DISTANCE MODE OF IN-SERVICE TRAINING – A NEW PARADIGM FOR TEACHER TRAINING UNDER RMSA

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Abstract
Distance education is an inevitable alternative in many areas where conventional education unable to contribute much. Since the facilities for in – service, learning is very limited for secondary level teachers; a study of this kind is highly significant to realize the distance mode as an effective alternative over conventional face to face mode of training especially in the context of RMSA. To develop effective self learning materials as an alternative for conventional type of in – service training of secondary level biology teachers is the objective this work. As an easy means to reach all teachers with minimum effort, cost and of equal quality, the investigators choose print medium supported by audio presentation of selected topics. The sample of the study comprised of 200 secondary level biology teachers belong to four different districts of the state of Kerala, who were selected randomly. The tools of the study include achievement tests developed on the basis of the SIM and a questionnaire for the qualitative analysis of the SIM. The proposed SIM was established as very effective for in-service learning of secondary level biology teachers.

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Introduction

Importance of in-service training needs has got increased momentum in almost all vocational areas, and nations. For many countries today, teacher education as a hallmark of change is driven by the need to make lifelong learning a reality for the majority. It is also driven by the growing need for quality in the provision, social accountability, and control of education using limited resources that must be used to satisfy different economic needs. Teacher education also imposes new and emerging demands driven by curriculum change and pedagogy that require regular re-schilling of teachers to update knowledge and skills in order to meet new standards of education that are moving towards the improvement of the entire education system. The need to retrain teachers is linked to problems of demand and supply of qualified teachers and the procedure followed for the same.

Distance education is an inevitable alternative in many areas where conventional education unable to contribute much. In-service education is such an area in which, though conventional system is acting, but unable to realize many of the objectives due to various reasons. The reasons can be the theme of course, schedule of the course, duration of course, course content, location of course, and so on. Almost all of these reasons can be overcome by adopting distance education.

Every aspects of life, and thereby aspects of education changing in a rapid rate. The information of today wouldn’t be the same as yesterday and that of tomorrow. Proper awareness of such advancements in the field of education is very essential for successful teaching. Research and development is continuous in various fields of education, but the developments do not reach into teaching community in such a rate. The main reason for this time lag is the lack of authentic sources of new knowledge, lack of accessibility, improper dissemination of research findings, etc. There is no system for providing periodical contact programmes at regular intervals to let the teachers aware about such advancements. This communication gap in theory and practice is surely unfortunate, and that gap is the main hindrance in the success of teaching.

According to Bolam (1980) in-service education is “those education and training activities engaged in by primary, and secondary teachers and principals ………to improve their professional education”. The need for in-service training is emphasized by various commissions and committees such as Secondary Education Commission (1952), Indian Education Commission (1966), National Policy on Education (1968), NPE (1979), National Commission on School Teachers (1985), etc. The existing system of in-service education for secondary level teachers is mainly face- to- face in nature. In the case of summer school cum correspondence courses meant for the training of untrained teachers and the correspondence cum contact in-service programmes organized by Regional Institutes of Education, both face – to – face and distance mode sessions were organized. Teachers are willing to accept the distance mode session, but the face – to – face session either during vacation or at working time felt difficult to most of the teachers. Many teachers are in favor of distance mode of in-service courses. Distance mode must have marked advantages over conventional system in the following respects such as optimum accessibility, self pacing, and mass instruction possibility. In conventional mode, a course for all teachers at the same time
is beyond the dreams. So distance education opens the wide horizons for in-service education of teachers.

The teachers interviewed were opined that courses of short duration and on limited content, organized in once and a while are not enough for professional improvement. According to them the chances to participate in an in-service programme is just like getting a lottery within the duration of the complete service career of them.

The NPE (1986) and its’ POA stressed the importance of distance mode of in-service training. The National Curriculum Framework 2005 and curriculum for teacher education emphasizes the need of distance mode for in-service training.

Since the facilities for in-service, learning is very limited for secondary level teachers; a study of this kind is highly significant to realize the distance mode as an effective alternative over conventional face to face mode of training.

Nature & Scope of the study

The Distance-Education Programme (DEP) is a major intervention under Sarva Siksha Abhiyan(SSA), created, by the ministry of Human Resource Development (MHRD), Government of India, on 1st July 2003, to implement the distance education activities under SSA in the country. Indira Gandhi National Open University (IGNOU) is the nodal agency responsible for implementing the distance education component throughout the country. This national level project aims at providing need-based and local specific in-service training for teachers and other elementary education functionaries, by employing distance education methodology.

The DEP-SSA focuses on the quality dimension of teacher training at elementary level which is crucial for achieving quality education in the country. Effective application of ICT is required to reinforce the knowledge, motivation, commitment, and professionalism amongst the elementary level teachers. Through DEP-SSA, teacher training is imparted without dislocating the functionaries from their place of work and is paced as per their convenience. DEP-SSA activities cater from classes I to VII/VIII all over the country, striving continuously and in a sustained manner to achieve the goals of SSA. The functioning in the states to achieve the gigantic task of sensitizing the local functionaries such as, Master Trainers, Coordinators of Block Resource Centers and Cluster Resource Centers, etc. The DEP-SSA strengthens the on-going efforts of capacity building at elementary education level, through distance learning inputs i.e. print, audio, video, multimedia and teleconferencing, thereby facilitating work-place based training and content generation.

Indira Gandhi National Open University (IGNOU), with a national jurisdiction, but international in operation with fairly well-established student support services and expertise in teacher education has been making attempts to provide teacher education/training packages for teachers in the institutions of higher education and primary education through distance education. With the aim to cater to the training needs of the primary sector, the School of Education, IGNOU went into collaboration with National Council of Educational Research and Training (NCERT) in 1993. A Certificate Programme in Guidance for primary school teachers and parents and a comprehensive programme entitled Diploma in Primary Education (DPE) are in offer. The University makes use of self-instructional print materials, audio and
video programmes, theoretical and activity oriented assignments, tutorials and academic counselling, contact session and internship, Radio and TV broadcast and teleconferencing for its professional programmes.

At the Centre level, Government of India has funded a successful experimentation in introduction of distance education mode in delivering training packages to the primary teachers under the existing "Special Orientation Programme for Primary School Teachers" - a training programme with cascade model. This distance education mode has made use of the interactive video technology. Two pilot projects have been taken up by the implementing agency - the National Council of Educational Research and Training (NCERT). The pilot project was taken up during January 1996 in the state of Karnataka for 850 primary school teachers for seven days. The similar mode had now been tried for teacher training.

Keeping these developments in mind, India’s National Action Plan (NAP) for In-service Education of Primary Teachers through Distance Education - a perspective plan to integrate all the ongoing programmes in this direction, has been prepared. In this plan it has been felt that only by pressing into service the distance education mode, equipped with modern training technology, it will be possible to provide quality in-service training accessible to all primary teachers every year and their trainers in due course. Thus, the technology aspect has to play a big role in implementing this plan. Facilities of EDUSAT can be utilized to broadcast quality training programme at state or national level incorporating local peculiarities by establishing EDUSAT receivers in each school, without much financial and technical complications.

In India, for e.g., the Centre for Environment Education (CEE), Ahmedabad in partnership with COL has developed Green Teacher, one year Diploma Course on Environment Education through DE. This course is being adopted by Open Universities and Teacher Education Institutes in India and by some countries in South Asia and Africa (COL, 2006).

Nowadays, it is fully acknowledged that Distance Education is particularly appropriate to reach widely dispersed teacher populations without disrupting personal, professional, and social lives. It suits best in countries where face to face institutions cannot respond urgently and adequately to increasing demands for teacher education due to lack of space and facilities following the introduction of Universal Elementary Education. The Kenya Program enrolled almost 8500 unqualified primary teachers, the National Teachers Institute of Nigeria, more than 186700, the Northern Integrated Teacher Education Project of Uganda, more than 3000 in a single group. In Botswana where annual intake of unqualified teachers is between 600 and 1000 it would take 200 years to train the whole teacher population through the conventional system. (R. Rumajogee etal 2003). Print remains the predominant medium both in Anglophone and Francophone countries although the use of other technologies is not excluded (ibid 2003)

According to Puryear (2002), research suggests that distance education programs for teachers can be developed at a cost between one to two thirds of conventional programs.

In the last 20 years, distance education has been used to provide cost-effective teacher education and training, (Robinson, B. and Latchem, C. 2003). The world challenges to train, retrain, and continuously refresh the skills and knowledge of nations’ education
workforce is both enormous and urgent. Apart from relying on traditional ways of providing this training, and retraining, governments and all other parties interested in the health of global education, need to explore other methods of teacher education and training (Dhanarajan.2003).

The promising programme RMSA meant for Universal Secondary Education (USE) in India demands a paradigm shift in in-service training of secondary level teachers in a phased manner. The technological developments are at its peak, the huge financial investment and difficulty in proper maintenance of hardware in time remain as the major constraints in utilizing technology to its best. Hence, as an easy means to reach all teachers with minimum effort, cost and of equal quality, the investigators choose print medium supported by audio presentation of selected topics.

Methodology

History of in-service education was traced by Srivasthava (1966) and revealed that teachers have a positive attitude towards in-service education. Khosla (1970) remarked that the training institution didn’t pay attention to professional growth of teachers, who were trained in those institutions. Gupta (1979) suggested the topics such as pedagogical and methodological subjects for in-service training. Evaluation of in-service training at Andhra Pradesh was done by SCERT (1980) and found out that the course is only partially effective. A study conducted by Mathematics faculty of RIE Mysore (1992) revealed that the correspondence cum contact in-service training programme organized for teachers at higher secondary level is effective.

Hence, the investigators developed Self Instructional Materials (SIM) in print and in audio on the basis of a well formulated syllabus.

Objective of the Study:

The following objective was set up for the study
To develop effective self learning materials as an alternative for conventional type of in – service training of secondary level biology teachers

Target group: Secondary school biology teachers are the target group of the study. They represent different age group, gender, locale of institution, educational qualifications, teaching experience, etc. Most of the teachers who are included in the sample do not get an opportunity participate in any in – service training programme, and some of them who have a chance also are unable to get a holistic view of the newer advancements. Hence, the present study aims at providing effective in – service training through distance mode.

Procedure:

The first step of the work is to identify the gaps in the existing content for secondary level biology teacher education curriculum. In order to identify those gaps it is necessary to fix specified criteria for the selection of content for secondary level biology teacher education curriculum. Pedagogical theories became the primary source of information in this regard. A set of books were identified as source books which contained adequate information necessary for secondary level biology teachers. These books were analysed using document analysed using Document analysis technique. According to Best “ content or document analysis serve as a useful purpose in yielding information that is helpful in evaluating or explaining social or
educational practices”. Document analysis provides the important pedagogical theories required to be mastered by each secondary level biology teacher.

Analysis of the B.Ed. syllabi followed by different universities, and institutions like RIE, and NCERT, were attempted to identify the gaps in the content with regard to update knowledge was attempted. The analysis of the syllabi was done using document analysis technique and found out the major gaps contained in them.

Analysis of the syllabus for in – service training programme of secondary school biology teachers conducted by colleges of teacher education (CTE) was also done to identify the gaps actually filled in by the said courses through the existing in – service programme. Analysis of the syllabus showed that there exist huge gaps to be filled in even after the conduct of such courses by CTEs’.

Investigators interviewed willing secondary level biology teachers to collect their opinions and suggestions regarding various aspects of in – service education and distance mode of delivery. According to Young (1979) Interview can be defined as an effective, informal, verbal, and non – verbal conversation, initiated for specific purposes and focused on certain planned content areas”. Two structured interviews were conducted by the investigator one with secondary level biology teachers who participated at least once, and the other with teachers who never participated in an in-service programme. Due representation was given to include teachers as per sex, locale, nature of institution, etc. All of them supported distance mode of in-service education.

Basic Structure of the Proposed SIM

The following steps were followed while preparing the SIM

Identification of the required content and syllabus outline

Organisation of the content

Statement of objectives

Writing the first draft

Editing and finalization of the draft

Finalization of the SIM

Identification of required content and syllabus outline:

A comprehensive syllabus was prepared on the basis of the pedagogical theories, existing B.Ed. syllabi, Syllabus for in-service education, and the suggestions of secondary school biology teachers. A set of objectives were formulated and on the basis of which the following content areas were included in the syllabus. Characters of a learner at secondary level, Planning for teaching, Pedagogical Analysis, Instructional Strategies in Biology, Accessory learning materials and extended curricular activities in Biology, Strategies of Evaluation in Biology and Class room Management were the areas.

Organization of Content

Organization of the identified content was the next step in the preparation of the self learning material. The investigator followed the principle of known to unknown, easy to difficult, familiar to unfamiliar and local sequencing while organizing the content of the proposed material. The identified content was then subdivided into subtopics and a flowchart of information was prepared, which is given earlier in this report under the title flow chart of information.
Statement of Objectives

Statement of specific objectives is the next step in the material preparation. Statement of objectives is a very important step in the material as it determines the expected outcomes of the material and mode of developing learning experiences. The objectives were stated in behavioural terms. The list of objectives was given under the title statement of specific objectives in the earlier part of this report.

Writing the First Draft

Writing the first draft of the material was done by taking into consideration the following aspects such as, the principles of distance education, level learners, content to be developed, and objectives of the material.

The principles of distance education emphasize that self learning materials must compensate conventional teacher while the learner engages in learning process. Thus, the material was designed in such a way to provide an inbuilt teacher interactive and personalized style.

The self learning material developed for the present study, thus followed all the essential structural features of distance learning material. The whole material was developed as a unit entitled as food and health. The unit consists of all the provisions that can happen in a conventional classroom and in addition it also taken care of the hidden curriculum, which may not be addressed in conventional classrooms. The unit has mainly three parts such as beginning of a unit, body of a unit, and ending a unit.

Beginning part of a unit serve the function of guiding the learners about the content, how to approach the unit and the expected outcome by the completion of learning the unit. The list of contents given as the first part of the material enables to understand constituents of the unit and to plan study the material effectively. The list of objectives stated in simple and clear terms is meant to provide knowledge of expected outcome. The introduction which follows the objectives provide an overview of the unit and helpful to make a link between the existing knowledge and new information.

The body of the unit, which is the main part of a unit, provides new information to the learners. The body of the unit is divided into convenient number of sections. This sectioning was done on the basis of the concepts contained in the unit. Each section dealt with a specific concept, and centered on a specific objective, which were arranged in logical sequential order. In each section, necessary information was presented using suitable illustrations. Each section was ended by a self check exercise denoted as ‘Check Your Progress’, the probable answer of which was given towards the end part of the unit. Using these exercises the learners could test their progress in learning. In addition to self check questions, learning activities were also given at specific parts of sections, which were meant to ensure active involvement of learner in learning process. Since the size of the unit is fairly large, it is not possible to study the whole material in one sitting. Section endings can be stopping places with a unit.

Ending of the unit comprised of summary of the unit under the title let us sum up and possible answers of self - check exercises.

Content, Language, and Format Editing and finalization of the draft
The first draft of the material was written on the basis of the principles explained above. While editing the material, style of language, aspects of presentation, clarity of content, organisation of content, aspects of accessibility, etc. were considered. After finishing the first draft, the information given in the unit was edited for its correctness, relevance, and organisation. Correctness was established using authentic literature in the area. Relevance of the content was examined by ascertaining the level and needs of learner community. The organisation of information in the unit was edited using the criteria for sequencing the content, such as specific to general; easy to difficult; basic to advanced; simple to complex; and familiar to unfamiliar.

In language editing, complex sentences, unfamiliar phrases and usages, complicated words etc, were edited for simple, clear, short sentences, personalized style, and familiar phrases and usages.

While conducting format editing, the investigator examined how far the material matches with the structural aspects of a self learning material. The overall organisation of the unit, sectioning, numbering, placement of exercises, type of illustrations, nature of in-text questions, accessibility options, etc. The draft of the unit was then finalized as a self learning unit on Food and Health.

Finalization of the SIM

The SIM thus developed was then given to a small group of willing secondary biology teachers and few experts in the field of education and distance education for comments and suggestions. The draft was then finalized and duplicated in its final form.

Instructional Material:
A self learning material in print & audio components as a package is the instructional material used in the study. The material in print involves content in seven areas such as Psychological considerations of a learner at the secondary level, Planning for teaching biology at the secondary level, Pedagogic analysis in secondary school biology, Instructional strategies in biology, Media and materials for teaching biology, Strategies of evaluation in biology, and Class management. Altogether 31 self learning units in print and six audio model lessons on the instructional strategies were developed under these areas.

Tools & Sample:
A package of Self Instructional Materials (Print & Audio) is developed on the basis of the principles of distance education. The material is then administered to 200 secondary level biology teachers in four districts of the state of Kerala. The sample was selected on the basis of purposive random sampling technique. Due representation is given to age, gender, experience, subject, locale, and management of institution. The sample size had been reduced to 57 for achievement testing due inconvenience of the participants to attend the testing.

Techniques of Analysis
The data were analyzed using Estimation of percentage of achievement, Estimation of error Rate in achievement tests, and Qualitative assessment of SIP using tables and percentages obtained by the analysis of the questionnaire

Findings
All the teachers appeared for the achievement test scored grades A or B or C (Excellent, Very good, Good)

Mean percentage of score in the achievement tests was 67

The error rate committed by the total sample is 32.68 %

The organizational aspects were rated in a range 50-93.

(Relevance of content, effectiveness to fulfill learner needs, arrangement of content, correctness of information, suitability of dividing content, adequacy of content, depth in content, arrangement of sections, statement of objectives, arrangement of units, continuity of content, and unit length )

Aspects of presentation were rated in the range 39 – 98
(clarity of directions, level of assignment questions, possible answers and feedback, linking of information throughout the material, sum up section, appropriateness of media, possible answers and retention, correctness of diagrams, appropriateness of directions , usefulness of examples, aptness of introduction, utilization, of experience, aptness of activities and exercises, aptness of activities and exercises, aptness of assignment questions, style of assignment questions, questions and transfer of learning, aptness of headings, nature of feedback, interest in learning, style of self check questions, nature of diagrams, provision for clarification of doubts, style of presentation, suitability of structuring of SIM, self check questions and retention, illustrations, explanation and retention, self check questions and feedback, arrangement of learning activities, link b/n diagrams and content, usefulness of assignments, linking of explanations with life, suitability of application type questions, appropriateness of self check questions, style of explanation, relevance of learning activities, meaningful presentation and retention, adequacy of learning activities, nature of learning activities, nature of explanations, suitability of typography, provisions for transfer of learning, simplicity of introduction section, clarity of explanations, difficulty level of self check questions, clarity of diagrams, difficulty o assignment questions, clarity of content )

Mechanical make up of the SIM rated in the range 66 – 100
(Attachment of audio cassette with the print material, suitability of binding, aptness of cover page, appropriateness of the size of the SIM, quality of paper used, adequacy of margin space, adequacy of words per sentence, space b/n lines, suitability of typography )

Development of audio component rated n the range 63 – 100 % (Nature of voices, sequencing the illustrations, audibility, quality of the cassette, correctness of pronunciation, correctness of content, unwanted noises, length of illustration, unnecessary pauses, overall impression)

Discussion

The percentage analysis of the achievement by teachers turned out as Very good (B grade). Mean percentage of achievement also is very good. The error rate is comparatively low, which categorized as poor,

Off the twelve aspects under dimension organizational aspects, one rated positive by 93%, six by 80%, two by more than 70%, two by more than 60%, and only one by 50 % . Hence, except one all the eleven aspects were present in very good category.

The dimension of presentation of the SIM was evaluated by analyzing its 52 aspects. Off these 3 rated positive by more than 90% < 11 by more than 80%, 17 by more than 60%, 3 by
more than 50%, and only one was rated 39% (48% moderate clarity of content). Altogether 48 aspects were rated as very good.

Under the dimension of mechanical makeup 9 aspects were analyzed off these 1 rated 100%, 2 more than 90%, 2 more than 80%, 3 more than 70%, only one 66%
The dimension audio component has 10 aspects. 1 rated 100%, 3 more than 90%, 2 more than 80%, 2 by more than 70%, and 2 by 60%.
As a whole the effectiveness of the SIM is well established

Conclusion
The distance training methodology focusing more on learning than on teaching, on flexibility, autonomy, and collaborative work, on the whole, very much appreciated by teachers to the extent that it favors the development of new pedagogical approaches in the classroom. However, institutional constraints (rigid time-tables, overcrowded classrooms) do not always leave much room for innovation (Rumajogee, et al., 2003). Teachers should provide opportunity to reflect on their own classroom practices, to improve some of them as far as possible, and to engage in a life-long learning process of professional development and DE is the best way to make them update and capable to do so in a lifelong process.

ADEA

Reference
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