

Impact of In-service Teacher Training on Classroom Transaction

2012

Study @ a Glance

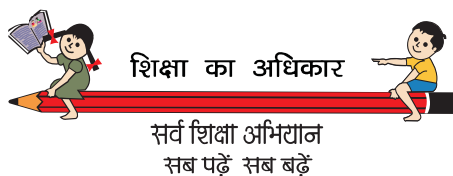


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STUDY @ A GLANCE

FOCUS OF THE STUDY

Sarva Shiksha Abhiyan (SSA) Framework 2001 (revised in 2008 and 2011) made a provision for 20 day training (10 day block training at BRC and a follow-on training in the form of 10 monthly meetings at CRC) under In-service Education for Teachers (INSET) for all primary and upper primary teachers every year for improvement of the quality of elementary education.

Emerging INSET Focus

- Tuning INSET to guidelines based on NCF 2005 and SSA Framework 2008.
- Training Needs Assessment (TNA).
- Training design and plan of implementation based on TNA with teacher participation.
- Block training backed by assessing interactive CRC monthly meetings and on-site support.
- Training package consisting of modular exemplar material for self learning, feedback.
- Mechanism for learning and suggested resources for further learning.
- Opportunity for cooperative learning, collaborative group work, project work and in-school classroom practice.
- Participative activity-based learning, sharing and evaluation.
- Need based use of relevant available technology.
- Follow up of transfer of INSET to classroom practices.

The quality of INSET and its transaction depends on the training design, human resources involved, training material used and physical facilities and equipment available at the training centre. Training transaction impacts teachers in terms of their perceptions about training and learning achievement. It also impacts their classroom transaction. Classroom transaction is influenced by teachers and their interaction with CRC co-coordinators in monthly meetings. Student perceptions and learning achievement

are impacted by classroom transaction. Study of this complete cycle of input, process and product is critical to the improvement of INSET on a continuous basis. MHRD, therefore, entrusted the study of INSET impact on classroom transaction to NCERT.

SEARCH SO FAR

An attempt was made to search relevant studies having the potential to provide answers to the above questions. The studies conducted in India and abroad during the last two decades were identified. No comprehensive study of INSET impact starting with training needs assessment, training design, training material/package, delivery of the training, evaluation of the quality of delivery, follow-up and school based on-site support and student learning could be identified. Majority of the identified studies covered at best a couple of elements of this complex whole or were conducted as part of small projects with limited objectives of validating the material developed for teaching a subject or a few units thereof.. Obviously, there was a lack of comprehensive INSET studies. Limitations of the studies emerging from the review are summarized in the box.

Limitations of the Studies Reviewed

- The studies on impact of training in India are too few. Others are mostly small project related evaluation studies.
- The impact studies in India are on small samples; at best their coverage is confined to some states and that too in the context of awareness objective of training. There is no study at the national level.
- The studies covering the in-service training starting from TNA through design and implementation, transfer of training gains to classroom practices, post training follow-up and onsite support are too few.
- The impact areas wherever covered are patchy and fragmented.

- There is very little information on design and analysis.
- The studies have little to offer for INSET policy formulation.

SEARCH FOR IMPACT

Limitations, as chronicled above, justified a reasonably large study on the impact of in-service education on teachers' learning achievement and change in classroom transaction. A need to study the impact on students to the extent possible within the stipulated time frame and availability of resources was strongly felt. The study needed to be comprehensive in terms of not only the coverage of states, but also of the spectrum of in-service education and its use in classroom transaction. Improved design and analysis of the study needed to be employed. Findings of the study need to have the potential to be employed for improving planning and implementation of INSET. It is against this backdrop that the "Study of Impact of In-service Teacher Training under SSA on Classroom Transaction" was planned.

CONCEPTUAL FRAME

Different aspects and phases embodied in the INSET have been presented in Figure 1.1.

The central piece in the conceptual frame is training transaction which depends on human resources, training design, INSET package developed under SSA, physical facilities and equipments. Training transaction impacts teachers in terms of their achievement and their perception. It also has an impact on their classroom transaction. Classroom transaction is also influenced by interaction between teachers and CRC coordinators on-site as well as in CRC meetings. A mix of block training and monthly meetings is likely to have a better impact on student performance. This is the conceptual frame of the study.

The progression of INSET involves several phases. Pre-training comprises training needs assessment, design of training, training package development, mobilization of human resources, etc. The training phase is concerned with delivery of training using the training package. The post training phase involves evaluation of the training, follow up and on-site support.

OPERATIONAL DEFINITIONS

'Teacher Impact', 'In-service Training' and 'Classroom Transaction' are the key words used in the study. The operational definitions of these terms are given below.

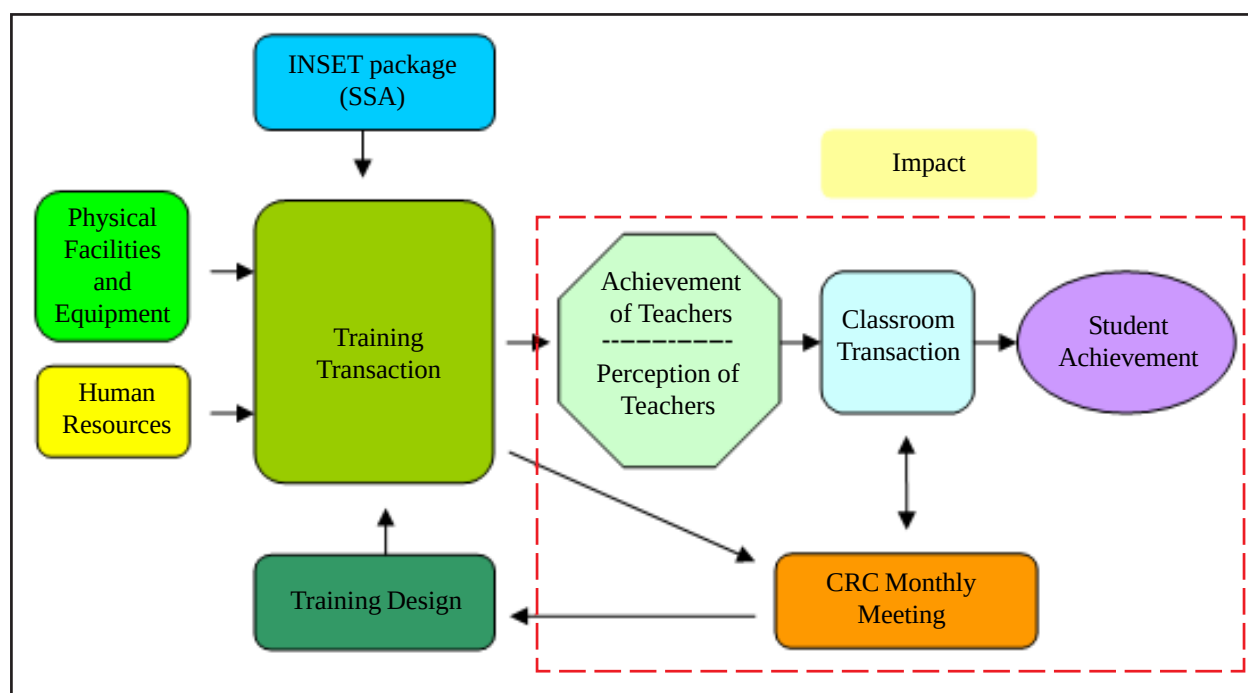


Figure 1.1: INSET Impact--Conceptual Frame

Teacher: Teacher is a regular teacher working in primary and upper primary schools deputed for the block training in 2010-11, some without training sampled for the control group, and those who attended monthly meetings in the sampled CRCs

Impact: Impact is the measure of tangible and intangible effects (consequences) of one activity or an entity's action upon another. Here, immediate impact of in-service training is on the teachers who receive INSET. Tangible effect is in terms of learning by the teachers as measured by achievement test. The other tangible effect is assessed through the perception of teachers about different aspects of the training. Another variable representing tangible effect of training is its use in classroom practice as assessed through classroom observation. Student perceptions about the change in classroom practices as assessed through FGD and student achievement also indicate impact of training.

In-service Education of Teachers (INSET): SSA Framework (2008) provides guidelines for in-service training based on NCF 2005. Three types of training have been envisaged. There is provision for 60 days training for untrained teachers, 30 days induction training and 20 days training for all teachers every year. The 20 days training is to be split into 10 days of block training and 10 days of training in the form of monthly meetings at the Cluster Resource Centre (CRC). This study covers only 20 days training.

Classroom Transaction: Classroom interaction transaction in the study refers to interaction between teachers and students and students and students in the classroom. The complete set of these comprises classroom transaction.

OBJECTIVES OF THE STUDY

- To assess the adequacy of training inputs including process of planning, preparation and content of modules & materials used in training programmes of 2008-09, 2009-10 and 2010-11 and to find out changes in training strategy and programmes over the three years.
- To study the transactional modalities of the training programmes of 2010-11.
- To study perceptions of teachers about the efficacy and usefulness of in-service training.
- To assess the capability of resource persons in terms of their training and experience, their preparedness and views on the impact of training on teachers.
- To determine the impact of training in terms of change in classroom practices of teachers.
- To find out whether students observe any change in teacher behavior and method of teaching after training To assess the opinion of other functionaries such as BRC/CRC coordinators on the impact of teacher training on classroom processes.
- To find out the constraints or problems, if any, in using training inputs in classroom transactions.
- To suggest measures for improving training programmes and ensuring greater utilization of training outcomes by teachers in classroom teaching.

DESIGN OF THE STUDY

The design of the study was a combination of pre and post-test design, observation of classroom transaction, observation of follow-on training in monthly meetings, desk analysis of documents and focus group discussions. The impact was studied in four phases. In phase one, impact of INSET on achievement and perceptions of teachers was studied by employing pre-and post-test design. Only post-test design was employed in the states where INSET had been completed before the launch of the study.

In phase two, impact of training on teachers was studied through parallel group design by observing the classroom practices of teachers in experimental and control groups to compare performance of teachers in the two groups. In phase three, impact of follow-on training on teachers was observed in monthly meetings in CRCs. In phase four, impact of training on student perceptions about changes in school practices and teacher behaviour was studied on the basis of focus group discussions. In addition, ranking of states on class 5 student achievement based on NCERT survey conducted during 2010-

11 was compared with the ranking on INSET variables emerging from teachers' perception as well as classroom transaction variables. The case studies of some training centres, both primary and upper primary, in each state were also conducted for triangulation.

SAMPLE OF THE STUDY

Multistage stratified sampling was employed in the study. Purposive sampling procedure based on regional representation, variety in training model and approaches adopted for INSET was adopted to select the states. Two to six districts in each state were selected on the basis of the size of the state. Two districts were selected from

small states like Nagaland and six from large states like Uttar Pradesh. In all, 61 districts in 15 sampled states were covered in the study. Systematic sampling technique was used to select the training centres, teachers for classroom observation and students for FGD.

INCIDENTAL SAMPLE

The incidental sample covered 177 Block Training Centres with the same number of BRC coordinators, 9100 teachers, 770 RPs, 1741 experimental schools and 817 control group schools, 2819 teachers in monthly meetings at 140 CRCs and 6491 students in 1209 focus group discussions.

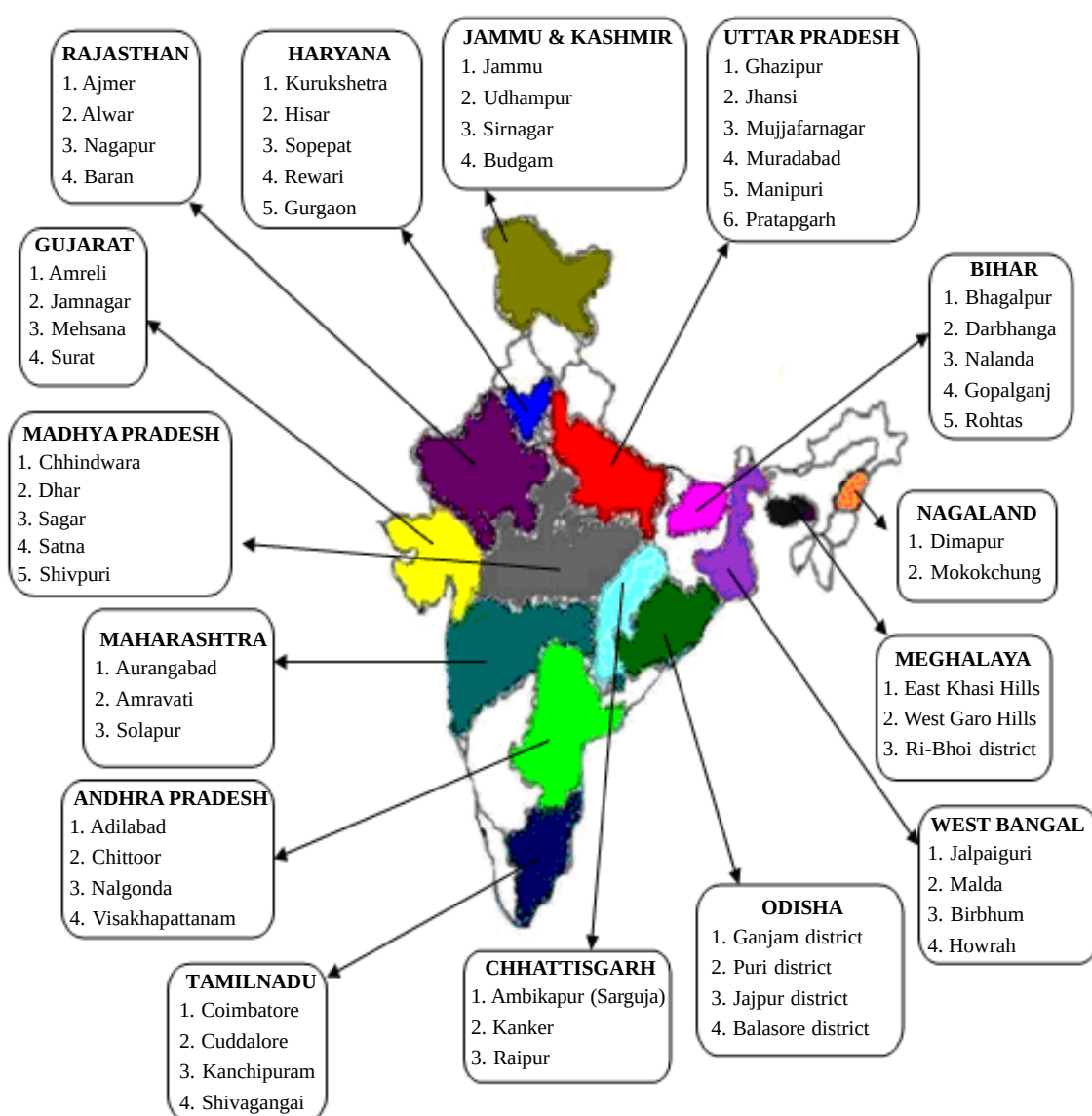


Figure 1.2: Total Number of States and Districts Covered in the Study

TOOLS FOR DATA COLLECTION

Fifteen tools were developed to realise the objectives of the study. These were Assessment of Training Package; Schedule for State Project Director of SSA/SCERT; Facilities at the Training Centre; Training Observation Schedule; Teachers' Perception about In-Service Training; Resource Person's Perception about In-service Training Programme; Questionnaire for Training Coordinators; Guidelines for Conducting Focus Group Discussion (FGD) with Students; Case Study of a Training Centre; Schedule for CRC Coordinator; Schedule of Monthly Meeting for Teachers; Observation Schedule for Monthly Meeting of CRC; Classroom Observation Schedule; Achievement Test for Teachers and Field Notes. All tools except achievement test were developed by the national team at NCERT. Achievement test was developed at the state level, since these were based on the training package used by each of the sampled states.

STRATEGY FOR CONDUCTING THE STUDY

After approval of the project by the Committee for Approval of Research Project (CARP) of MHRD, a National Team was formed. The Department selected 15 state coordinators with the help of RIEs and Universities -- 10 state coordinators from Regional Institutes of Education (RIEs) and five from universities of Jammu & Kashmir, Kurukshetra, Gujarat, Banaras Hindu University and Pondicherry University. The NCERT team supported the State teams at every stage of the study. An Advisory Group was constituted for the study with Director NCERT as the Chairperson, and Principal Investigator as the Convener.

PROCEDURE FOR DATA COLLECTION

The data were collected from both primary and secondary sources by using the above mentioned tools. The training packages used for organizing training in the sampled states were evaluated by an expert group. A desk analysis of teacher

education documents, manuals, circulars, letters, reports, and policy documents supplied by SPDs of SSA was carried out. In addition, interaction with SPD, SSA, Director, SCERTs, Training Coordinators, and Resource Persons was held for collecting relevant data. Data were also collected from the training centres and classrooms regarding impact of training on teachers and students by administering the tools. Case studies of training centres were conducted for complementing the normative data. Focus Group Discussions (FGD) were conducted to collect qualitative data regarding impact of training on students. The FGDs were conducted with students after the observation of lessons in their classes. Data were also collected from the monthly meetings of CRCs in respect of follow - on training from the CRC Coordinators and teachers who attended the CRC meeting.

ANALYSIS PLAN

Chi-square, t-test, Spearman's rank order correlation and descriptive percentage were used for analysis of data. The qualitative analysis was carried out in respect of content of the training packages, follow on training during monthly meetings and focus group discussion with students.

MAJOR FINDINGS

Area specific findings in respect of different components of INSET and its impact on teachers and students are discussed below:

The study reveals variations in terms of coverage and duration of INSET policy across states. There was a full coverage of teacher under INSET in the states of Gujarat, Haryana and Tamil Nadu while in other states there was partial coverage ranging from 30% to 70%. Madhya Pradesh covered only one-third teachers in a year. The lowest coverage was in Maharashtra. The training was organised in the training centres mostly located in BRCs. However, some of the training was organised in DIETs in the states of Madhya Pradesh, Chhattisgarh, Andhra Pradesh, and Meghalaya. The training centres were also set up in CRCs and schools in a few places in

Haryana, Gujarat & West Bengal. The training for teachers was not residential except in some centres in Bihar, Chhattisgarh, Gujarat, Madhya Pradesh and Maharashtra.

QUALITY OF INSET

The quality of INSET and its transaction depends on the training package, human resources and physical facilities and equipments. The findings related to training transaction and its different components are given below

Training Transaction

- Introducing a lesson through posing a problem was the method used the most. RPs in Tamil Nadu (50%) and Odisha (45%) were better in using this methodology.
- Presentation of new concepts and ideas was done by the RPs through predominant use of discussion with explanation in all states except Meghalaya where teacher talking was predominant. The concepts were explained with demonstration in the states of Odisha, Rajasthan and West Bengal. It was totally missing in the states of Haryana and Tamil Nadu. Activity based learning excluded the demonstration method in Tamil Nadu since the stress was on actual activity by each learner. General training might be responsible for the exclusion of demonstration in Haryana.
- The questions being posed to teachers to apply knowledge to new situations was largely used in Tamil Nadu (42%), Gujarat (38%) and Odisha (38%). It was as low as 4.55% in Haryana.
- The questions being addressed to the class as a whole were the highest in Rajasthan (86%) and Maharashtra (60%). It might be due to project based practice in Rajasthan. In Maharashtra it might be due to the practice of asking rhetorical questions to reinforce value based issues. This figure was as high as 52% in Haryana which might be due to inexperienced RPs and training of general nature.
- The RPs encouraging teachers' participation in discussion through raising issues, seeking

clarification and offering views based on their experience was found 'to be' used often in the states of Tamil Nadu (75%), Gujarat (49%), Rajasthan and Odisha (75%).

- The RPs responding to questions asked by the teachers through involving other teachers was often used in Tamil Nadu, Bihar and Odisha. RPs reprimanding the teachers and postponing the answer to the next day was highest in Bihar.
- The RPs treated the teacher respectfully and on equal footing quite often in the states of Tamil Nadu (67%), Gujarat (76%), Haryana (76%) and Odisha (86%). In other states, RPs generally behaved in an indifferent and authoritative manner.
- RPs encouraged teachers to praise quite often in the class in the states of Gujarat (59%), Tamil Nadu (58%), Haryana (42%) and Odisha (52%).
- RPs used the blackboard quite often in all the states except Maharashtra (8%) and Meghalaya (2%). The globe, charts, maps, models, dictionary, etc., were used quite often in the states of Odisha, Nagaland, Meghalaya and Haryana. Films and videos were used rarely except in Tamil Nadu.
- The RPs were satisfied with learning aids and other equipments except in the states of Haryana and Nagaland.
- The sessions were disrupted in Haryana (7%), Maharashtra (4%) and Bihar (3%). It may be due to inexperienced RPs who could not cope with experienced teachers.
- Most of the teachers in the states of Tamil Nadu (75%) and Maharashtra (52%) were attentive in the sessions.
- The RPs concluded the session by highlighting the main points for reflection in the states of Gujarat (37%), Bihar (36%), and Nagaland (40%).
- The modules were read by the teachers during the training session in most of the states, not before the session. In Haryana, modules were not distributed at the training centres as indicated by the case studies.

- In most of the states, the RPs evaluated the learning of teachers during the training session mostly through oral questioning and assignment. However, evaluation was not carried out in the states of Haryana, Meghalaya and Nagaland.
- The RPs in Haryana spent more time (51%-75%) on lecturing. However, in Tamil Nadu and Bihar most of the time was spent on interaction with teachers and in group work.

Training Package

- Separate training packages for primary and upper primary stages were prepared except in the states of Haryana, Jammu & Kashmir, Maharashtra, Madhya Pradesh and Nagaland, where a common package was prepared.
- The states used their own policy of INSET resulting in a lot of variations and accordingly training packages were prepared. In Rajasthan, there was project based LEHAR training for classes I & II and mathematics and science kits for a limited number of teachers of classes VI to VIII. The Bihar package was addressed to Classes III to V only. General themes were included in the packages of Maharashtra, Haryana, Jammu & Kashmir and Madhya Pradesh. In other states like Tamil Nadu, Uttar Pradesh, West Bengal and Odisha, the packages were subject based for science and mathematics.
- In the states of Chhattisgarh and Haryana, the training packages were prepared during 2010-11, whereas in Nagaland they were prepared during 2003. In the remaining states, the training packages were prepared during 2008-09 and 2009-10, and were revised and used for the training organised during 2010-11 by adding some new modules in the training packages to meet the emerging needs. However, some of the modules were added without giving the rationale.
- The training packages were developed by different agencies. SPO, SSA developed the training package in most of the states by

involving experts from SCERTs & DIETs. Only in Jammu & Kashmir, Meghalaya, Chhattisgarh and Nagaland, the packages were developed by SIEs and SCERTs. The British Council was involved in preparing English materials in Tamil Nadu and Andhra Pradesh. Educom Solution & New Horizon Ltd. developed the packages for Haryana, Franklin Core Company and IGNOU prepared the training package for Chhattisgarh at upper primary stage. *Jeevan Vidya* for Maharashtra was developed by Shram Amarkantak Organisation, Chhattisgarh.

- During the last three years, the changes that occurred in the training packages resulted in the inclusion of new curricular areas and some general topics like Right to Education Act-2009, disaster management, continuous and comprehensive evaluation, adolescence education, population education, inclusive education, art and heritage, peace education, NCF 2005, yoga etc. These changes in training packages reflected the supply side and not the demand side.

To what extent were the training packages aligned to SSA 2008 guidelines?

- **Constructivist approach to teaching as advocated in NCF 2005:** Constructivist approach *per se* was not addressed in the training package. However, activity based approach having some elements of constructive approach was evident in the training packages in the states of Andhra Pradesh, Bihar, Gujarat, Rajasthan and Tamil Nadu. Though minimal, a few examples of this approach were noticed in the training packages of Chhattisgarh, Odisha, West Bengal and Uttar Pradesh. However, in other states like Meghalaya, Haryana, Madhya Pradesh and Nagaland, modules did not provide any indication of having used approach.
- **Reflective teacher to guide students in constructing knowledge:** This approach was not found to permeate the training

packages. However, some glimpses were noticed in the project based packages such as Science through Experiments and Projects (STEP) in Andhra Pradesh, *Lehar* in Rajasthan, 'Experiments' in Tamil Nadu and social projects in Gujarat.

- **Spilt-up model of in-service training:** The split-up model as envisaged in SSA Framework (2008) was not used in the states. However, the states followed their own model due to state specific considerations. Haryana divided training in two phases of 7 days each. Madhya Pradesh provided training for 8 days, Maharashtra for 8-9 days, and Nagaland organized 10 days training in two phases of 5 days each.
- **Special focus curricular areas covered:** In addition to the basic subjects, art and heritage crafts, health and physical education, work education and education for peace were recommended in the NCF 2005. These need to be included in the INSET package as well. Analysis of the training packages revealed that these areas were not included except in Andhra Pradesh and Jammu and Kashmir (Peace and Heritage).
- **Identification of training needs and emphasis on local context and specificities:** In Gujarat systematic TNA was carried out. Training packages in the states of Uttar Pradesh and Nagaland were not based on training needs assessment. In other states also, the training packages reflected predominant flavour of supply related content and, to that extent, training needs assessment or feedback from teachers were used in a small measure. Yadav (1995, 2003) also reported similar findings. Top down approach was mostly followed.
- **Reference to readings and audio-video programs:** These were conspicuous by their absence in most of the states.

HUMAN RESOURCES

The human resources for in-service training include three major players, namely, training coordinators, resource persons and CRC

coordinators. The profile of teachers is also included in this section.

Training Coordinators

- There were 177 training coordinators who conducted the training programme in 15 sampled states. The representation of women was the lowest (20%). The coordinators had dual responsibility as BRC and BEO in most of the states. They looked after both academic and administrative work.
- As many as 58 training coordinators were graduates and 117 were postgraduates. However, two coordinators were undergraduates from the state of Gujarat.
- Out of 177, 106 (60%) training coordinators had B.Ed. degree and 57 (32%) had M.Ed. and 12 (7%) had a diploma in Elementary Education. All the Coordinators holding D.Ed. were from Gujarat, Bihar, Chhattisgarh, Jammu and Kashmir and Uttar Pradesh.
- About 70% coordinators had experience of organizing the training programmes earlier. However, 30% from the states of Haryana, Chhattisgarh, Odisha, Rajasthan and Uttar Pradesh had no experience.
- The training coordinators in most of the states were not involved in preparing the time schedule. It was prepared at the state level except in the states of Gujarat and Meghalaya where these schedules were prepared at district level.

Resource Persons

- As many as 770 resource persons were drawn from schools, BRCs, DIETs and SCERTs for delivery of the training programme. In the states of Andhra Pradesh and Odisha, resource persons were selected on the basis of written test and interview. As many as 542 (72%) RPs were men and 218 (28%) were women. The representation of women was low among RPs in the states of Andhra Pradesh, Bihar, Rajasthan, Jammu & Kashmir and Odisha.
- The number of RPs belonging to scheduled castes was 71 (9%), scheduled tribes 130

(17%) and other backward classes 188 (25%). The remaining were from general category.

- The maximum number of resource persons, viz., 486 (63%), were in the age group of 30-45 years, and those below 30 years were only 19%. It implies that young RPs were involved in the study.
- As many as 406 (53%) RPs were postgraduates, 295 (38%) were graduates and 54 (7%) were higher secondary in the states of Gujarat, West Bengal, Nagaland, Chhattisgarh, Odisha, U.P., Bihar and Madhya Pradesh. 15 (2%) from Andhra Pradesh, J&K, Meghalaya, Odisha, U.P. and West Bengal had a Ph.D. degree.
- Regarding professional qualifications, 42% RPs had B.Ed. degree, 9% M.Ed. and 19% D.Ed. Thirty per cent from Nagaland, Meghalaya, J& K, Bihar, Chhattisgarh, Haryana and Gujarat had no professional qualification. A separate manual for RPs to organise training programme was not prepared and even the RPs were not oriented towards organizing the training of teachers in most of the states.

CRC Coordinators

- 140 CRC coordinators were covered by the study. The CRC coordinators were Heads of the primary/upper primary high schools in most of the states. The CRCs were set up in a separate room provided in the schools. Some of the CRCs in Chhattisgarh, Odisha and Jammu & Kashmir had their own building. CRC coordinators had the dual responsibility to look after the work of CRC as well as schools. Only in Tamil Nadu, there were separate full-time CRC coordinators by the name of Cluster Resource Teacher Educators (CRTE).
- Out of 140 CRCs, 70 (50%) were graduates, 21 (15%) were postgraduates and 49 (35%) were undergraduates or higher secondary. In the states of Bihar, Chhattisgarh, Gujarat, Odisha and Uttar Pradesh, they were either undergraduate or higher secondary.

- Majority of CRC coordinators viz., 72 (51%) were B.Ed., 19 (14%) were M.Ed. and 49 (35%) D.Ed. The CRC coordinators with D.Ed. degree were spread over almost all the states.

Teachers

- In the study, 9100 teachers of the elementary level were covered. They received training under INSET during 2010-11. Out of these, 78% teachers belonged to rural areas and 22% to urban areas; 56% were men and 44% were women. 14% teachers belonged to scheduled castes and 22% were from scheduled tribes.
- Thirty five per cent teachers were graduates, 23% were postgraduates and 42% were matriculate and higher secondary. A large number of undergraduate teachers were from Meghalaya, Haryana, Nagaland and Gujarat.
- Forty seven per cent teachers had D.Ed., 23% had B.Ed. and 30% had no professional qualifications. Untrained teachers were from Meghalaya (88%), Nagaland (69%), Bihar (59%), West Bengal (51%) and J&K (36%).
- More than half the teachers had about 10 years of experience and only 5 per cent had 30 years of experience.
- Many teachers had not received training under INSET during 2009-10. The prominent states among them are Haryana (100%), where no training was imparted followed by Bihar (80%), Meghalaya (56%) and Nagaland (53 %).

PHYSICAL FACILITIES

The analysis of physical facilities has yielded the following findings:

- Training for teachers was organized at 177 centres. About 40% of training centres in the states of Haryana, Jammu & Kashmir, Uttar Pradesh, West Bengal and Chhattisgarh had one or two rooms. The remaining 60% centres had more than two rooms as these were set up in DIETs and other established institutions.

- Safe drinking water was available in almost all centres from taps, hand pumps or bore wells. In Nagaland, mineral water was provided to all teachers in the training programme.
- Toilet facility was available in almost all the centres. Twenty per cent centres had no separate toilet for women. In 38% centres toilets were inadequate and unclean.
- Electricity was available in about 80% of the centres. The remaining 20% centres without electricity were mostly in Rajasthan and Uttar Pradesh. The back-up facility was not available in almost all centres.
- In each training centre, on an average, about 40 to 60 teachers attended the programme. Space available for seating was inadequate in 50% of the centres and teachers sat on *durries*, mostly in Gujarat, Odisha, Rajasthan and Uttar Pradesh.
- Space for group work was available in more than 80% centres, but it was adequate only in 40% of them in Madhya Pradesh, Maharashtra, Chhattisgarh, Bihar and Haryana.
- Library facility was available in 50% centres. It was not available at all in Haryana, Jammu and Kashmir, Meghalaya and Nagaland. It was inadequate in most of the states except in the states of Maharashtra, Madhya Pradesh, Bihar and Chhattisgarh as in these states, centres were set up in DIETs and other established institutions. Books were kept in one or two almirahs in the name of library, which were not used during the training programme.

Teaching Aids and Equipments

The findings in respect of availability of teaching aids and equipments are summarized below:

- Blackboard, globe, maps, charts and dictionary were available and used in a majority of centres.
- Science and maths kits were available in 60% of the training centres but were used only in 25% centres.
- Television facility was available in one-fourth of the centres but was used only sometimes in 40 % of these centres.
- Facility of power point presentation was available in one-third of the centres but was used sometimes only in 60 % of these centres.
- VCP, VCR, Video/CD, DVD and projectors were available in 25% of the training centres, but were used rarely.

IMPACT ON TEACHERS

Training transaction has an impact on teachers in terms of their achievements and perceptions. Training transaction has an impact on classroom transaction also.

Teacher Achievement

- Paired t-test was used to find the significance of difference in achievement scores of teachers in tests before and after the training. In the states of Bihar, Gujarat, Meghalaya, Nagaland, Odisha and West Bengal, the t-values were significant at 0.01 levels. It implies that teachers of these states gained in learning by the training programme. In Haryana, the training achievement was not significant in the districts covered by New Horizon Company. In Maharashtra, the impact of *Jeevan Vidya* training on teachers was assessed in terms of change in their thoughts on quality of life. Changes were reported in awareness after *Jeevan Vidya*.
- Pre-testing and post-testing could not be done in the states of Andhra Pradesh, Madhya Pradesh, Rajasthan and Tamil Nadu because the training for 2010-11 had been completed before the study was launched. Achievement test in these states was administered in the meetings of teachers conducted in CRCs/BRCs/DIETs. The teachers who had received INSET during 2010-11 were termed as trained and those who had not received training during this year were termed as untrained. Both groups were compared on mean achievement score using t-test. The difference was found to be

significant in Andhra Pradesh, Madhya Pradesh, Rajasthan and Chhattisgarh. In Chhattisgarh, it was not found significant in English language at primary level, and in Tamil Nadu it was found significant at upper primary level.

- In Jammu and Kashmir, the test was administered after the training in the meetings of CRCs/BRCs. The group of untrained teachers could not be identified since most of the teachers had received training in the centres covered by the study. In this state, 64% teachers at the primary stage scored below 60% and 19% scored above 75%. At the upper primary stage, 62% teachers scored below 60% and 12.25% teachers scored above 75%.

Perception of Teachers

The perception of teachers about different components of training was studied to examine the relevance and usefulness of training. The results are as follows:

- Overall, about 45% teachers found the training relevant to their needs to a large extent, highest being in Tamil Nadu (86%) followed by Jammu and Kashmir (73%), Andhra Pradesh (63%) and Uttar Pradesh (63%). However, 79% teachers in Haryana found training not relevant.
- Teachers' perception about enrichment of their understanding by the training was found highest in Tamil Nadu (82%), followed by Gujarat (79%) and was lowest in Haryana (30%) and Rajasthan (29%).

Classroom Transaction

Chi-square test was used to find the differences between experimental and control group teachers in the use of different skills in the classroom teaching as observed by the project staff.

- Significant difference was found in using most of the skills in classroom transaction in the states of Tamil Nadu, Madhya Pradesh, Andhra Pradesh, Chhattisgarh, Gujarat, J & K, Odisha and Uttar Pradesh.

- No significant difference was found in most of the skills used during classroom transaction between the two groups of teachers in the states of Maharashtra, West Bengal, Bihar, Haryana, Nagaland, and Rajasthan.
- Films and videos were not used in states during classroom transaction.

Transfer of Training

The different teaching skills used during training and in classroom teaching were observed by the same investigators, and the performances of RPs and teachers were compared in terms of percentages to study the transfer of training to actual teaching. Higher percentage occurrence of component skills in classroom transaction is an indication of transfer of training to classroom practice, possibly, by modeling. Training transaction and classroom behaviour observers were the same.

- Low percentage of occurrence of skills was observed in classroom transaction in the states of Maharashtra, West Bengal, Haryana, Nagaland and Rajasthan.
- Higher percentage occurrence in most of the skills was observed in classroom transaction in the remaining ten sampled states.

IMPACT OF FOLLOW-ON TRAINING ON TEACHERS

- The monthly meetings were organised in lead primary or high schools in most of the states, where CRCs were established. CRC coordinators, as reported earlier, were given the responsibility of head teacher and coordinator. Separate CRCs were set up at some places in Andhra Pradesh, Chhattisgarh, Gujarat, Jammu & Kashmir, Rajasthan, Madhya Pradesh, Tamil Nadu, Uttar Pradesh and West Bengal. Physical infrastructure was inadequate in most of the CRCs. Separate rooms for coordinators and training were available only in some of the CRCs.
- The CRC monthly meetings were not organised in states as recommended in SSA Framework-2008. Eight monthly meetings

were organised in Andhra Pradesh, seven in Gujarat, six in Madhya Pradesh and Uttar Pradesh, five in Meghalaya and nine in West Bengal. In West Bengal and Jammu & Kashmir, monthly meetings were organised twice in a month for covering all the teachers phase-wise. CRC meetings were not organised in the states of Haryana, Meghalaya and Nagaland.

- CRC monthly meetings were generally fixed on the last Friday or Saturday of the month in most of the states. In Jammu & Kashmir, it was 14th and 15th of every month. In Chhattisgarh, Maharashtra, Meghalaya, Odisha, Uttar Pradesh and West Bengal dates were fixed in consultation with officials.
- In most of the states, agenda for these meetings was not fixed. The administrative issues like pulse polio programme, mid-day meal, information flow to senior officers, staff problem, school records, salary, attendance, etc. were discussed in monthly meetings.
- More than 50% coordinators and teachers were not satisfied with the proceedings of these meetings.
- Impact of monthly meetings was observed in Tamil Nadu, Odisha, Andhra Pradesh and Gujarat where academic and training inputs in terms of teaching-learning process, development of TLM, work in groups, use of activity cards, etc. were noticed in the schools. The work done at meetings was also evaluated in these states. It reflects impact of follow-on training on teachers.

IMPACT ON STUDENTS

- Ranking of the states on class 5 students' achievement based on NCERT survey conducted during 2010-11 was compared with the ranking on INSET variables based on teachers' perception. The student achievement was found to be significantly correlated with the relevance of INSET and enrichment of understanding of the content in the states of Tamil Nadu, Uttar Pradesh, Gujarat, J&K and Odisha. On the lower end of the relationship were the states of Haryana, Chhattisgarh, Rajasthan and Nagaland.

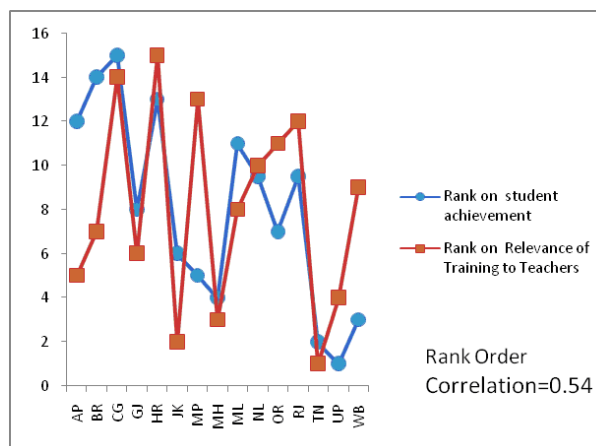


Figure 1.3: Relevance of Training to Teachers and Student Achievement

Significant Rank Order correlation of 0.54 indicates that the sampled states have an association in respect of these two variables. It implies that the states which have higher rank on student achievement also have higher rank on relevance of training to teachers and vice versa. The states that have close relationship between these variables are Tamil Nadu, Uttar Pradesh, Jammu and Kashmir and Gujarat. On the lower end of the association are Haryana, Chhattisgarh, Rajasthan and Nagaland. Other states lie in between. Maharashtra was not considered in this comparison since the analysis of the value based training of *Jeewan Vidya* was qualitative only

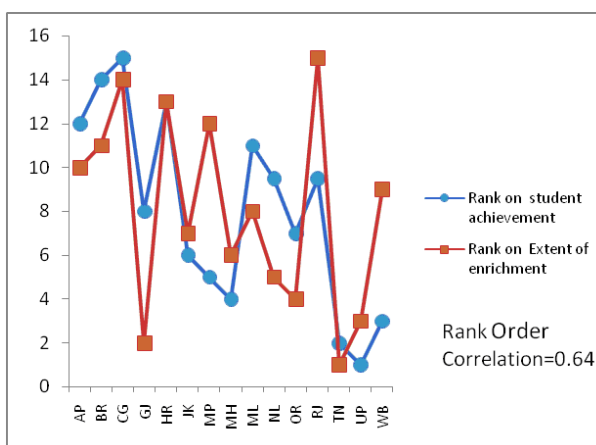


Figure 1.4: Enrichment of Teachers' Understanding of the Training Content and Student Achievement

Significant Rank Order correlation of 0.64 is indicative of the association between rankings of the sampled states relating to these two variables. There is close association between

the two variables in the states of Tamil Nadu, Gujarat, Uttar Pradesh and Odisha.

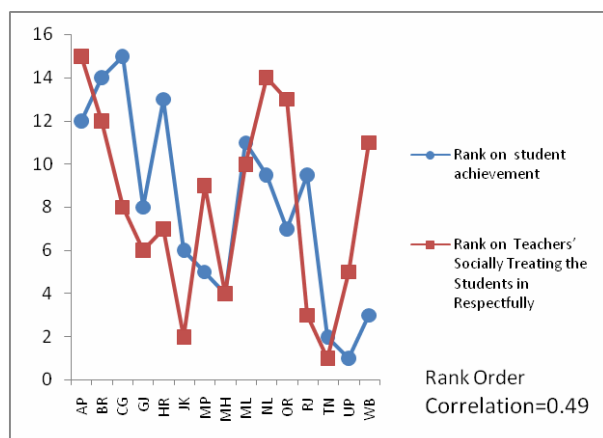


Figure 1.5: Teachers' Treating the Students Respectfully and Student Achievement

Overall, Rank Order correlation of 0.49 is on the margin (0.51) of significance at 0.05 per cent level. Though weak, the value does indicate association between the two variables, which means the states having higher or lower ranks on one variable tend to have similar ranks on the other also. The states of Tamil Nadu, Uttar Pradesh, Maharashtra and Jammu & Kashmir have ranks between 1-6 on both variables.

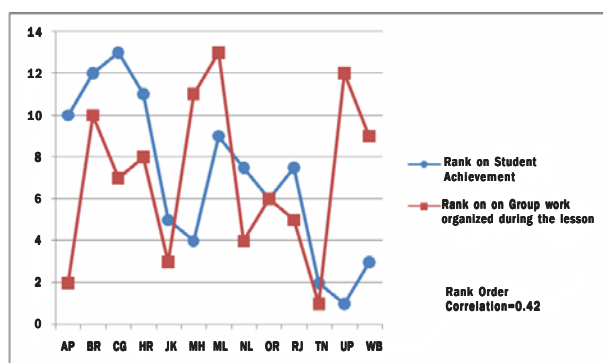


Figure 1.6: Group Work in the Classroom and Student Achievement

The Rank Order correlation of 0.42 between the two variables in the sampled states is not significant. In terms of higher ranks between 1-6, the states of Tamil Nadu, Jammu and Kashmir and Odisha show better association between the two variables.

Significant Rank Order correlation indicates close association between the two variables. Tamil Nadu stands out in association of these variables. Other states having ranks between 1-

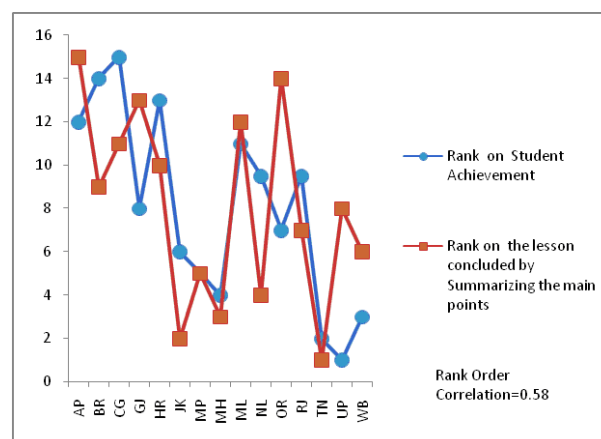


Figure 1.7: Lesson Concluded by Summarizing the Main Points and Student Achievement

6 on both the variables are Jammu and Kashmir, Madhya Pradesh and West Bengal.

The analysis of achievement and classroom transaction variables revealed that student achievement had significant correlation with treating students respectfully and summarizing main points to conclude the lesson in the states of Tamil Nadu, J&K, Madhya Pradesh, Uttar Pradesh and West Bengal. In the remaining states, except Meghalaya, Nagaland and Haryana, the correlation was in positive direction between student achievement and group work, praising students, presenting new concepts/ideas through discussion with explanation and using own experience to participate in discussion.

Focus Group Discussion

FGDs were conducted with five or six students of class IV/V and VII/VIII to seek their opinions about the changes in the teachers in their classroom performance after participating in the training programme. The findings of FGDs also supported the changes in the classroom transaction.

- FGDs reported changes in the following aspects in the states of Andhra Pradesh, Chhattisgarh, Madhya Pradesh, Tamil Nadu and Gujarat:
 - Teaching (General) Questioning, Q:1 discussion, involvement, evaluation.
 - Subject Teaching (English, Maths, Science).
 - Use of TLM

- Teacher behaviour
- Organisation of activities group work,
- Demonstration by activity cards.
- Changes in some of the above mentioned areas of classroom transaction were reported in FGDs in the states of Bihar, Jammu & Kashmir, Odisha, Rajasthan, Uttar Pradesh, Maharashtra and West Bengal.
- Almost no change was noticed in classroom practices in the states of Meghalaya, Nagaland and Haryana.

REFOCUSING INSET

- The study reveals variations in states in terms of duration and coverage of teachers; therefore, SPDs should ensure that all teachers are covered by INSET according to the provision made in the SSA Framework (2008, 2011).
- SPDs should ensure that physical facilities and equipments available at the BRC centres are utilized fully. In case of those centres where such facilities are not available, efforts should be made to strengthen the BRC centres by providing sufficient space for seating and writing, adequately equipped library, ICT and learning-teaching aids, electricity supply with alternative arrangement in case of power failure, safe drinking water, toilet facilities separate for women, display facilities etc.
- The findings on training transaction reveal the preferred choices of different skills were not used quite often in most of the states. Therefore, there is a need to organise training programmes for RPs where focus should be on practising training skills including use of ICT.
- The assessment of training packages reveals gaps and deficiencies as pointed out by experts, teachers and resource persons. Therefore, training packages need to be revised taking into consideration the supply side and demand side needs of teachers for motivating them for INSET every year.
- The packages should include more practice oriented modules following NCF-2005 providing greater scope for reflection, explaining in easy to understand language, with examples and illustrations, practical exercises and clear presentation of concepts. The rationale for selecting content of training should be explicitly given in the beginning of the package.
- New curriculum areas such as health and physical education, adolescence education, art and heritage crafts, education for peace should be covered in the training package in addition to basic subjects -- languages, mathematics, social sciences and science. The package should include audio video materials also. Training material should be prepared based on experiential learning activities to minimize the transaction loss.
- SCERTs, DIETs and other educational institutions should be actively involved in developing training packages. The capacity of these institutions should be built with the support of NCERT and other concerned agencies.
- The findings indicate that neither the training manual for TCs/RPs was prepared nor orientation was provided to them in most of the states. Therefore, there is a need for identifying well qualified and experienced RPs based on specified criteria. The proper orientation to the TCs/RPs before INSET should be organised based on the training manual prepared for them. A long-term sustainable policy for institutionalized capacity building of RPs with support from NCERT and SCERT should be evolved.
- The study reveals that BRC and CRC coordinators have dual responsibilities both academic and administrative. There is a need to position full-time qualified and professionally and academically competent coordinators with adequate support staff, infrastructure and equipment for organizing INSET and monthly meetings and school visits to provide on-the-spot guidance to teachers in schools. The representation of women as BRC and CRC coordinators should be enhanced.

- In the states of Maharashtra, West Bengal, Bihar, Haryana, Nagaland and Rajasthan where the difference between experimental and control groups was not found significant, SPDs of the states should redesign the training programme by including practice of complex teaching skills by teachers.
- The transfer of training to classroom practice is more likely if sufficient time is allocated to reflective interaction and group work during training and classroom transaction.
- National institutions having the know-how should be approached by the states for incorporating complete set of skills in the training programme for teachers and RPs. This needs more attention in states where low percentage occurrence of skills was observed in classroom transaction.
- There is a need to create and operationalise cluster level structures (CRC) equipped with physical facilities & equipments and human resources for the continuing professional development of teachers in the states. A full-time and well qualified CRC coordinator needs to be positioned who should work in collaboration with Head of School.
- Monthly meetings for teachers should be organized regularly in all the states for sharing academic issues and problems related to training inputs in classroom transaction. The performance of teachers should also be evaluated in every meeting on a regular basis for providing feedback and improving follow-on in monthly meetings.
- Overall findings of the study reveal that impact of INSET on classroom transaction depends on the quality of training and its transaction inputs. For making training more effective, useful and relevant for teachers, a multi-pronged strategy is needed with improved design backed by development of skills and reflective dynamics of teaching behaviour, cooperative learning using constructivist approach, continuous evaluation feedback mechanism and on-site support with follow-up. Split-up model in true spirit should be followed for organizing effective INSET. For this purpose, networking of institutions like SPD Office, NCERT, SCERTs, DIETs, CTEs, IASEs, and University Departments in terms of sharing information, expertise and facilities for improving training transaction and classroom learning should be forged.

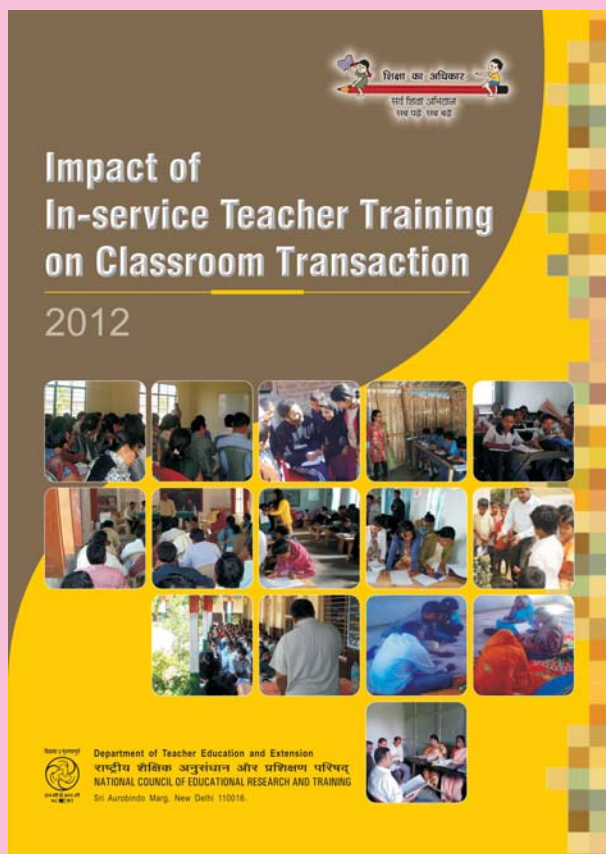
REFOCUSING RESEARCH

The findings of the study have a message for policy formulation related to INSET. There is a need to undertake researches on every aspect of INSET at regular intervals. Studies with improved design and expanded coverage as well as in-depth case studies of both advanced and low performing states should be undertaken for achieving the desired results.

INSET RESEARCH CAFE

NCERT Research Café is enlightened by a set of four publications relating to the impact of in-service education of teachers (INSET) on classroom transaction and student achievement by S.K. Yadav, Professor & Head, Department of Teacher Education, National Council of Educational Research and Training, Sri Aurobindo Marg, New Delhi-110016.

The set of these publications is the outcome of extensive field study. A variety of data collection modalities ranging from desk analysis, through questioning and classroom transaction, to case study and focus group discussion provide a kaleidoscopic view of training and classroom transaction.



Assessment of the content and presentation of the training packages used for INSET during 2010-11 in the 15 states covered under the study 'Impact of In-Service Teacher Training under SSA on Classroom Transaction' is the theme of this book.

Contents

Foreword/Preface/List of Tables & Figures/Abbreviations/ The Study Context/ INSET Training Package: Analytic Highlights/ Training Packages in States: An Assessment/ Way Forward.

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The study report provides analytic view of INSET under SSA and its impact on classroom transaction as well as student perception and achievement. The book underlines the scientific basis of the art of training and teaching with implications for practice.

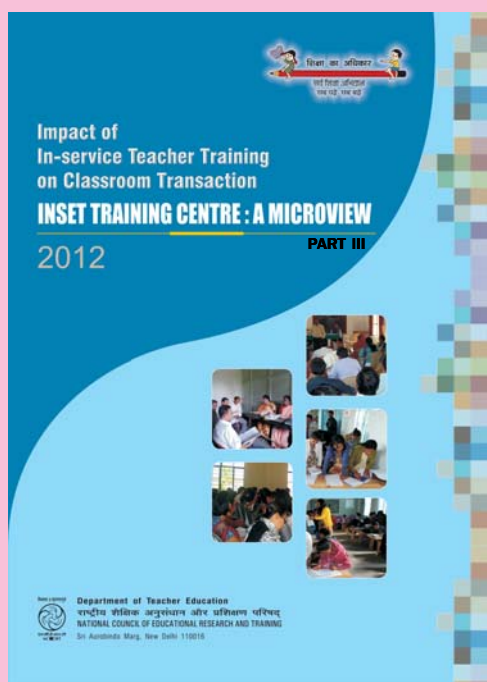
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Foreword/Preface/List of Tables/List of Figures/Abbreviations/ Curtain Raiser: Executive Summary/ The INSET Journey: Search for Impact/ Search for INSET Impact: The Roadmap/ Quality of In-service Education for Teachers/Impact of Training on Teachers/Impact of Follow-on In-service Training on Teachers /Impact on Students/Road Ahead.

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INSET RESEARCH CAFE



Microview of the sampled training centres from the 15 states used for training teachers covered by the Study 'Impact of In-Service Teacher Training under SSA on Classroom Transaction' have been presented in this publication.

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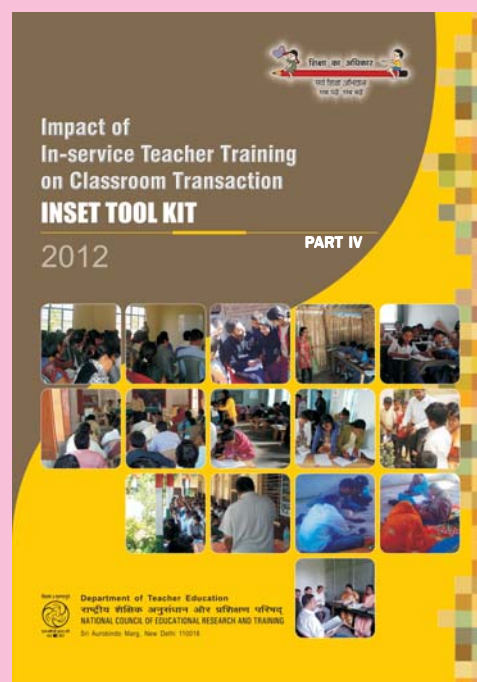
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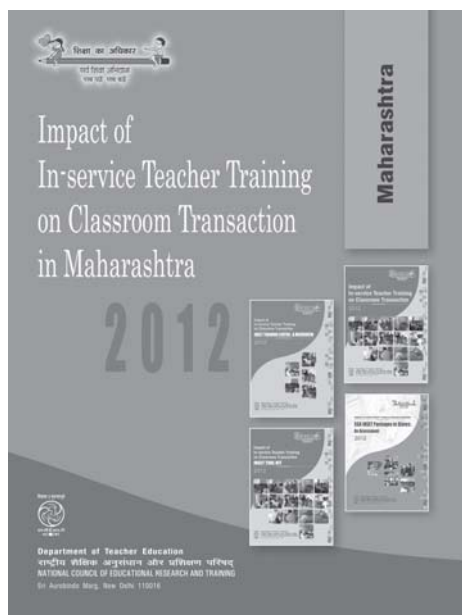
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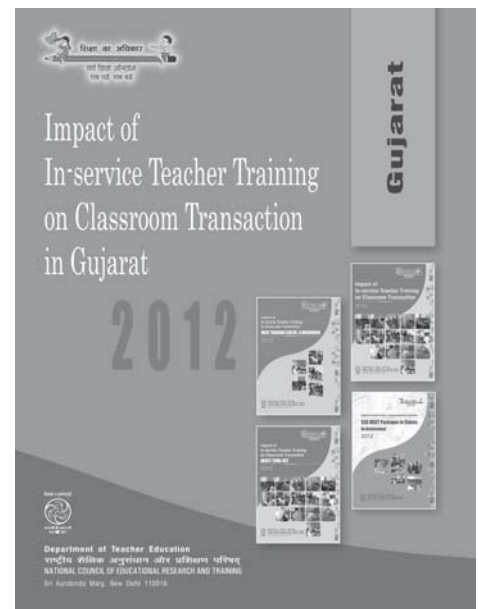
Specifics of the Tools

Schedule and Guidelines for Assessment of Training Packages; Schedule for State Project Director of SSA/Director SCERT; Facilities at the Training Centre; Schedule for Training Observation; Teachers' Perception about In-Service Training; Resource Persons' Perception about In-service Training Programme; Schedule for Training Coordinator/ Course Director; Guidelines for Conducting Focus Group Discussion with Students; Case Study of a Training Programme; Schedule for CRC Coordinator; Schedule for Monthly Meetings of Teachers; Observation Schedule for Monthly Meeting of CRC; Schedule for Classroom Observation/Way Forward

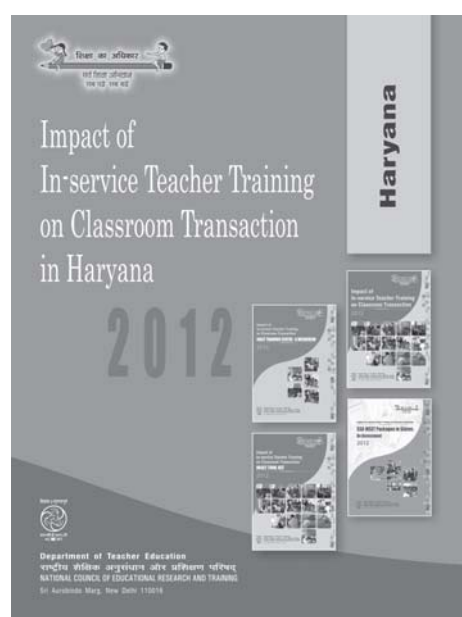
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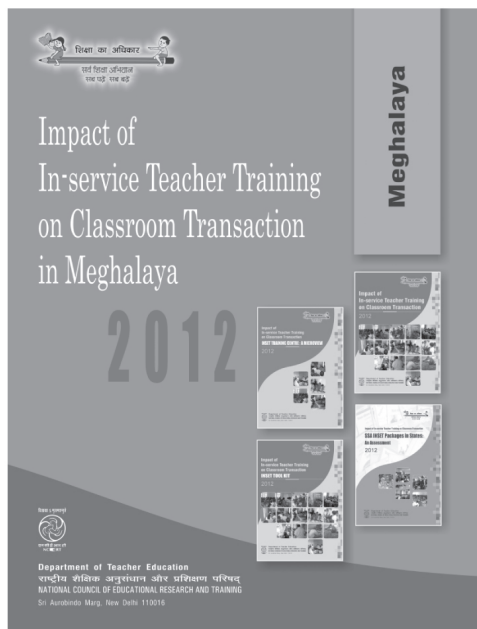
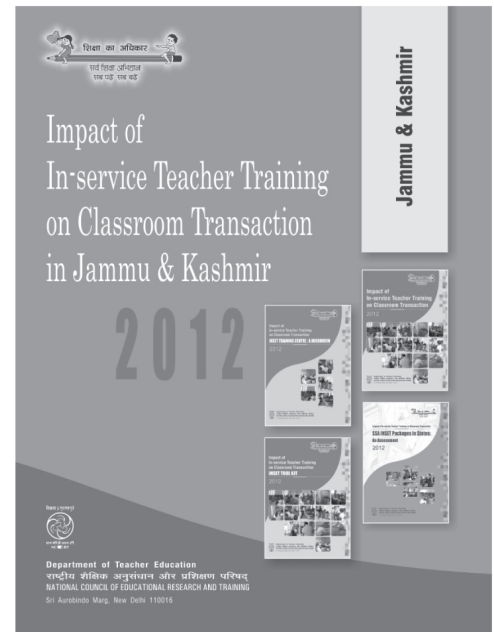


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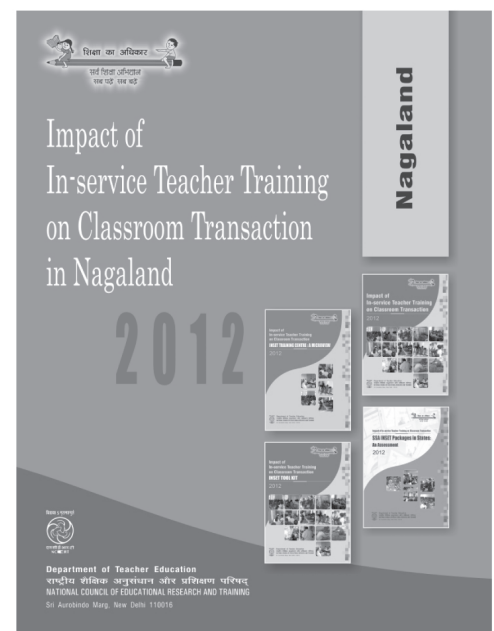


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