PROFESSIONAL EXPERIENCES OF TEACHER TRAINER WITH K-YAN DURING PRIMARY TEACHER TRAINING PROGRAMME

Bikash Barai

Assistant Teacher, Dalsingpara Sree Ganesh Vidayalaya High School, Alipurduar, West Bengal, India, 735208

ABSTRACT

To provide quality education to the mass number of untrained primary and upper primary teachers, diploma in elementary education through distance mode was started in India. Adapting the blended learning approach, face to face practical sessions were organized for the trainees. For the training mainly K-Yan was used, it is a modern tool of educational technology that also incorporates the elements of information and communication technology. A qualitative study was done to go through the experiences of the trainers with K-Yan for revealing the usefulness of K-Yan in transforming the traditional system of education into the modern blended system of education.

KEYWORDS: *Teacher Education, K-Yan, Traditional Education, Blended Learning, Educational Technology*

INTRODUCTION

Background of the Study

In a populous country like India providing education for all is a big challenge and to meet such goal a huge force of qualified and professionally trained teachers are required. As a considerable population of teachers of both government and private schools not having a professional degree for teaching, the quality of education in school is degrading (Barai, 2018). In its response, national council for teacher education (NCTE) established by the government of India made it mandatory for all applicant to have a professional degree for teaching. Also, it was decided that In-service school teachers, if not trained should compulsorily obtain the required professional degree through open and distance mode of education. National Institute of open schooling (NIOS) established in 1989 by the government of India, started a course of two years of durationnamed diploma in elementary education (D.El.Ed) via distance mode of education for training in-service teachers of both private and government primary and upper primary schools. D.El.Ed course is designed to provide an advantage of face to face mode of education in distance education through various practical sessions like personal contact programme (PCP) and workshops. Both PCP and workshops are conducted by Study centers. Study centers are mostly High schools assigned by NIOS and only such high schools are being assigned which has the entire necessary support system like qualified teacher trainer, infrastructure, tools of information and communication technology (ICT), teaching aids etc.

The present study was done to explore the professional experiences of the teacher trainers of these study centers with a revolutionary ICT based tool of educational technology (ET) called K-Yan while conducting the practical programmes for training the teachers. Often distance mode of education doesn't have the richness and quality of regular mode of education. To meet such deficiencies blended curriculum which incorporates the ICT based tool with face to face

mode of education (Jonker, Marz&Voogt, 2018) is required in distance mode of education also. The teacher trainers of the study center under study had tried to follow the blended teaching-learning approach using K-Yan during the PCP and workshops. An effort to transform the traditional method of teaching-learning into a modern method of teaching-learning was made by the trainers during the training programme of the in-service untrained primary teachers

Recent Trend of ICT and ICT Based Tool K-Yan in Education

ICT is rapidly becoming a tool of social transformation and economic change, from agriculture, medicine, industry, business to education ICT is shaping the future. ICT is changing the teaching-learning process for both teachers and students (Rajan, 2012). IntegrationoftheICTineducationalprojects; alsopopularlycalled educational technologystartedgettingimplementedinearly2002in NorthAmerica&inEurope. ET is the combination of scientific hardware, software with the principle of educational pedagogy to make teaching-learning more efficient and productive.

In the year 2007-2008 government of West Bengal with support from its department of Information and Technology implemented computer-aided learning (CAL) system through K-Yan (knowledge yantra) in the phased manner with Bardhaman and Bankura being the first districts to implement the project. West Bengal Electronic Industry Development Co-operation Ltd mandated ILFS-ETS as the implementing agency of the K-Yan project. K-Yan was developed by Dr. Kirti Trivedi of IIT Bombay in the year 2004 as an all in one community computer. K-Yan is the best example of ET that merges the ICT with teaching-learning process. The base model of K-Yan is a computer with integrated projector, Dolby speakers, optical drive, USB ports, digital pen, educational content and eyeRIS (intellispace) software that can convert any nearly smooth solid surface (like walls of classroom)into a digital board.

Studies on K-Yan have revealed that it is highly effective in increasing the enthusiasm of both the teacher and learner (Mondal, 2014). Use of K-Yan in teaching learning process is thus increasing exponentially (Adam &Zanna, 2016). It was found that for professional development of in-service teachers, the training programme is very important and such a programme must include ICT as its major element of the curriculum. Both the trainer and trainees must develop the skill of using ICT then only the quality and effectiveness of the teacher training programme will increase (Rajan, 2012). In case of pre-service teacher education study revealed that though pre-service teachers were very knowledgeable about the use and relevance of ICT in teacher education but implementation of ICT in teacher education was affected by many problems like limited access to ICT in school and teacher education programme, misconception about use of ICT and inadequate modelling of pedagogic use of ICT (Martinovic& Zhang, 2012). Even for the beginning secondary school teacher, a context in which ICT was used played an important role. Three contextual considerations: school policies, processes, and structures, appropriate professional support helps and sometimes hinder the use of digital technology (Starkey, 2010). Such a use and success with ICT based tools in global scale has motivated the author to conduct a research to understand the experiences of teacher trainers of a D.El.Ed study center where K-Yan was extensively used during the PCP programme. The following are the guiding questions for the author for this study: 1) What are the trainer's opinions about D.El.Ed practical programmes for in-service untrained primary teachers by NIOS conducted at their school (study center), 2) What were the trainers experience with K-Yan during the training programme, 3) What changes K-Yan had brought in the teaching-learning process?

THE STUDY

The following section is about the detail description of the design and methodology of the study, sampling, and participants, data collection and analysis, establishment of the reliability and validity and of the study.

Design and Methodology of the Study

The study is qualitative in nature. Qualitative research is used to explore the potential antecedents and factors about which little has been known and explored (Corbin & Strauss, 1998). For the present study author utilizes his long experience in the profession of teaching and teacher education to design an open-ended questionnaire as a tool for collecting content-based data from the participants. Though qualitative approaches are incredibly diverse, complex and nuanced (Holloway and Todres, 2003), the reason behind opting for qualitative questionnaire-based research was to get the in-depth and comprehensive picture of the teacher trainer's experiences with K-Yan during the D.El.Ed practical programmes. The questions given to the participants were semi-structured and interview like in nature so that the responses obtained in text form could be analyzed by the thematic content analysis method. Author adapted grounded theory approach in this study where the inductive method was used to develop a theory based on the experiences and perspectives of the participants (Nastasi&Schensul, 2005).

Participants

Participants for the present qualitative research were from two of the high schools (assigned as study centers by the NIOS) of Alipurduar districts of West Bengal, India. The study demands only teachers involved as trainers for the teacher training programme so author purposively sampled ten (n=10) teacher trainers who volunteered as participants (Flick, 2009). All of the ten teacher trainers are the permanent teachers of their respective schools appointed in the post of the assistant teacher by the West Bengal school service commission, Govt of West Bengal. Ademography of the participants is presented in table 1.

Table 1: Demography ofthe Participants

ID of Participant.	Gender	Age	Post	Teaching Experience (In Years)	Highest Qualification(S)	Language(S) Known
KR	Male	32	Assistant teacher	4	M.Com, B.Ed	English, Hindi
DY	Male	31	Assistant teacher	9	M.A Hindi, B.Ed	English, Hindi, Bengali
MS	Male	35	Assistant teacher	7	M.Sc Chemistry, B.Ed	English, Hindi, Bengali
SN	Male	34	Assistant teacher	10	B.A Geography, B.Ed	English, Hindi, Bengali, Nepali
SP	Male	31	Assistant teacher	4	B.A, M.P.Ed	English, Hindi, Bengali
PP	Male	29	Assistant teacher	3	B.A Economics, B.Ed	English, Hindi, Nepali
BT	Female	34	Assistant teacher	4	M.A English, B.Ed	English, Hindi, Bengali, Nepali
SC	Female	36	Assistant teacher	8	M.A English, B.Ed	English, Hindi, Bengali,
NC	Female	29	Assistant teacher	3	M.A Geography, B.Ed	English, Hindi, Bengali, Nepali
BK	Male	35	Assistant teacher	4	M.A Hindi, B.Ed	English, Hindi, Bengali, Nepali

*M.Com- Master of Commerce, M.A- Master of Arts, M.sc- Master of Science, M.P.Ed- Master in Physical Education, B.Ed- Bachelor of Education.

Each participating trainers were given an ID to maintain their privacy. Out of ten trainers, 30 percent were female and 70 percent were male. The average ages of the trainers were near to 32 years, with youngest of age 29 and oldest of age 36. Thus most of the trainers were young with an average teaching experience of nearly 5 years. All of them had the bachelor of education (B.Ed), a compulsory professional degree for teaching at secondary and higher secondary schools. One trainer was from commerce stream whereas another one from science stream and rest all from the humanities. As per the norms of NIOS, all trainers should have either a bachelor or master degree from any stream with B.Ed, thus all the participants were technically qualified trainers for primary teacher training programme. English and Hindi being the official language of the country were known to all the trainers and state language Bengali was known to eight of them. Three trainers were well proficient with the local language Nepali also. Such multilingual proficiency by the trainers was most essential for the programme as trainees of D.El.Ed programme was also from different medium schools (mostly were from English and Hindi medium schools whereas few were from Bengali and Nepali medium schools too).

Data Collection and Analysis

The data was collected using the authors made open-ended questionnaire which was given to the participants after proper explanation of each question. A time period of ten days was given to the participants for submitting their responses. The questions were all in English but a freedom was given to the participants to make their responses either in English or in Hindi as per their convenience. In case of few questions, some of the participants provided verbal responses which the author had to transcribe. Seven easily understandable questions which were constructed to elicit the reactions, views, opinions about K-Yan and experiences of the participants are as follows: 1) What did you think about the primary teacher training programme (D.El.Ed) by NIOS, 2) How your school as a study center has helped in conducting practical programmes like personal contact programme and workshops for primary teacher training, 3) How the various tools of education technology helped in conducting practical programmes of D.El.Ed in your schools & Which tools do you think are more useful for you during training teachers, 4) What is your opinion about K-Yan as a tool of educational technology, 5) How you used K-Yan during primary teacher training programmes, 6) What are the problems you often faced while using K-Yan? Can you suggest some possible solutions to these problems, 7) Finally, what is your concluding opinion about success or failure of K-Yan in connection to the primary teacher training programme.

The author used the copy(s) of the original response sheet during the entire analysis process. For the analysis the inductive coding method as suggested by Creswell (2012) was followed, color coding was done to develop themes as proposed by Barun and Clarke (2006) that can be related to draw out the conclusion and developing the theory. The seven questions were interrelated to each other representing a sequential approach from view over practical training programmes to using of various tools of educational technology with emphasis over experience with K-Yan, its usefulness, drawbacks and finally, suggestion for improvements. Thus the themes were developed by taking all the questions together. Responses of all ten participants were thoroughly read and significant words and statements were considered to develop the sub themes then these themes were color-coded and finally grouped into themes. During the development of the themes, the experience of the author as a researcher, teacher training supervisor, master K-Yan trainer and proficiency in English as well as Hindi languages helped to a great extent.

Establishing Reliability and Validity

Patton (2015) states that validity and reliability are two factors which any qualitative researcher should be concerned about while designing a study, analyzing results and judging the quality of the study. Thus author took multiple steps throughout the study to maintain the validity and reliability of the work. By collecting data from participants of different subject streams and of two different study center data triangulation was followed. The research aim and research question were kept explicit. The questions for participants were developed after consultation with experts from the field of the teacher education. The coding and theme development was done by the author manually under the supervision of fellow researchers with expertise in the coding of qualitative data. In addition, participants were frequently invited to clarify anything that was unclear and to review their responses. Considering the ethics of research the privacy and confidentiality of the participants were maintained and in the study participants are referred by their ID's only.

FINDINGS

The thematic coding of the collected data (statements of the participants) leads to the development of six major themes: 1) Necessity of D.El.Ed and practical programme, 2) Requirements and issues related to the practical programme, 3) Solutions and supports, 4) Advantages and usefulness of K-Yan, 5) Transforming traditional system of teacher education toward blended education and 6) Problems to be addressed and improvements needed in K-Yan.

Necessity of D.El.Edand Practical Programme

Professional training programmes both for pre-service and in-service teachers are essential for a wide spectrum of reasons. The goal of teacher preparation programs was to design the social, organizational, and intellectual contexts wherein prospective teachers could develop the knowledge, skills, and dispositions needed to function as decision makers (Cochran-Smith, 2004). Special focus has been given to the in-service teacher training programme for the past few years as many of them are not professionally trained to cause degradation of primary education level. As stated by trainer KR, *"it is difficult for a teacher to teach the primary level student compared to higher secondary level student"*, reflected the importance of professionally trained teachers at primary level. Six (n=6) participants consider D.El.Ed as a good initiative and four (n=4) of them strongly considered it as essential for the professional development of untrained teachers. As NC wrote, *"Primary teacher training programme (D.El.Ed) by NIOS is the best way to train the untrained in-service teachers to develop their skills, competencies, attitude, and understanding to make learning more effective."* This statement supports the view of Osamwonyi (2016) about the benefits of in-service teacher training programmes. In distance mode only teacher education programmes the trainees often get deprived of face to face interaction with the other fellow teachers and resource persons to share their problems, experiences and academic issues. The inclusion of practical programmes in distance mode teacher education programmes gives an opportunity to the trainees to find out the solution of all such problems which they face professionally and academically this result was similar to the findings of Barai (2018). Commencement of practical programme in D.El.Ed through distance education is a welcome step which all the participants highlighted.

Requirements and Issues Related to the Practical Programme

Organising large-scale teacher training programme is not an easy task administratively and economically, it requires a robust management system, basic infrastructure, teaching-learning resources, well-trained resource persons and academic support team. D.El.Ed practical programmes aimed and designed to provide academic and professional support to the primary untrained teachers, it also needs all the above-mentioned requirements for proper and successful operation. Responses of the participating trainees revealed that infrastructures are the most essential requirement to conduct practical programmes of D.El.Ed, as six (n=6) participant out of ten, mentioned it in their responses. BT wrote, *"But NIOS needs infrastructure and more good resource persons for the success of D.El.Ed programme."* It showed not just infrastructure but to have good resource persons is also essential, by good one mean trained and efficient, four (n=4) participants emphasized on the requirement of properly trained resource persons as the success of training programme depends heavily on them. But many participants raised concern about proper training need of resource persons as highlighted by SP, *"no arrangements were made for teacher trainers to provide initial training for conducting the training programme",* it showed programme specific training was not given to the trainers. In developing countries education is seeing a shift toward blending of modern technology with traditional education like the use of ICT and computing devices. One major issue after trending of modern tools of educational technology is the insufficient training of practicing teachers in using of educational technology (Constantino, 2014),a situation is not different in case of teacher trainers also. Seven (n=7)participants mentioned the necessity of tools of education technology in teacher training programmes.As the tool of educational technology is the necessity of modern teacher education and training programme participants also suggested a need for efficiency development training for trainers. SP also wrote about some other major issues related to the practical programmes of D.El.Ed, *"the training programme was started in every state of India. Lots of problems has been seen after that. Management never thought of such a large number of enrolments for the coursestudy centers were not provided with reference materials. ".*A large number of enrolment led to the unavailability of a sufficient number of well-equipped study centers and also NIOS failed to provide printed learning materials for the trainers and trainees. Though such learning materials were available for download in online print at the official website of NIOS, due to lack of proper access to the internet by some of the trainees they didn't get all the study materials. So it became clear that conducting a large scale teacher education and training programme needs good management, basic infrastructure, professionally trained trainers, tools of educational technology especially modern tools like computer, software, and K-Yan. Next section of the findings is about all the possible supports that were available or provided by the study center(s) as a solution to overcome the issues just discussed in the present section.

Solutions and Supports

The study centers were high schools located in both suburban and rural areas, thus access to the trainees become easier and resulted into cent percent attendance in the practical training programmes as mentioned in the response of BT. Most of the study centers do not have all the facilities especially needed for teacher training programme but the study centres had the basic infrastructure like spacious and well-ventilated classrooms with a proper sitting provision, toilets, drinking water etc. Likewise, the two study centers of the present study also provided all the basic infrastructural requirements and unlike others, these two study centers provided K-Yan for the training programme. Participants were satisfied with the fellow trainers of their respective study center and considered them as well trained, professional, supportive toward trainees, and efficient, which was clear from this statement of SN, *"my school as a study center*

conducted the practical programmes, like PCP and workshops- which seems to be very gainful and fruitful for the trainees with the helping hand of the most qualified, experienced, efficient and enthusiastic teachers. Cooperative and intellectual resource persons have made this programme impactful". So resource persons (trainers) need to be well aware of the requirements of the programme so that they can work efficiently to make such training programme successful. In this endeavour, the trainers were supported by the various tools of educational technology, both traditional and modern. SC mentioned about many of such traditional tools of educational technology used during the training programme like black-board, charts, and diagrams etc. Such tools helped in making the teaching-learning process during training effective and interesting. Traditional tools were helpful but not sufficient for achieving the aim of practical and training programmes of teacher education in distance mode. Participants of the two study centers thus mainly used the internet, computer and specially K-Yan as the major modern tools of educational technology such tools helped in the training of a mass number of trainees in the most effective way possible. All the participants mentioned K-Yan in improving their efficiency as a trainer of the teacher training programme. As written by SP, the training programme was well supported by online programme guide and study materials for references provided by NIOS. Trainers extensively use many other web-based information and knowledge-based content to enrich the training programmes for the teachers. Support for such modern tools of educational technology not only helped in fluidly running the teaching and learning processes but also helped in minimizing the wastage of time and maximizing the outcome of the programme.

Advantages and Usefulness of K-Yan

Resource persons used various tools of educational technology during the entire programme to achieve the objective of the programme, among the many other different tools they mostly used K-Yan during their work. This section will be focused on various usages of K-Yan and its advantages; also it will reflect the experience of the resource persons with K-Yan during teacher training programme. K-Yan was described by responded as the most useful tool and six (n=6) of them found it user-friendly if one has the basic knowledge of computer. Among the various features of K-Yan, most admired feature is "intellispace", which is popularly called as "digital smart board" by the participants. Seven (n=7) of the participants highly recommended the smart board feature of K-Yan for teaching-learning process. This feature helped the resource persons to convert any smooth white wall into projection screen which was very helpful during giving lectures and demonstrations in the classroom but this was not limited to just projecting content to the walls of the classroom, intellispace software along with a digital pen-enabled the participants to write, draw and do all the activities that can be done in the computer screen directly into the projected wall of the classroom. About the usefulness of digital smart board, MS wrote, "*to make primary teacher training programme interesting and effective use of K-Yan was very fruitful because it was used to download various study materials and with the smart board trainees were trained effectively in very short time. Apart from it smart board and slides shows were used successfully during school-based activities and workshop to improve understanding of the trainees.*" One of the participants DY considers K-Yan as a worthy replacement of Black Boards in lecture and training rooms. DY further emphasized that the smart board can store content and class notes for an indefinite period of time which was not possible with traditional blackboards. Another use of K-Yan during the training classes was as a projector, all participating trainers used it to show training videos, demonstration videos, YouTube based content related videos, text-based information, and power point slide shows. Eight (n=8) participants mentioned about the use of such audio-video feature of K-Yan extensively during the training programme. SN mentioned K-Yan as a tool which helped in clearing difficult concept and teaching complicated topic very easily to the trainees, as it makes teaching-learning

active and catch the attention of learners. A single K-Yan can be used for a large group of learner due to its audio-video feature, smart board feature and other various multitasking capabilities thus it is a kind of community computer. Its effectiveness against a mass number of learner makes it cost-effective option for all educational institutions. PP made another important use of K-Yan according to him K-Yan had reduced the dependence on pen and paper for learners and teachers as it helped in digitalizing the educational process. Resource persons now don't have to carry all content materials like books, charts, diagrams and models to the class, they could easily carry everything in a mass storage device like pen drive or CDs & DVDs. Finally K-Yan was also used as a tool of ICT where the resource persons used it for internet-based cloud learning and internet TV, in this regard SC wrote, *"K-Yan has become a key enabling device towards the concept of digital classrooms... Through this teachers can interactively teach and display information to the entire class. Large hard disk along with inbuilt connectivity for internet and television enables the unlimited amount of educational materials to be brought to learners anywhere."* Likewise, five (n=5) of the participant mentioned the usefulness of K-Yan in accessing the internet and using cloud-based knowledge for teacher education and training purposes.

Transforming Traditional System of Teacher Education toward Blended Education

With the introduction of K-Yan, an effort was made to shift the educational system toward blended education. By blended education, one can mean a combination of classroom learning and e-learning. But merely injecting some elements of e-learning doesn't classify an education as blended education. The blended education must have some objectives to achieve through blended learning, issues faced and remedies for it and finally measuring the effectiveness (Kim, 2007). Distance education programme for primary teachers (D.El.Ed) itself is a deviant from formal teacher education programme but here an effort was made to combine the traditional learning with online learning by promoting classroom learning through PCP and workshops and providing instructions and contents for learning through the internet. This effort was further taken ahead by the participants of the two study centers with the use of K-Yan which created an environment of cloud-based learning within the traditional step-up of class. This section is about the outcomes of using K-Yan which helped in achieving the objectives of the training programme through blended learning. All the participants had written positive notes about the K-Yan and its effectiveness in their responses. They considered it as a revolutionary tool of educational technology which was easy to use, productive, attention-grabbing and make learning actively interesting for learners. They also emphasized its capability to transform the traditional classroom learning toward blended learning. Seven (n=7) of the participants accepted that it helped them to promote ICT, digital learning and e-learning in the class room. BT wrote in her response, *"it is effectively a digital multimedia device which contains a computer with inbuilt projector, speaker and has wireless keyboard and mouse... it facilitates effective use of ICT technology in the classroom in a group setting. It can attract the students and a teacher can covert his simple class into a smart class."* The statement showed that K-Yan was effectively utilized as ICT tool for class with group setting that means for a large number of trainees (around hundred) who were divided into groups during the training to carry out the different group tasks and learnings. So even for large classes the resource persons easily facilitated the blended learning with the help of K-Yan. Due to low access to computer and internet in rural parts of India, it is never possible to fully convert the traditional learning (and education) into e-learning so different traditional approaches are also necessary. Some participants thus utilized different traditional tools of educational technology in the semi-traditional approach of teaching-learning more than K-Yan. Blended learning is realized in teaching and learning environments where there is an effective integration of different modes of delivery, modes of teaching and style of learning as a result of adopting a strategic and systematic

approach to the use of technology combined with the best features of face to face interaction (Torrisi& Geraldine, 2011). SN wrote, "*K-Yan has changed the traditional concept of 'Chalk & Talk',* this is very short but very strong statement that shows the transformation of traditional education toward blended education because with the use of K-Yan the traditional lecture mode of delivery of content which often considered as passive, timeconsuming and less effective was getting partially replaced or better to say get accompanied by digital, audio-video and ICT based mode of delivery of content. Thus K-Yan combined with traditional face to face mode of education enriched the training programme and made the programme productive for both trainees and trainers.

Problems to be Addressed and Improvements Needed in K-Yan

As no technology is perfect same is true with K-Yan. While writing about the issues participants faced during giving training and taking the classes of trainees they mentioned mostly about the technical issues of K-Yan, either mechanical or software. But some participant also mentioned administrative and academic issues. Some of the key issues with K-Yan are as follows:

- Smartboard feature does not work properly if the shadow of the user falls over the digital pen and projected surface.

- The digital pen doesn't work properly if the projected surface is very rough.

- K-Yan takes considerable time to get started.

- K-Yan unit comes with two battery and one UPS unit both are heavy hence mobility is not very easy.

- As each unit cost 1.20 lakh Indian rupees, this is considerably high.

- Training given to the resource persons for using was not sufficient to maximize the output of learning using K-Yan.

- Complete Microsofts Windows packages (especially MS Words & MS PowerPoint) are not available by default.

- Software to use content in local languages is also not available.

- Handwriting recognition software for digital pen needs more refinement.

Participants also suggested possible solutions of some of the problems. A regular discussion and school workshop among the trainers will improve the skills of using K-Yan. Software refinement and improvement of constructional design will solve the shadow problems of smart board and sensitivity issues with a digital pen. Content in local languages could be developed along with the help of resource persons of different study centers so that it becomes more relevant and contextual to the learners.

DISCUSSIONS

The study was conducted in two of the D.El.Ed study centers of West Bengal on the ten resource persons (trainers) to understand their experience with K-Yan. The study leads to the development of different themes that helped in drawing out the necessity of practical face to face programmes for trainees in D.El.Ed, the usefulness of K-Yan and its advantages over traditional tools of educational technology, problems associated with K-Yan and finally how it is promoting blended learning and transforming the traditional methods. Findings revealed that incorporating face to face mode of education in distance education programme for primary teachers was a positive step, it was not only beneficial for trainees but trainers also appreciated such initiative. The inclusion of face to face mode of interaction and practical programme in distance education itself transformed the learning mechanism towards the blended learning approach and with the use of K-Yan, it definitely brought the elements of ICT and e-learning. As responses of participants supported that use of K-Yan was not only convenient but also much efficient and fruitful than other traditional tools. As an ICT tool also it was found to be productive and increases the efficiency of trainers which is similar to the findings of Rajan (2012). Participants were found to prefer the use of the smart board feature of K-Yan which promoted activity-based learning in the classroom. Thus it helped in increasing the attentiveness of the trainees also made the programme more interesting for them with an overall improvement in achievement level as the study conducted by Barai (2018) on activity-based methods of learning (ABML) revealed the similar result of an increase in achievement level of learners whenABLM was used over traditional methods.

As per the government's plan eventually all the government schools will be provided with the K-Yan, this will bring a revolution in the teaching-learning process of the schools. Thus all the schools which are working as a study center for D.El.Ed will be able to utilize the K-Yan for teacher education and training purpose. The study was relevant as it found the usefulness and effectiveness of K-Yan in teacher education and training by going through the experiences of trainers with K-Yan. This will help the government to speed up equipping all the schools with K-Yan and developers to bring necessary changes in its design and software for betterment.

The model of teacher education and training with K-Yan has redefined the mechanism of distance education. It showed how a mass number of teachers of a geographically large country can be properly educated and trained by the blended learning approach with very limited resources. Such a successful model of learning with K-Yan can be adopted in other developing countries where the resources are limited and potentials among learners are high.

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