learning. But majority of part in the curriculum was missing.

SUGGESTIONS

1. Embed more practical component along with the theoretical aspect of ICT so that the attitude of learners towards technology can be changed.

2. Technological aspects which are responsible for social education in this era of 21st century which has offered social networking should be focussed.

3. Issues related to technology should be added in a similar way the topics studied in the course like identity, gender equity, poverty and diversity.

4. Ethics and values related to technology should be studied by the students.

5. Curriculum for pedagogical subjects should involve the content knowledge through web based content like videos, OER, game learning, simulation, evaluation so that they can use it for teaching.

6. Smart classroom training should be mentioned in policies.

7. Inclusive Education has been entered in the curriculum so assistive technology should be the part of curriculum.

13. LIMITATIONS

- Curriculum of only B.Ed. course has been analyzed for this research.
- Only aspect of Information and Communication Technology (ICT) has been analyzed from the Curriculum.
- The curriculum of the universities which has been analyzed is offering a 1 year regular course in B.Ed. that is applicable upto the session 2014-15.

- B.Ed. Curriculum of only 5 universities in Delhi and National Capital Region (NCR) has been analyzed i.e. University of Delhi (DU), Guru Gobind Singh Indraprastha University (GGSIPU), JamiaMiliaIslamia(JMI) in Delhi; ChaudharyCharan Singh University (CCS), Meerut, Uttar Pradesh and MaharshiDayanand University (MDU), Rohtak, Haryana.
- The curriculum which has been analyzed was into function from different years i.e. GGSIPU- 2012 onwards, MDU- 2012 onwards, CCS- 2005 onwards, DU- 2010 & JMI – 2008 onwards.
- Curriculum has been analyzed in perspective of only 4 National Documents i.e. National Curriculum Framework (NCF) -2005; National Curriculum Framework for Teacher Education (NCFTE) -2009; Report of the Working Group on Teacher Education for the 12th Five Year Plan (2012-17) &National Policy on Information and Communication Technology (ICT) In School Education (2013).
- The curriculum analyzed was for 1year B.Ed. programme which was implemented till session 2014-15 in all the universities.
- Though the new guidelines as per NCTE has been revealed for two year B.Ed. programme, but curriculum of all the five universities is not framed till the research has been complied, so it has been not taken into consideration.

CONCLUSION

Teachers are seen apprehensive and challenged by the students in the classroom if, they have been through the poor teaching programs. Such embarrassment could be avoided if the present and future need of the students should be catered by them. For this teacher's education curriculum should be updated with novel technological aids and modern teaching methodologies.This also depends on the attitudes of the teachers and their willingness to embrace such technology and ICT knowledge and skills. As it has been discussed that the national documents analyzed is having all the possibilities to make our curriculum best in terms of technology usage and skills enhancement. But the curriculum is not designed properly according to the guidelines provided. Especially the 12th FYP has given us the opportunity think of the latest technology usage in teacher education. Presently the B.Ed. curriculum has been revised according to the 2 year B.Ed. programme by NCTE. As per the revised framework, one Course i.e. Enhancing Professional Capacities (EPC) is Critical Understanding of ICT that shall be offered as an important curricular resource, according primacy to the role of the teacher, ensuring public ownership of digital resources, and promoting constructivist approaches that privilege participation and co-creation

over mere access to ICTs. So all universities have to introduce uniform ICT based curriculum & infused into the entire curriculum as per new guidelines.

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