

## Artigo Original

# New B.ED. Programme in India: A Convergent Parallel Study on ICT-Integration

*Novo Programa de Dois Anos De Bacharelado em Educação na Índia: Um Estudo Convergente Paralelo Sobre a Integração das TICs*

*Nuevo programa de dos años de licenciatura en educación en la India: un estudio paralelo convergente sobre la integración de las TIC*

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## Abstract

The current paper depicts a study which aims towards exploring and sharing the ICT-integration and its plight in the new two year Bachelor of Education (B.Ed.) programme which was implemented in 2015 in India through a national regulatory body called the National Council for Teacher Education (NCTE). The convergent parallel mixed method research design was followed for this study in which the researchers collected both qualitative and quantitative data simultaneously, and compared or converges both the types of data in order to get in-depth understanding related to the research problem. Stratified random sampling, Purposive sampling, Systematic random sampling and convenient sampling techniques were used as per the need for various group of samples. The major output of the study resulted into depicting the current processes and practices and future recommendations for the improvising ICT-integration in the new B.Ed. programme implemented in 2015 in the India. The insights generated from this study can be implemented in other countries as well across the globe.

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**keywords:** ICT-integration. New B.ED. Teacher education.

## Resumo

O presente trabalho visa a explorar e compartilhar a integração das TICs e a sua condição no novo programa de dois anos de bacharelado em educação (B.Ed.), o qual foi implementado em 2015, na Índia, por meio de um órgão regulatório chamado Conselho Nacional para a Formação de Professores (NCTE). O projeto de pesquisa convergente de método misto paralelo foi utilizado nesse estudo, no qual os pesquisadores coletaram dados qualitativos e quantitativos simultaneamente e compararam ou convergem ambos os tipos de dados para obter um entendimento aprofundado relacionado ao problema de pesquisa. Amostragem aleatória estratificada, amostragem intencional, amostragem aleatória sistemática e técnicas de amostragem convencional foram usadas de acordo com a necessidade de vários grupos de amostras. O resultado principal do estudo foi descrever os processos e as práticas atuais bem como as recomendações futuras para a integração de TICs no novo programa de bacharelado implementado em 2015 na Índia. Os esclarecimentos resultados desse estudo podem ser implementados em outros países ao redor do mundo.

**Palavras Chave:** Integração de TICs. Bacharelado. Formação de professores.

## Resumen

Este documento tiene como objetivo explorar y compartir la integración de las TIC y su estado en el nuevo programa de dos años de Licenciatura en Educación (B.Ed.), que se implementó en 2015 en India a través de un organismo regulador llamado Consejo Nacional de Formación Docente (NCTE). El proyecto de investigación convergente de método mixto paralelo se utilizó en este estudio, en el que los investigadores recolectaron simultáneamente datos cualitativos y cuantitativos y compararon o convergieron ambos tipos de datos para obtener una comprensión profunda relacionada con el problema de investigación. El muestreo aleatorio

estratificado, el muestreo intencional, el muestreo aleatorio sistemático y las técnicas de muestreo convencionales se utilizaron según la necesidad de varios grupos de muestras. El principal resultado del estudio fue describir los procesos y prácticas actuales, así como las recomendaciones futuras para integrar las TIC en el nuevo programa de bachillerato implementado en 2015 en la India. Los resultados de la aclaración de este estudio pueden implementarse en otros países del mundo.

**Palabras Clave:** Integrar las TIC. Bachillerato. Formación docente.

## 1. Introduction

History of Indian education system can be divided into four periods, i.e. ancient, medieval, British time and post-independence. Today the education system which is being followed in the country is of post-independence time period. In the current scenario, the Indian education system can be seen as majorly divided into two parts i.e. school education and higher education. Teacher education in India is a branch of higher education. There are several programmes being run by institutions under teacher education, which includes Diploma in Education (D.El.Ed.), Bachelor of Elementary Education (B.El.Ed.), Bachelor of Education (B.Ed.), Master of Education (M.Ed.) and others. Out of these programmes, B.Ed. programme is provided in order to prepare learning-facilitators of secondary and senior secondary school level. As in context, now-a-days, teacher's role is understood as facilitating for learning hence, in this entire paper, the term learning-facilitator is used for the teacher. In 2012, Justice Verma Committee recommended various changes that need to be made in teacher education programmes in order to meet the quality education. As per the recommendation given by Justice Verma Committee in 2012, NCTE has made some changes in B.Ed. programme in its 2014 regulation, implemented in 2015. One of the changes that the NCTE has made is increasing the time period of the programme from one to two years. Another important change that has been made was making compulsory EPC (Enhancement of Professional Capacity) – Critical understanding of ICT course.

ICT has become an important element of education system and to enhance the quality of education, it is important to work along with the demands of education. Hence, this compulsory course on ICT will provide knowledge to the prospective learning-facilitators on integration of ICT in their future classroom practices.

### THE PROBLEM

There are many committees that have been formed to get valuable recommendations from time to time to enhance the quality of education in India. Among those committees one was Justice Verma Committee, according to whose recommendations changes have been made in B.Ed. programme under NCTE 2014 regulation. This study is an attempt to explore how ICT is being integrated in the new two year B.Ed. programme, implemented in 2015, by different universities and how the integration of ICT in new two year B.Ed. programme differs with respect to the different universities i.e. Central Government, State Government and Private University.

### SIGNIFICANCE AND RATIONALE

ICT has taken a significant space in the education. Being an important part of education, the teacher education programmes are also being modified from time to time to enhance the quality of education. In 2014 regulation of NCTE the duration of B.Ed. programme has changed from one to two years, along with this critical understanding of ICT has been made a compulsory course under this programme. This study was an attempt to understand how ICT is being integrated in new two year B.Ed. programme. Since, it's a new area of study; this study will provide the insight to the curriculum maker about how ICT is being integrated in the new two year B.Ed. programme and what changes need to be done to improvise its integration to ultimately enhance the quality of education.

Impact of ICT in education is understood and also found significant. So preparing the future learning-facilitators to use ICT in their teaching and learning process and meet the needs of today is very important. This study has made us understand how ICT is being integrated in new two year B.Ed. programme in different universities. The collected with the help of this study will provide a glance to the curriculum makers and

learning-facilitator educators about barriers and enablers in the usage of ICT and hence can remove barriers for upcoming prospective learning-facilitators and enhance the enablers to help the stakeholders to use ICT in better manner. The data may enable them to make certain changes in the way learning-facilitator educators teach or the guidance being provided to prospective learning-facilitators for their future classroom practices.

## 2. Operational Definition of Key Terms and Concepts

### INFORMATION AND COMMUNICATION TECHNOLOGIES (ICT)

In this study, Information and Communication Technology refers to those technologies which helps in storing and communication of the information in digital format ((KANVARIA, 2014)). These include computers, LCD projectors, smart classes and application related to them.

### INTEGRATION

With reference to the current study, integration means use of ICT in the teaching and learning process by prospective learning-facilitators, learning-facilitator educators and in-service learning-facilitators.

### NEW TWO YEAR B.ED. PROGRAMME

New two year B.Ed. programme in this study referred to B.Ed. programme which has been made of two years after NCTE 2014 regulation.

### CONVERGENT PARALLEL STUDY

Convergent parallel studies are those in which the researcher collects both qualitative and quantitative data simultaneously, and compares or converges both the types of data in order to get in-depth understanding related to the research problem.

### OBJECTIVES OF THE STUDY

Objectives of this study were:

- To explore how much space is given to ICT in new two year B.Ed. curriculum and syllabus of different institutions.

- To collect the views on ICT and how ICT is being used by the learning-facilitator educators in new two year B.Ed. programme and the in-service learning-facilitators, who have studied new two year B.Ed. programme, belonging to different universities.
- To inquire into the practice of ICT in their work by prospective learning-facilitators of new two year B.Ed. programme associated with different universities.
- To diagnose and identify the barriers and enablers while utilization of ICT by prospective learning-facilitators, learning-facilitator educators in new two year B.Ed. programme and the in-service learning-facilitators, who have studied new two year B.Ed. programme, from different universities.
- To analyse the gap in the curriculum and its practice in B.Ed. institutions.

#### RESEARCH QUESTIONS AND HYPOTHESES

The research questions which guided the whole study are:

- R1: How much space has been given to ICT in the curriculum and syllabus of new two year B.Ed. programme, given by NCTE and universities, respectively?
- R2: What is the understanding of ICT among ICT and pedagogy learning-facilitator educators and in-service learning-facilitators who have studied new two year B.Ed. programme from sample universities?
- R3: How ICT has been in use while teaching and learning of new two year B.Ed. programme?
- R4: How ICT is being used by prospective learning-facilitators and in-service learning-facilitators who have studied new two year B.Ed. programme from sample universities in their practice teaching?
- R5: What are barriers and enablers in the use of ICT in the teaching and learning process?

#### **HYPOTHESIS WHICH WERE TESTED DURING THE COURSE OF THIS STUDY WERE:**

- H1: There are differences in the basic computer literacy of the prospective learning-facilitators belonging to different institutions.
- H2: Prospective learning-facilitators' understanding about ICT differs with respect to different universities.
- H3: The use of ICT in teaching and learning of B.Ed. programme differ with respect to different universities.
- H4: The use of ICT in practice teaching differs with respect to different universities.
- H5: The views about barriers and enablers for the use of ICT differ with respect to different universities.

### **3. Review of Related Literature**

For the present study, the researchers have divided the section of literature review into two parts i.e. literature related to methodology and literature related to results.

#### **LITERATURE RELATED TO METHODOLOGY**

Studies done on integration of ICT by several researchers including Kitchenham (2006), Al-Sulaimani (2010), Bandyopadhyay (2013), Alharbi (2014) and Watkar (2014) has shown that use of mixed method research for research on this topics has resulted into comprehensive findings and results related to the research problem. Hence, the researchers of the current study have taken mixed method research design for the current study. Among several mixed method research design Bandyopadhyay (2013) has used convergent concurrent mixed method research design, based on study the researchers realised that this research design was best suitable for the current study.

Different studies done using mixed method research design has used questionnaire for quantitative data collection, interview schedule and document analysis for qualitative data collection, this included study done by Al-Sulaimani (2010), Bandyopadhyay (2013), Alemu (2013)

and Adhikay (2015). Based on these studies, the researchers were able to gain the understanding that questionnaire, interview schedule and document analysis would be appropriate for collection of data for the current study.

#### LITERATURE RELATED TO OUTPUT

Literature has shown that there was a need of changes in the B.Ed. programme. Saraf (1998), Kangro and Kangro (2004), Khan (2012), Garcha (2016), Jayakumar (2016), Paliwal (2016) and Moshahid and Vadakkayil (2017) has shown in their study that B.Ed. programme needed to be changed to one to two years and ICT needed to be added to B.Ed. programme to improvise its quality and overall quality of the education system. It also illustrated that there were several benefits of changing this programme.

The studies done by Koc and Bakir (2010), Rajasekar and Dineshan (2013), Deivam (2016), Muniyadi (2016) has shown that ICT literacy among B.Ed. trainees was either low or moderated. Significant differences were found among B.Ed. trainees based on the area i.e. rural and urban and the educational qualification. However, different studies have different results regarding significant difference based on gender. Study done by Rajasekar and Dineshan (2013) showed that significant difference existed among B.Ed. trainees based on gender whereas Deivam (2016) has found out that there were no significant differences among B.Ed. trainees based on ICT literacy.

Studies on awareness of ICT among learning-facilitator educators, prospective learning-facilitators and in-service learning-facilitators have shown different results. Thakur (2014) has found out that significance differences existed among in-service learning-facilitators based on area i.e. rural and urban, however no significance differences existed among in-service learning-facilitators based on gender. Sekar (2016) has shown in the study that awareness among B.Ed. pre-service learning-facilitators didn't differ with respect to gender, aided or unaided institutions and prerequisites educational qualification.

There are many ways in which ICT can be used in used in teaching and learning of B.Ed. programme. These ways can be summarised into

four celled matrix as given by Jung (2005). These four cell included core technology, learning via ICT, complementary technology and learning how to use ICT. This result can be seen applicable to the studied of other researchers like Peeraer, and Petegem (2011), Tondeur, Braak, Sang, Voogt, Fisser, and Ottenbreit-Leftwich (2012), Gupta (2013), Avidov-Ungar and Iluz (2014) and Brun and Hinostroza (2014).

Gill and Dalgarno (2010), Kalas (2010), Bozdogan and Ozen (2014), Aslan and Zhu (2016) and Das (2017) found in their studies that is ICT is being used by prospective learning-facilitators in their practice teaching then it helps them prepare in better manner for future classroom practice. Use of ICT by in-service learning-facilitators in their teaching helps the learners to have better understanding about the concepts. The finding of the studies also revealed that only basic technology was being used by prospective learning-facilitators in practice teaching and the competence of ICT, perception about ICT, attitude towards ICT, anxiety related to use of ICT, external barriers to the use of ICT, pedagogical knowledge related to ICT integration, ICT related course and experience related to ICT in teaching process plays significant role in integration of ICT by prospective learning-facilitators.

The studies done Jainand Agrawal (2007), Grove (2008), Goktas, Yildirim, and Yildirim (2009), Brun and Hinostroza (2014), Mahumetjanova (2014), Mulhim (2014), Alemu (2015), Budhedeo (2016) and Gill (2017) has found out several benefits, barriers and enablers for the usage of ICT in the education system. This included access to ICT, lack of training to learning-facilitators and learning-facilitator educators, lack of time as the learning-facilitators need to complete specific course in particular time and usage of ICT consume more time as barriers, quality improvement of in-service learning-facilitator training about usage of ICT, support from the management and technical support for the usage of ICT, course content in digital format and linkages between the course content available digital resources, focus on the quality of the content delivery not on the quantity of the content being delivered as enablers and improvise the learning, make the management tasks convenient to perform, effective and efficient work in the education, enhances the knowledge of the learners, provides motivation to the learners, better academic achievement with the help of ICT as benefits of using ICT in education.

## 4. Methodology

### 4.3. Research design

Current study has used mixed method research design as it provides the in-depth understanding regarding the exploration with the help of both the types of data i.e. qualitative and quantitative. There are different types of mixed method research design, out of these; the convergent parallel mixed method research design has been used by the researchers in current study. In this kind of study qualitative and quantitative data are collected simultaneously and they are either compared or combined in order to get more comprehensive picture about the research problem.

### 4.4. Sample and sampling techniques

The sample of the current study included prospective learning-facilitators, ICT learning-facilitator educators, pedagogy (Mathematics and Science) learning-facilitator educators and in-service learning-facilitators who has studied new two year B.Ed. programme from sample universities i.e. Central Government University, State Government University and Private University. For selection of these samples different sampling techniques were employed, these techniques were:

**Stratified random sampling for universities:** Based on the names available on the internet, a list of universities in Delhi / NCR which were providing the new two year B.Ed. programme was made. Then names of the universities were written on separate chits based on the strata i.e. Central Government University, State Government University and Private University. Through lottery system, one chit from each stratum was drawn and hence the universities were selected.

**Purposive sampling for learning-facilitator educators:** The researchers wanted to take the interviews of ICT and pedagogy learning-facilitator educators, hence based on the purpose of the study learning-facilitator educators were selected through purposive sampling. Total 3 ICT learning-facilitator educators and 6 pedagogy learning-facilitator educators were chosen as samples.

**Systematic random sampling for prospective learning-facilitators:** The researchers has made the list of prospective learning-facilitators from each sample university, and based on the number of prospective learning-facilitators to be chosen and total number of prospective learning-facilitators in the particular university, the researchers applied the formula of systematics random sampling and chose the sample of prospective learning-facilitators. Total 150 prospective learning-facilitators i.e. 50 from each university were selected as samples of the current study.

**Convenient sampling for in-service learning-facilitators:** Since, in-service learning-facilitators were not a part of university system; they have their own work to do. As per the convenience of the in-service learning-facilitators i.e. who were interested to be a part of the study were selected as sample for the study. Total 3 in-service learning-facilitators i.e. 1 from each university were selected as samples of the current study.

## 4.5. Research tools

For this research, the research has used 5 research tools for the collection of the data. These tools were as follows:

**Checklist for document analysis:** Checklist is a kind of instrument which is used to seek better qualitative data analysis from the documents which already exists. The researchers has used checklist for analysing 4 documents which included, NCTE curriculum and syllabi of 3 sample universities.

**Mixed questionnaire for prospective learning-facilitators:** Mixed questionnaire includes both open ended as well close ended questions. Mixed questionnaire of the current study included 5 sections and 5 questions in each section, which makes it a total of 25 questions. This tool was designed and developed of the researchers and was administered on prospective learning-facilitators for data collection.

**Structured interview schedule for ICT learning-facilitator educator:** In a structured interview schedule, particular questions are asked

by the researchers in same sequence to the all the samples of the study. In current study structured interview schedule which was administered on ICT learning-facilitator educator included 4 sections and 10 questions in total.

**Structured interview schedule for pedagogy learning-facilitator educator:** Another structured interview schedule was designed and developed by the researchers for pedagogy learning-facilitator educators. This tool consisted of 4 sections and 9 questions in total.

**Telephone interview schedule for in-service learning-facilitators:** Telephone interview schedule refers to interviewing the samples on a telephone call. The telephone interview schedule designed and developed by the researchers for current study consisted for 4 sections and 9 questions in total.

## 5. Validation of the Tools

Based on literature review, the tools were designed and developed by the researchers. After developing the tools, the researchers converted the tools into google forms to get the opinion of the experts based on objective, language and content of each item of each tool through e-mail. After making the google forms, the researchers mailed the google forms to the experts. More than 50 experts were contacted. Based on the responses that the researchers got, response sheet of 40 experts was prepared for each tool. Changes were made in tools where required and tools were finalised.

For questionnaire, the researchers has also done pilot study and after getting the responses from pilot study, the researchers has made changes, where required and then questionnaire was finalised.

## 6. Procedure for Data Collection

The data for the current study was collected in the following for phases:

**Phase 1:** The first phase included collection of 4 documents i.e. NCTE curriculum and syllabi of two year B.Ed. programme from three sample universities.

**Phase 2:** In phase two, questionnaires for prospective learning-facilitators were administered.

**Phase 3:** Phase three involved the interviews with learning-facilitator educators (ICT and Pedagogy learning-facilitators) from sample universities.

**Phase 4:** In phase four, the researchers collected the data from in-service learning-facilitators, who have studied the new two year B.Ed. programme, with the help of telephone interview schedule.

## 7. Limitations and Delimitations of the Study

Limitations of the current study are:

- Lack of literature in relation of integration of ICT in new two year B.Ed. programme.
- Small sample size, hence no generalisability
- Researchers' specialization in educational technology may lead to biasness.
- Socially accepted answers are the weakness of self-reporting questionnaire, which may arise.
- Missed an opportunity to ask about success of multimedia lesson plans delivered by prospective learning-facilitators.

The study was delimited to:

- The three types of universities only.
- One university of each type only.
- Area Delhi/NCR of the India only.
- Sample elements as learners and learning-facilitators engaged with the new two year B.Ed. programme only.

## 8. Analysis of Data

The data collected through checklist and interview schedule were first transcribed in word files and themes were found out. Based on the themes and the patterns, that the researchers found, data were analysed through content analysis technique.

The data collected through questionnaire was first coded by the researchers and then the coded data was entered into excel sheet. Once the whole data was entered into excel sheet the researchers transferred the quantitative into SPSS to do the descriptive analysis of the data through frequency tables and graphs.

Then the researchers found out the themes and patterns in the remaining qualitative data collected through questionnaire and used content analysis techniques to analysis this data.

## 9. Major Findings of the Study

The major findings of the current study are as follow:

- ICT has not been given special place in NCTE curriculum and focus remained on practicum of ICT.
- EPC- critical understanding of ICT was given space in 1st in NCTE curriculum and Central Government University syllabus; however, it was given space in 1st semester in State Government and Private University.
- Guidelines for learning-facilitator educators to use ICT were not given in the NCTE curriculum and syllabus of State Government University. However, the uses of ICT by pedagogy learning-facilitators were mentioned in syllabi of Central Government and Private University.
- ICT has been given space in practicum of different courses, specialisation and EPC course in the syllabi of sample universities.
- Practicum and theory of ICT were given equal weightage in the syllabi of sample universities.

- The learning-facilitator educators and in-service learning-facilitators have connected the concept of ICT and ICT in education.
- According to learning-facilitator educators and in-service learning-facilitators ICT in learning-facilitator education is very important and need have today.
- All ICT learning-facilitator educators has the notion that they focus on both practicum and theory, however the in-service learning-facilitators contradicted this notion and provided the information that practicum was not focused much in Central and State Government University.
- Teaching of basic level technology was focused in Central and State Government University and middle level technology was focused in Private University.
- The technologies being used by learning-facilitator educators and in-service learning-facilitators included projectors, smart classes, PPTs, videos, Google slides, search engines and e-mail services.
- For helping the prospective learning-facilitators to integrate ICT in their teaching practice, simulated teaching and demonstration classes for use of technology in classroom were provided by learning-facilitator educators.
- Usage of ICT tools was highest among prospective learning-facilitators of Private University and almost equal among prospective learning-facilitators of Central and State Government University.
- Prospective learning-facilitators of State Government University were better exposed to use of tools and technology in their institution as compared to prospective learning-facilitators of other institutions.
- The views of most of the prospective learning-facilitators about ICT were limited to the notion that ICT are some technologies which has been evolved especially for teaching and learning process.
- Usage of ICT in practice teaching was prevalent in the prospective learning-facilitators of State Government University.

- Barriers being faced by learning-facilitator educators, in-service learning-facilitators and prospective learning-facilitators included infrastructural barriers, language barriers, learning barriers, time constraints, lack of training and support from the authorities.
- According to the samples, if these barriers were overcome then these could be converted into enablers.
- Some of the enablers which were noted down included understanding of TPACK framework and its usage in classroom practices, infrastructural facilities, availability of resources, time management, support from authorities and others.
- The researchers didn't find much gap between the curriculum and practice with respect to ICT integration in the new two year B.Ed. programme.
- It was found that the in-service learning-facilitators who have studied new two year B.Ed. programme were unable to cope up with the practical use of technology in their daily routine in the school.

## 10. Conclusion

To conclude, it can be said that the 2014 regulation of the NCTE has brought about the revolution in teacher education programmes. Several changes were made in the curriculum and syllabus of the B.Ed. programme to enhance the quality of education and meet the challenges being faced by school learning-facilitators. But the main component which might help the learning-facilitators to face the challenges i.e. ICT has not been properly integrated in the curriculum of the programme. Although the syllabi of the several universities has tried to integrate ICT in it, but its practical implication in the programme is still lacking behind.

Learning-facilitator educators are oriented to use ICT in their teaching but due to several barriers being faced by them they were not able to implement the same. However they believe that ICT integration would be helpful for prospective learning-facilitators but in the practicality it could be seen that what they thought were different from what they

implement. Learning-facilitator educators tried their best to help prospective learning-facilitators in integration of ICT in their teaching as they give them simulated teaching experience and demo classes for integration of ICT in the practice teaching but the schools which were provided to the prospective learning-facilitators for practice teaching didn't have the ICT facilities in them and hence they were not able to implement what they were taught.

The position of prospective learning-facilitators of State Government University was better from other university's prospective learning-facilitators as more exposure to technology was provided to them and they also used more technology in their practice teaching as compared to others.

In-service learning-facilitators were not satisfied with the way ICT was being taught to them, as it didn't prepare them for exactly what is being practiced in the schools. So, the way ICT is being taught to the practice learning-facilitators needed to be changed in order to prepare them for future classroom practices.

## 11. Recommendations

Based on the findings and conclusion of the study, the researchers could provide the following recommendations to the institutions to enhance the quality of the new B.Ed. programme:

- Infrastructural facilities should be made available in the institutions.
- Workshops should be provided to learning-facilitator educators, prospective learning-facilitators and in-service learning-facilitator from time to time to provide them up-to-date knowledge and skills about usage of ICT.
- Special attention should be given to those prospective learning-facilitators who don't have the basic literacy about computers.
- Provide opportunity to integrate the tools and technology in pedagogy on daily basis.

- Formation of committee to take care of technological availability and accessibility for daily routine work.
- Schools for practice teaching should be chosen on the basis of availability of ICT resources in them.
- Provision of having ICT course in both the years of B.Ed. programme to have better understanding of ICT and its integration.
- More weightage should be given to practicum of ICT.

## 12. Scope for Further Research

According to the researchers several paths have been opened up for further studies. Further study can be done related to the other EPC courses and how they are helping the prospective learning-facilitators in their teaching and learning process. This study was done on a broad topic i.e. integration of ICT, Further study can be taken up on specific domain of ICT like mobile learning, blended learning or flipped learning and their integration in learning-facilitator education programme. A Further study can also be done on how specialisations like educational technology and ICT in M.Ed. programme are helping the prospective learning-facilitator educators in integration of ICT in their teaching and learning process. The research work can also be done on how specialisation subjects like computer education or educational technology in B.Ed. programme are helping the prospective learning-facilitators in their teaching and learning process. An attempt can also be made on studying about differences in integration of ICT in different learning-facilitator education programmes like D.El.Ed, B.El.Ed, B.Ed. and others. Case studies can also be done on particular institution where B.Ed. programme is being run. Further study can be done on integration of ICT in B.Ed. programme in relation with the concepts like self-efficacy, morale, teaching competencies of learning-facilitator educators and prospective teachers. The same study can be done other in regions of the country or other countries, as this study was delimited to Delhi/NCR of India.

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