
# Impact of In-service Teacher Training on Classroom Transaction

Principal Investigator

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# FOREWORD

The Right of Children to Free and Compulsory Education Act, 2009 (known briefly as RTE) has laid down several essentials for quality education at the elementary school level. One of these essentials is the right of the child to have a qualified and regularly updated teacher. Several Central Government funded programmes aimed at training in-service teachers (INSET) have been in place, as built in to the Sarva Shiksha Abhiyan framework. The Ministry of Human Resource Development (MHRD), which has been providing the funds and strategic support to implement these training initiatives, sponsored an extensive study to assess the quality of the training and its impact on classroom transactions. The Committee for Approval of Research Projects (CARP) entrusted the responsibility for this assessment study to the National Council of Educational Research and Training. The present document is the report of the study.

There is considerable data here, and analysis, which would help all concerned to understand the strengths and weaknesses of the trainings. For instance, in states where the INSET is supported by adequate planning and activity-based reflective training transaction, and is reinforced by further training in the CRC and with onsite professional help during school visits, the transfer of training to classroom practice is evident.

It is hoped that not only will policy makers in the Central Government and the states find this comprehensive study by Prof. S.K.Yadav and his team useful, but others will be inspired to undertake further researches in the area. We look forward to this study being a basis for more work done towards improving the policy and implementation of the INSET.

**Parvin Sinclair**
*Director*
National Council of Educational
Research and Training

New Delhi
*April 2012*

# PREFACE

In-service education is the elixir of life for teachers. It protects their professional health and often lends a golden touch to their activities. That is the reason why INSET occupies centre stage of all educational development plans. Investment through centrally sponsored schemes provides stimulus to its growth and development. Its centrality in the Sarva Shiksha Abhiyan (SSA) during the current decade is a testimony to official commitment. Every teacher is to be provided 20 day training, 10 day block training followed by 10 day follow-on training in monthly meetings in Cluster Resource Centres (CRCs).

In order to assess the impact of INSET on teachers, classroom transaction and student learning achievement, MHRD sponsored a time-bound study to be conducted across 15 sampled States through different geographical areas. The onerous task of conducting the study within the stipulated time frame has now been successfully completed with the documented report ready for dissemination.

The report has been divided into seven chapters. Chapter one outlines the conceptual framework leading to the formulation of the study. Chapter two traces the roadmap with landmarks specifying the procedures for data collection and its analysis to extract findings. Chapter three details training delivery with essential inputs like human resources, training package(s) and physical facilities. Chapter four presents an assessment of its impact on teachers in respect of training content, perceptions about training delivery, comparing performance of teachers with and without training along parameters of training transaction variables and transfer of training. Chapter five presents an account of follow-on training in monthly meetings at the CRCs. The penultimate chapter concerns itself with the impact of training programme on the end beneficiary, the student, in terms of achievement supported by Focus Group Discussion (FGD) and socio-emotional variables of training transaction. The last chapter provides an essence of the whole study.

We are indebted to officials, colleagues and several others who extended unqualified help and support and offered constructive suggestions from time to time during the course of the study. We are thankful to Ms Anshu Vaish, *Secretary,* SE&L, MHRD for assigning the study to the NCERT and to Ms Anita Kaul, *Additional Secretary,* SE&L, MHRD for useful interaction regarding the study from time to time. Professor Parvin Sinclair, *Director,* NCERT, offered invaluable suggestions during the presentations made before the NCERT faculty. Her timely suggestions have helped sharpen our focus on certain core issues in the study. Our sincere thanks are due to Professor Sinclair for her interventions.

An advisory body of professionals was constituted with Professor G. Ravindra, *Officiating Director*, NCERT, for periodic reviews of the progress of the study. Many useful ideas emerged during the review sessions. Professor B. K. Tripathi, *Joint Director*

provided essential support for timely completion of the study. We are grateful to both of them. We are also thankful to Ed.CIL for facilitating the project work.

We are deeply indebted to Professor N. K. Jangira, *Former Head*, DTEE and *Dean*(C) and Professor Saroj Bala Yadav, *Head* DESS, NCERT for extending continuous professional support to the proceedings throughout. We express our gratitude to the States' team coordinators from participating Universities and the Regional Institutes of Education, NCERT for the collaborative spirit shown consistently. Cooperation received from the State Project Directors (SPDs), SSA for interactions on various aspects of INSET is also acknowledged and appreciated.

My colleagues in the department, especially, Dr J. K. Patidar, *Assistant Professor*, Dr Vijayan K., *Assistant Professor* and Dr Jyoti Kant Bhoi, *JPF* made useful contribution in visualising data analysis in the national report. Shri Ashok Kumar, *Project Manager* and Shri Sanjay Bardhan, *APC* provided continued support. Last but not least, we appreciate the efforts of supporting staff Ms Neelam Sharma, Ms Vanila Malik and Ms Savitri Devi for the hard work of processing and preparing the manuscript.

We sincerely hope that the study will be found useful by policy makers, INSET designers and implementers and researchers alike.

New Delhi
*April 2012*

**S.K. Yadav**
*Principal Investigator*
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# ABBREVIATIONS

| | |
|---|---|
| ABL | Activity Based Learning |
| ALM | Activity Learning Material |
| APPEP | Andhra Pradesh Primary Education Project |
| AWP & B | Annual Work Plan and Budgeting |
| B. Ed. | Bachelor of Education |
| BEEO | Block Elementary Education Officer |
| BEO | Block Education Officer |
| BEP | Bihar Education Project |
| BRC | Block Resource Centre |
| BRCC | Block Resource Centre Coordinator |
| BRCF | Block Resource Centre Facilitators |
| BRG | Block Resource Group |
| CARP | Committee of Approval for Research Projects |
| CBSE | Central Board of Secondary Education |
| CCE | Continuous and Comprehensive Evaluation |
| CPD | Continuing Professional Development |
| CRC | Cluster Resource Centre |
| CRCC | Cluster Resource Centre Coordinator |
| CRCF | Cluster Resource Centre Facilitators |
| CRG | Cluster Resource Group |
| CRP | Cluster Resource Person |
| CRTE | Cluster Resource Teacher Educator |
| CT | Classroom Transaction |
| CTE | College of Teacher Education |
| CWSN | Children with Special Needs |
| D. Ed. | Diploma in Education |
| DEO | District Education Officer |
| DEP-SSA | Distance Education Programme-Sarva Shikha Abhiyan |
| DIET | District Institute of Education and Training |
| DISE | District Information System for Education |
| DPEP | District Primary Education Programme |
| DPO | District Project Officer |

| | |
|---|---|
| DPR | Detailed Project Report |
| DRG | District Resource Group |
| DTEE | Department of Teacher Education and Extension |
| Ed CIL | Educational Consultants India Limited |
| EVS | Environmental Science |
| FGD | Focus Group Discussion |
| FI | Field Investigator |
| IASE | Institute of Advanced Studies in Education |
| ICT | Information and Communication Technology |
| IED | Integrated Education for Disabled |
| IGNOU | Indira Gandhi National Open University |
| INSET | In-service Education for Teachers |
| LEHAR | Learning Enhancement Activities in Rajasthan |
| LIP | Language Improvement Programme |
| LJ | Lok Jumbish |
| M. Ed | Master of Education |
| MAAP | Mathematical Abilities Acquisition Programme |
| MDM | Midday Meal |
| MHRD | Ministry of Human Resource Development |
| MRC | Mandal Resource Centre |
| MS | Mahila Samakhya |
| NCERT | National Council of Educational Research and Training |
| NCF | National Curriculum Framework |
| NCFTE | National Curriculum Framework for Teacher Education |
| NCTE | National Council for Teacher Education |
| NPE | National Policy on Education |
| NPRC | Nyaya Panchayat Resource Centre |
| OBB | Operation Blackboard |
| OBC | Other Backward Classes |
| OHP | Overhead Projector |
| OPEPA | Odisha Primary Education Programme Authority |
| PASS | Programme for Acquisition of Social Skills |
| Ph. D | Doctor of Philosophy |
| PMOST | Programme of Mass Orientation for School Teachers |
| RIE | Regional Institute of Education |
| RIESI | Regional Institute of English for South India |
| RP | Resource Person |
| RTE | Right to Education |

| | |
|---|---|
| RVM | Rajiv Vidya Mission |
| SALM | Simplified Activity Learning Material |
| SC | Scheduled Caste |
| SCERT | State Council of Education Research and Training |
| SIE | State Institute of Education |
| SKP | Shiksha Karmi Project |
| SMART-PT | Statewide Massive and Rigorous Training for Primary Teacher |
| SOPT | Special Orientation for School Teachers |
| SPD | State Project Director |
| SPO | State Project Office |
| SRG | State Resource Group |
| SSA | Sarva Shiksha Abhiyan |
| ST | Scheduled Tribes |
| STEP | Science Through Experiments and Project |
| TC | Training Centre |
| TLE | Teaching Learning Equipment |
| TLM | Teaching Learning Material |
| TNA | Training Need Assessment |
| TT | Training Transaction |
| UEE | Universalisation of Elementary Education |
| UNICEF | United Nations International Children's Emergency Fund |
| UP | Upper Primary |
| UPBEP | Uttar Pradesh Basic Education Project |
| USA | United States of America |
| $X^2$ | Chi-square |

# CONTENTS

# Curtain Raiser : Executive Summary

SSA Framework-2001 (revised in 2008 and 2011) made - provision for 20 day training (10 day block training at BRC and follow-on training in 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. The quality of INSET and its transaction depends on the training design, human resources, training material, physical facilities and equipment. Training transaction impacts teachers in terms of their perceptions about training and learning achievement. It also impacts their classroom transaction. Classroom transaction, in turn is influenced by teachers and interaction with CRC co-coordinators in monthly meetings. Student perceptions and learning achievement are also impacted by classroom transaction. MHRD entrusted the study of INSET impact on classroom transaction to NCERT.

## OBJECTIVES

- To assess the adequacy of training inputs including process of planning, preparation and content of modules and materials used in training programmes of 2008-09, 2009-10 and 2010-11 and to find out changes in training strategy and programmes over 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 behaviour 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 utilisation 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, the 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, the impact of follow-on training on teachers was observed in monthly meetings in CRCs. In phase four, impact of training on student perceptions about change in school practices and teachers behaviour was also studied on the basis of focus group discussions. In addition, ranking of states on Class V student achievement based

on the 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 were considered 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 smaller 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 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.

### 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.

## STRATEGY FOR CONDUCTING THE STUDY

After approval of the project by CARP of MHRD, the 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 and Kashmir, Kurukshetra, Gujarat, Banaras Hindu University and Pondicherry University. The NCERT team supported the State teams at every stage of conducting 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 organising training in the sampled states were evaluated by the expert group. A desk analysis of teacher education documents, manuals, circulars, letters, reports, and policy documents, etc. 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 the 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 Discussion (FGD) was 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 meetings.

## ANALYSIS PLAN

Chi-square, t-test, Spearman's rank order co-relation and descriptive percentage were used for analysis of data. The qualitative analysis was carried out in respect of content analysis 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. The full coverage of teachers in INSET was done in the States of Gujarat, Haryana and Tamil Nadu while in other states there was partial coverage ranging from 30 to 70 per cent. Madhya Pradesh covers only one-third teachers every year. The lowest 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 and 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, physical facilities and equipments. The findings related to training transaction and its different components are given below:

### Training Transaction

- Introducing a lesson by posing a problem was at a higher level. RPs in Tamil Nadu (50%) and Odisha (45%) performed better in using it.
- Presentation of new concepts and ideas was made by the RPs through predominant use of 'discussion with explanation' in all states except Meghalaya where teacher talk 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 in Tamil Nadu excluded demonstration since the stress was on actual activity by each learner. General training might be responsible for the exclusion of demonstration in Haryana.
- The question 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 per cent in Haryana.
- The question addressed to the class as a whole was the highest in Rajasthan (86%), maybe due to project-based practice. In Maharashtra (60%) it might be due to the same reason asking rhetorical questions to reinforce value-based issues. As many as 52 per cent were in Haryana which might be due to inexperienced RPs and training of general nature.
- RPs encouraging teachers' participation in discussion through raising issues, seeking clarification and offering views based on their experience was found 'often' used in the States of Tamil Nadu (75%), Gujarat (49%), Rajasthan (40%) 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 using praise 'quite often' in the States of Gujarat (59%), Tamil Nadu (58%), Haryana ( 42%) and Odisha (52%).

- RPs used the blackboard 'quite often' in many 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.
- 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.
- 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 in training centres as indicated in the case studies.
- In most of the States 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 and Kashmir, Maharashtra, Madhya Pradesh and Nagaland where a common package was prepared.
- The States had their own policy of INSET with a lot of variations and accordingly training packages were prepared. In Rajasthan, there was project based LEHAR training for Classes I and II and Maths 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 and 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, but in Nagaland it was 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 and DIETs. Only in Jammu and 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. Educomp Solution and 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. in some of the states. These changes in training packages reflected the supply side and not the demand side.

- Constructivist approach to teaching as advocated in NCF-2005 and SSA Framework-2008 was not reflected in the training packages. However, activity-based approach was followed in the States of Andhra Pradesh, Bihar, Gujarat, Chhattisgarh, Odisha, Rajasthan and Tamil Nadu. In other States like Meghalaya, Haryana, Madhya Pradesh and Nagaland, the training packages did not reflect this approach.
- The role of reflective teacher to guide student learning was not given prominence in the training packages, though some glimpses of it were noticed in the project-based packages such as Science through Experiments and Projects (STEP) in Andhra Pradesh, Learning Enhancement Activity in Rajasthan (LEHAR) and experiments in Tamil Nadu.
- The split-up model as envisaged in SSA Framework-2008 was not used in any State. The States organised training for 10 days, sometimes more or less than 10 days.
- Specific areas such as art and heritage craft, health and physical education, work education and education for peace as recommended in the SSA Framework-2008 were not included in most of the training packages in sampled States.
- Analysis of the training needs was not carried out except in Gujarat. The packages were prepared at the State level without undertaking training needs assessment. Top down approach was mostly followed.
- In most of the training packages the objectives, sequential treatment of content, concepts dealt with adequately, appropriate illustrations, language, activity-based learning, appropriate transactional methodology, review exercise, suggested readings audio-visual aids, and follow-up activities were not optimally covered.

## Human Resources

The human resources for in-service training cover 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 post graduates. However, two coordinators were undergraduates from the State of Gujarat.
- Out of 177 training coordinators, 106 (60%) had a B.Ed. degree and 57 (32%) had M.Ed. and 12 (7%) had a diploma in Elementary education. All the D.Ed. were from Gujarat, Bihar, Chhattisgarh, Jammu and Kashmir and Uttar Pradesh.
- About 70 per cent coordinators had experience in organising the training programmes earlier. However, 30 per cent 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 the district level.

### *Resource Persons*

- As many as 770 RPs were drawn from schools, BRCs, DIETs and SCERTs for delivery in the training programme. In the States of Andhra Pradesh and Odisha, RPs 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 also low in RPs in the States of Andhra Pradesh, Bihar, Rajasthan, Jammu and 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 the general category.
- The maximum number of RPs, 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%) were postgraduates, 295 (38%) were graduates and 54 (7%) had studied up to higher secondary in the States of Gujarat, West Bengal, Nagaland, Chhattisgarh, Odisha, Uttar Pradesh, Bihar and Madhya Pradesh. 15 (2%) from Andhra Pradesh, Jammu and Kashmir, Meghalaya, Odisha, Uttar Pradesh and West Bengal had Ph.D. degree.
- Regarding professional qualification, 42 per cent RPs had B.Ed. degree, 9 per cent M.Ed. and 19 per cent D.Ed. Thirty per cent from Nagaland, Meghalaya, Jammu and Kashmir, Bihar, Chhattisgarh, Haryana and Gujarat had no professional qualification. A separate manual for RPs to organise training programme was not prepared and even RPs were not oriented towards organising the training of teachers in most of the States.

### *CRC Coordinators*

- 140 CRC coordinators were covered in 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 and 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 i.e. 72 (51%) were B.Ed., and the remaining 19 (14%) were M.Ed. and 49 (35%) were D.Ed. The CRC coordinators with D.Ed. degree were spread over almost all the States.

### *Teachers*

- In the study, 9100 teachers up to elementary level were covered. They received INSET during 2010-11. Out of these, 78 per cent teachers belonged to rural areas and 22 per cent to urban areas; 56 per cent were men and 44 per cent were women out of available disaggregated data; 14 per cent teachers belonged to Scheduled Castes and 22 per cent belonged to the Scheduled Tribes.
- Thirty five per cent teachers were graduates, 23 per cent were postgraduates and 42 per cent were matriculates and studied upto higher secondary. A large number of undergraduate teachers were from Meghalaya, Haryana, Nagaland and Gujarat.
- Forty seven per cent teachers had D.Ed. and 23 per cent had B.Ed. and 30 per cent had no professional qualifications. Untrained teachers were from Meghalaya (88%), Nagaland (69%), Bihar (59%), West Bengal (51%) and Jammu and Kashmir (36%).
- More than half the teachers had about 10 year experience and only five per cent had 30 year of experience.
- Many teachers had not received INSET during 2009-10. Among them, Haryana (100%) was followed by Bihar 80 per cent, Meghalaya 56 per cent and Nagaland 53 per cent.

### Physical Facilities

The analysis of physical facilities has yielded the following findings:

- Training for teachers was organised in 177 centres. About 40 per cent of training centres had one or two rooms in the States of Haryana, Jammu and Kashmir, Uttar Pradesh, West Bengal and Chhattisgarh. The remaining 60 per cent 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, borewells. 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 toilets for women. In 38 per cent centres toilets were inadequate and unclean.
- Electricity was available in about 80 per cent of the centres. The remaining 20 per cent 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 per cent 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 per cent centres, but it was adequate only in 40 per cent of them in Madhya Pradesh, Maharashtra, Chhattisgarh, Bihar and Haryana.
- Library facility was available in 50 per cent 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 a 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 summarised below:

- Blackboard, globe, maps, charts and dictionary were available and used in a majority of centres.
- Science and Mathematics Kits were available in 60 per cent of the training centres but used only in 25 per cent centres.
- Television facility was available in one fourth of the centres but used sometimes in 40 per cent of these centres.
- Facility of powerpoint presentation was available in one third of the centres but used 'sometimes' only in 60 per cent.
- VCP, VCR, Video/CD, DVD and projectors were available in 25 per cent 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 through administration of test 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 during 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 before and after training in terms of change in their thoughts on quality of life. Changes were reported in awareness about Jeevan Vidya.
- Pre-testing and post-testing could not be conducted in the States of Andhra Pradesh,

Madhya Pradesh, Rajasthan and Tamil Nadu because the training for 2010-11 was 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 INSET during this year were termed as untrained. Both groups were compared on mean achievement score using t-test. Significant difference was found in Andhra Pradesh, Madhya Pradesh, Rajasthan and Chhattisgarh. In Chhattisgarh, it was not found significant in English language at the primary level, and in Tamil Nadu it was found significant at the upper primary level.

- In Jammu and Kashmir, the test was administered after the training in the meetings of CRCs/BRCs and 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 per cent teachers scored below 60 per cent and 19 per cent scored above 75 per cent at the primary stage. At the upper primary stage, 62 per cent teachers scored below 60 per cent and 12.25 per cent teachers scored above 75 per cent.

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

## Classroom Transaction

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

- Significant difference was found in classroom transaction between two groups in using most of the skills in the States of Tamil Nadu, Madhya Pradesh, Andhra Pradesh, Chhattisgarh, Gujarat, Jammu and Kashmir, Odisha and Uttar Pradesh. It implies that the teachers in the experimental group performed better than in the Control group during classroom transaction.
- 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 the states during classroom transaction.

## Transfer of Training

The transaction of different teaching skills used during training and classroom teaching was 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 modelling. Items of training transaction and classroom behaviour observers were the same.

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

## Impact of Follow-on Training on Teachers

- The monthly meetings were organised in leading primary or high schools in most of

the states where CRCs were established. CRC coordinators as reported earlier had dual responsibility both as head teacher and coordinator. Separate CRCs were set up at some places in Andhra Pradesh, Chhattisgarh, Gujarat, Jammu and 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 trainings 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 and Kashmir, monthly meetings were organised twice 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 and Kashmir, it was the 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 were not fixed. The administrative issues like pulse polio programme, midday meal, information flow to senior officers, staff problem, school records, salary, attendance, etc. were discussed in monthly meetings.
- More than 50 per cent 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 the 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 V student achievement based on the NCERT survey conducted during 2010-11 was compared with the ranking on the INSET variable based on teachers' perception. Student achievement was found significantly correlated with the relevance of INSET and enrichment of understanding of the content in the States of Tamil Nadu, Uttar Pradesh, Gujarat, Jammu and Kashmir and Odisha. On the lower end of the relationship were the States of Haryana, Chhattisgarh, Rajasthan and Nagaland.
- The analysis of comparing achievement and classroom transaction variables revealed that student achievement had significant correlation with 'treating students respectfully' and summarising main points to conclude the lesson in the States of Tamil Nadu, Jammu and Kashmir, Madhya Pradesh, Uttar Pradesh and West Bengal. In the remaining States except Meghalaya, Nagaland and Haryana the correlation was in a 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.
- FGDs were conducted with five or six students of Classes 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, Gujarat:
  - Teaching (General)—Questioning, discussion, involvement, and evaluation.

- Subject teaching (English, Maths, Science).
- Use of TLM.
- Teacher behaviour.
- Organisation of activities (Group Work, demonstration in Activity Cards).

- Changes in some of the above mentioned areas of classroom transaction were reported in FGD in the States of Bihar, Jammu and 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 variation 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 utilised 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 support, adequately equipped library, ICT and learning teaching aids, electricity supply with alternative arrangement in case of power failure, safe drinking water, separate toilet facilities separate for women, display facilities, etc.
- The findings on training transaction reveals that 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 balancing 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 with greater scope for reflection and explaining in easy way to understand language, 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 like Language, Mathematics, Social Sciences and Science. The Package should include audio-video materials. Training material should be prepared based on experiential learning activities to minimise 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 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 institutionalised capacity building of RPs with support from NCERT and SCERT should be evolved.
- The study reveals that BRC and CRC coordinators have dual responsibility both academically and administratively. There is a need to position full time qualified and

professionally and academically competent coordinators with adequate support staff, infrastructure and equipment for organising INSET and monthly meetings and school visits respectively 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 more practice of complex teaching skills by the 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 a complete set of skills for reflection in the training programme for teachers and RPs. This needs more attention in the 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 and equipments and human resources for the continuing and 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 the Head of the school.
- Monthly meetings for teachers should be organised 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 to enhance the quality of training with improved design backed by development of skills and reflective dynamics of teaching behaviour, cooperative learning using constructivist approach, continuous evaluation feedback mechanism and onsite support with follow-up. Split-up model in true spirit should be followed for organising 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.

# 1 The INSET Journey : Search for Impact

## THE INSET JOURNEY

In-service Education of Teachers (INSET) has received considerable attention in the post-independence period as it was perceived as an essential input to achieve the goal of universal elementary education of children in the age group 6–14 years, and to ensure overall improvement in the quality of school education. Extension Service Centres were established in selected training colleges during the fifties in different States to provide INSET and support to teachers of nearby schools. It was a small but significant step. Milestones in its journey are linked to the Universal Elementary Education (UEE) development landmarks. Initially, the emphasis was on increasing enrolment and dealing with multigrade classes. The concern for the improvement of quality of teacher education led to the establishment of the State Institutes of Education (SIE) in order to complement the efforts initiated by the National Council of Educational Research and Training (NCERT) during the second half of the sixties. Some other agencies also organised project-based INSET, especially in the curricular areas of science and mathematics. The initiatives were somewhat patchy in terms of coverage of teachers and curricular areas. The SIEs were later converted into State Councils of Educational Research and Training (SCERTs) encompassing the total school stage.

With the National Policy on Education (NPE) 1986, revised in 1992, quality in-service education occupied centre stage. It was for the first time that the Programme of Mass Orientation of School Teachers (PMOST) covering all teachers was organised to create awareness about the perspective of education envisaged in the policy. Simultaneously, small scale projects, such as Shiksha Karmi Pariyojna (SKP) in Rajasthan, Andhra Pradesh Primary Education Project (APPEP) and Bihar Education Project (BEP), UP Basic Education Project (UPBEP), Mahila Samakhya (MS) and Lok Jumbish (LJ) generated decentralised models of school and teacher development. These initiatives culminated in upscale school-based in-service education in the District Primary Education Project (DPEP). In response to the commitment to achieve UEE in a time-bound frame, Sarva Shiksha Abhiyan (SSA) covering eight years of elementary education of 'equitable quality' was launched in 2001. It conceptualised teacher development through annual in-service education of all teachers backed by professional onsite support and collaborative monthly meetings. 'INSET was considered the gateway to professional enculturation' (Jangira 1983). The focus shifted to UEE issues and the use of the pedagogy of constructivist approach by reflective teachers as suggested in the National Curriculum Framework 2005 and incorporated in the SSA framework 2008. The Right to Education (RTE) Act 2009 also reiterates INSET as an instrument to improve the quality of elementary education.

Post-NPE 1986/1992 initiatives yielded several gains. The confidence to implement large

scale INSET is the crucial output. Decentralised infrastructure for the delivery of INSET with backup onsite support to teachers in schools led by the District Institute of Education and Training (DIET), Block Resource Centre (BRC) and Cluster Resource Centre (CRC) is now available, though further strengthening in terms of skilled human resources and use of technology are still needed. Need-based financial support is also available. The elements of the INSET profile for teacher development emerging from its design and implementation over time are given in the box.

**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 interactive CRC monthly meetings and onsite support.
- Training package consisting of modular exemplar material for self learning, feedback.
- Mechanism for assessing 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.

Needless to say, enormous funds and human resources have been invested in the INSET over time since millions of elementary teachers are being covered in order to effect change in classroom practices. Several pertinent questions arise. Is INSET in consonance with the objectives envisaged by SSA? Do teachers undergoing the INSET perceive it as useful to their classroom practices? Are the learnt practices used in classroom transaction? Do students perceive some change in teachers' performance? Do students learn better? In other words, has the INSET under the SSA impacted teachers, classroom practices and student perceptions about the change? The need to address such questions led to the present study. Direction for the review and renewal of INSET is linked to such an effort.

## 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. A large scale impact study in the area of INSET was a rarity. No comprehensive study of INSET impact starting with training needs assessment, training design, training material/ package, delivery of training, evaluation of the quality of delivery, follow-up and school-based onsite support and student learning could be identified. Majority of the studies covered at the most a couple of elements of this complex whole or conducted as part of small projects with limited objectives validating the material developed for teaching a subject or a few units thereof. Obviously, there was a lack of comprehensive INSET studies.

Several evaluative studies were conducted in the context of PMOST that covered 16.72 primary teachers. Doraswamy et al. (1989) evaluated the PMOST in Karnataka. This training was limited to creating awareness about NPE 1986. Teachers did not appreciate the training addressing merely awareness objectives. The PMOST training programme was therefore reviewed and revised to include academic content and rechristened as Special Orientation Programme for Primary Teachers (SOPT). The survey of teachers' opinion in Nagpur, Panchbhai (1990) reported indifference of 90 per cent of the teachers covered in in-service training due to their negative attitude and lack of support from the school authorities. Gupta (2000) reported gains in knowledge and classroom performance in SOPT in Uttar Pradesh. Rao and

Lakshminarayana (1998) conducted a study on the impact of SOPT on classroom practices in Andhra Pradesh. The study was a step forward since it addressed the issue of impact of training on classroom practices. Almost all sampled teachers were found to be satisfied with the training. It seemed to have an impact on academic awareness and on classroom performance of teachers, though teachers did have some reservation about the transaction of training which needed improvement to be more effective.

Some studies were conducted as small scale projects post-NPE 1986 and 1992. SCERT, Andhra Pradesh (1991) in its evaluative study of APPEP reported a limited impact of training. Only one-third teachers organised group work and display of children's work in the classroom. Inputs from APPEP including INSET were found to be associated with increased student participation, increased enrolment and reduced dropout rates. Aba (2001) and Chauhan (2009) noticed transmission loss in cascade approach that limited the extent of training transfer to classroom practices. The Teacher Empowerment Project (1992) in Madhya Pradesh, Maharashtra, Rajasthan and Uttar Pradesh reported better environment and improved teachers' morale, higher self-esteem and better teaching resulting in the boosting of students' enrolment and attendance.

Some small studies addressed the issue of the impact of INSET on classroom practices. Sharma (1992) found that INSET impact was higher for teachers in the age group 45–60 years or those with more than 15 years of experience. About 58 per cent of the teachers could learn the concepts relating to the content covered in the training. Measurable changes in students' performance were reported in the case of about 75 per cent of the teachers. Similar results were reported by Agarwal (1997), Eswaran (2009) and Kumar (2011) Yadav (2000) studied the impact of in-service training of primary teachers in a block in Hissar district in Haryana using pre- and post-test design on achievement of teachers and the observed classroom practices. The teachers showed higher achievement after the training. The transfer of training gains to classroom practice was only marginal. Yadav (2002) conducted another study on the impact of SMART-PT in Maharashtra. The training indicated impact on the teachers during classroom transaction. Similar findings were reported by Arora (2010) and SCERT (2011). Yadav (2003, 2010) highlights issues on teacher education in general and in-service education in particular.

Besides the national studies referred to above, findings of some international studies are given below.

Hoque, Kazi Enamul et al. (2011) conducted a study entitled 'Impact of Teachers' Professional Development on School Improvement in Bangladesh'. The main objective of the study was to examine the relationship between teachers' professional development activities and school improvement. The findings of the study reveal that teachers' professional development activities have a significant impact on school improvement. The study also reflects on the importance of teachers' collaboration in in-service training and classroom observation for school improvement.

A study conducted by Hardman, Frank et al. (2009) aimed at investigation into the impact of a national, school-based teacher development programme on learning and teaching in Kenyan primary schools. The study found that after training, teachers were more interactive with pupils in teaching and made greater use of group work. The study also revealed that the biggest impact on classroom practices was observed in the case of those teachers who had undergone the most systematic in-service training.

The study entitled 'Provision of In-Service Training of Mathematics and Science Teachers in Botswana: Teachers' Perspectives' conducted by Ramatiapana, Kim Agatha (2009) investigated the perceptions of mathematics and science teachers in Botswana about in-service programme. The study reported that there was no significant impact on the education system due to the current in-service programme; no follow-up activities to support the workshops and in-service programme was undertaken and the skills acquired during the

programme were insufficient to sustain the implementation of the strategies in future.

Ghani et al. (2009) conducted a study on The Effects of Teacher Training Programme on Teachers' Productivity in Caprivi Region, Namibia and found that a partial relationship positively existed between training of teachers and their organisational effectiveness. They also highlighted that only a few of the mentioned training programme skills actually contributed to the effectiveness of teachers.

Abuhmaid, Atef (2011) conducted a study entitled 'ICT Training Courses for Teacher Professional Development in Jordan', which focused on the conduct and effectiveness of ICT training courses within the Jordanian education system. The findings revealed that ICT professional development courses for teachers were of considerable help to them in improving their ICT skills and knowledge. The report also highlighted the problems regarding the conduct and the nature of these courses, indicating that timing and modes of training follow- up, teachers' beliefs, school culture, workload, etc., appeared to impact the effectiveness of training courses.

Jamil et al. (2011) conducted a study to find out the association of in-service training with, and its effect on, the performance of secondary school teachers for the academic betterment of students at the secondary stage. The study focused on some key aspects of training effectiveness like expertise in the subject matter, acquisition of latest knowledge, interaction with students, teaching methods, sources of information, and getting feedback from students. The study revealed that a significant correlation existed between in-service training and the performance of teachers. It was also found that some aspects under the study showed a comparatively better effect of training while some other aspects like expertise in subject matter, improvement in knowledge, sources of information did not show any significant effect of training on the performance of teachers and students.

Fresko and Chaim (1985), found that after the in-service training there was high level of confidence in ability among teachers to teach the curriculum. It was also found that there was corresponding increase in mathematics skills after inservice training.

Bohan (1997), in a study found that majority of the teachers reported improvements in their beliefs, practices and skills after inservice training. Teachers reported that they were more skilled after training. The overall results suggested that the six month training provided in five sessions had a positive impact on a majority of teachers.

Khad, Rubina (2002) conducted a study entitled 'Impact Assessment of an In-Service Teacher Training Programme in Bangladesh'. The purpose of the study was to monitor the impact of in-service teacher training course offered to secondary school teachers in terms of teacher attitudes, beliefs and student attitudes. Data were collected through different techniques like individual interviews, focus group discussions and classroom observations. It was found that training was successful and had a positive impact on teachers as well as on students.

Thurston et al (2008) studied the 'Effects of Continuing Professional Development (CPD) on Group Work Practices in Scottish Primary Schools.' They found that the CPD initiative had a significant impact on the attainment of pupils in science. It also revealed that CPD promoted effective discourse and pupil dialogue during science lessons. Moreover, significant correlations were found between teacher evaluations of the impact upon pupil learning and increased attainment in science.

Viadero, Debra (2010) reviewed different studies conducted in USA related to the impact of teacher training on student achievement. He reported findings of a study entitled 'The Middle School Mathematics Professional Development-Impact Study', which suggests that even intensive, state-of-the-art efforts to boost teachers' skills on the job may not lead to significant gains in student achievement. A similar conclusion was reached in another study which studied impact of training on improvement of teachers' instructional skills in early reading.

A study conducted in Namibia by Pomuti (2000) entitled 'The Impact of Practice-Based Inquiry on In-service Teacher Education Model on Teachers' Understanding and Classroom Practices' revealed a very significant effect of teacher training on students' class achievement. Two studies entitled 'The Professional Development in Reading Study' and 'The Middle School Mathematics Professional Development Impact Study' were reviewed and reported by Quint, Janet (2011). Both studies found that the programme had only a limited effect on teachers' knowledge and instruction and did not leave an abiding impact on student test scores.

Garet et al. (2010) conducted a study in the USA entitled 'Middle School Mathematics Professional Development Impact Study: Findings after the First Year of Implementation'. The purpose of the study was to test the impact of a professional development programme for a teacher that was designed to address the problem of low student achievement in topics in rational numbers. It was found that the professional development programme did not produce a statistically significant impact on teachers' knowledge of rational numbers, the professional development programme had a statistically significant impact on the frequency with which teachers engaged in activities that promoted student thinking and did not produce a statistically significant impact on student achievement.

A study was conducted by Karagiogi et al. (2006) to measure the perceptions of pre-primary and primary school teachers in Cyprus about the impact and efficacy of a particular ICT in-service training initiative. The findings revealed a significant impact of training on teachers' personal attitudes and skills. At the same time, the findings reflect that the professional practices developed by teachers did not outline significant gains in student learning and achievement. The study also suggested that for ICT professional development to impact school practices, there is a need for contextual factors such as access to resources, curriculum time and a change-oriented environment to be taken into account.

Sabiha et al. (2010) in their study, 'Teachers' Views on The Effectiveness of In-Service Courses on the New Curriculum in Turkey' evaluated the effectiveness of in-service courses conducted by the Ministry of National Education in order to inform teachers about the changes introduced by the new primary and secondary school curricula. The study, based on teachers' views of the INSET courses, aimed to probe whether the changes in curricula had entered the classrooms. Semi-structured interviews were conducted with primary and secondary schools during the 2007-2008 academic years and the data were analysed based on the criteria of effective INSET identified in the literature. The INSET courses were found to be ineffective, mainly in terms of the quality of the instructors, teaching methods employed, duration of the courses and support after training.

**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 NTA 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.

The review indicates a void in INSET impact studies with adequate coverage. A comprehensive study encompassing training design as well as training delivery is the need of the hour.

## SEARCH FOR IMPACT

Limitations as chronicled above justify a reasonably large study on the impact of in-service education on teachers' learning achievement and change in classroom transaction. There is a need to study the impact on students to the extent possible within the stipulated time frame and availability of resources. The study should be comprehensive in terms of not only 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 need to be employed. Findings of the study should essentially address the policy issues 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

Based on the discussion about different aspects and phases of INSET, the conceptual frame of the study has been imaged 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 influenced by teachers and CRC coordinator interaction as well as sharing training input and its implementation in school in CRC meetings. A mix of block training and monthly meetings is likely to have an impact on students' 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, mobilisation 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 onsite support.

NCF 2005 based SSA guidelines forming the core of INSET as discussed further in the chapter.

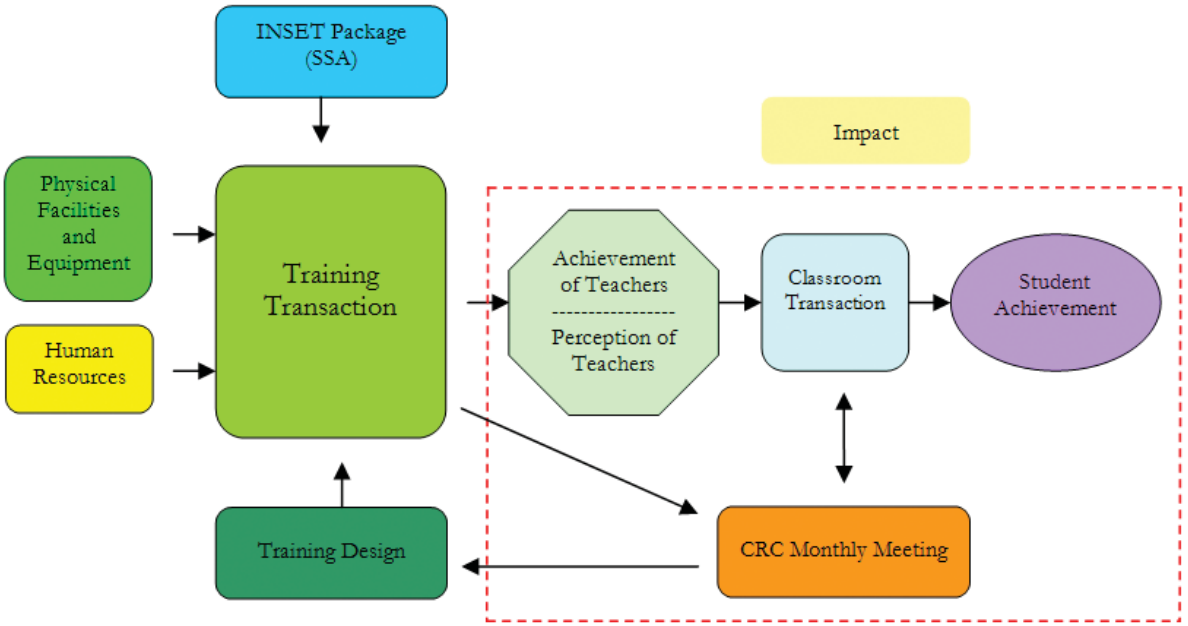


**Figure 1.1** : INSET Impact—Conceptual Frame

## OPERATIONAL DEFINITIONS

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

**Teacher:** A regular teacher working in primary and upper primary schools deputed for the block training in 2010-11 and others 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 or influence upon another. Here immediate impact of in-service training is on the teachers who received 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 practice 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 day training for untrained teachers, 30 day induction training and 20 day training for all teachers every year. The 20 day training is to be split into 10 days of block training and 10 days in the form of monthly meetings at the Cluster Resource Centre (CRC). This study covers only 20 days training.

**SSA INSET Guidelines**

(a) It takes into account the constructivist approach as laid down in NCF-2005. This means that the teacher should act as 'facilitator' and should work towards creating a variety of learning experiences in and out of the classroom that enable children to construct knowledge from activities and experiences in day to day life. The teacher is not to be a 'transmitter' of knowledge to passive recipients (the children).

(b) This approach requires being reflective, that is teachers need to become mindful enquirers into their own experiences, to guide children meaningfully.

(c) The guidelines advocate a 'split up' model of in-service training, in which 6-8 day training is provided at the BRC/DIET level and 2 day training through actual observation of the dassroom situations. Thereafter, teachers are expected to return to their school settings for 2-3 months, to try out the recommended methodologies and ideas. At the end of the training programme, they once again return to the BRC/DIET for two days to share their experiences and reflect on the new ideas before they complete the training.

(d) The guidelines recommend a format training duration of 10 days, as evident from above.

(e) In keeping with NCF 2005, the guidelines recommend training of teachers in areas such as art and heritage crafts, health and physical education, work education and education for peace, besides training in basic subjects like language, EVS and mathematics.

(f) The guidelines stress identification of training needs and development of appropriate training modules through BRGs/DRGs/SRGs. It is also recommended that the training design should emphasise local contextuality and specificities in the teaching learning situation.

(g) A list of suggested readings, educational audio and video programmes for teachers have also been provided in the guidelines.

**Classroom Transaction:** Basically curriculum is transacted in the classroom through a variety of activities carried out by teachers and students individually or in groups. What activities are organised, who organises them and how? What media and material are used? What kind of interaction takes place? Interactive episodes based on individual reflection shared in the classroom lead to student learning. 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.

Within this framework, the study assesses impact of in-service training on teachers and students. The study focuses on teacher training programmes of the year 2010-11 in 15 states, namely, Andhra Pradesh, Bihar, Chhattisgarh, Gujarat, Haryana, Jammu & Kashmir, Odisha, Madhya Pradesh, Maharashtra, Meghalaya, Nagaland, Rajasthan, Tamil Nadu, Uttar Pradesh and West Bengal. It specifically examines how the training impacted teachers and students.

## OBJECTIVES OF THE STUDY

The main purpose of the study was to examine the content of the existing in-service teacher training programmes organised under SSA in order to assess their impact on the actual classroom teaching and to suggest changes in the training programmes for making them more effective. Hence, the following objectives were formulated for the study.

1. To assess the adequacy of training inputs including process of planning, preparation and content of modules and materials used in training programmess of 2008-09, 2009-10 and 2010-11 and to find out changes in training strategy and programmes during the last three years.
2. To study the transaction modalities of the training programmes organised during 2010-11.
3. To study perceptions of the teachers about the relevance and usefulness of in-service training.
4. To study the capability of resource persons in terms of their training, experience, preparedness and their views on the impact of training on classroom processes of teachers.
5. To study the impact of training in terms of change in classroom practices of teachers.
6. To study whether students observe any change in the behaviour and method of teaching of teachers after training.
7. To analyse the opinion of other functionaries such as BRC/CRC coordinators on the impact of teacher training on classroom processes.
8. To find out the constraints or problems, if any, in using training inputs in classroom transactions.
9. To suggest measures for improving training programmes and ensuring greater utilisation of training outcomes by teachers in classroom teaching.

## LIMITATIONS AND CHALLENGES

- Pre-test and post-test design was proposed for the study for the year 2010-11 but it could not be employed in the states of Andhra Pradesh, Jammu & Kashmir, Madhya Pradesh and Uttar Pradesh where training was completed before the launch of the study. In these states the proposed design had to be substituted by post-test design only. The performance of untrained and trained teachers could be compared.
- Completion of formalities like signing MOU with universities and selection of state coordinators and recruitment of project staff was time consuming. This affected the timely completion of the study.
- Unforeseen events such as census work, assembly elections and by-election further increased the intensity of the constraints of time.
- In Maharashtra, the value-based Jeewen Vidhya was used for teacher training during

2010-11 and achievement test could not be prepared because it was qualitative type of training. In this case inventory of statements regarding qualitative change had to be developed and used. It covered only a limited number of participants.

- The State of Haryana had outsourced the training programme to two private companies, namely, the New Horizon and Educomp Solutions. These companies were mandated to organise training for 14 days for teachers but the companies organised training for 7 days only during 2010-11 and, therefore, the training of teachers could be observed only for 7 days.
- In Rajasthan project-based LEHAR training for classes I-II and science and maths kit for upper primary stage were organised. The study was confined only to project related INSET.

The INSET Journey described in this chapter leads to the Roadmap outlined in chapter two that follows.

# 2 Search for INSET Impact : The Roadmap

The roadmap runs through the design employed, sample selected, tools used and the procedure followed for the collection of data to elicit findings about the INSET impact on teachers and students. In order to realise the objectives of the study specified in the preceding chapter, the roadmap is traced in this chapter.

## DESIGN OF THE STUDY

There is a provision of 20 day in-service education and training for all teachers. 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 focused group discussion. The project was undertaken during 2010-11 to study the impact of in-service education and training on teachers' classroom transaction and on students' learning outcomes. The impact was studied in four phases. In phase one, impact of INSET on achievement and perceptions of teachers was studied. Pre-and post-test design was employed to study the training gains by administering achievement test based on training packages before and after the training in the states of Bihar, Gujarat, Haryana, Tamil Nadu, Rajasthan, Meghalaya, Nagaland, Odisha and West Bengal where training was organised during 2010-11. In the states of Andhra Pradesh, Madhya Pradesh, Uttar Pradesh and Chhattisgarh where INSET had been completed before the launch of the study, the achievement test was administered in the meeting of CRCs/ BRCs/DIETs to the two groups of teachers, those who had received training and those who hadn't. Only post test was administered to trained teachers in Jammu and Kashmir since untrained teachers were not available. The content analysis of the responses of teachers was carried out in the state of Maharashtra where value based training on *Jeewan Vidhya* was organised. The content of training packages was analysed with the help of experts. Perception of teachers, resource persons and training coordinators about the training were also sought for triangulation.

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. Experimental group consisted of the teachers who had undergone training and control group of those who had not undergone training during 2010-11. This was also supported by comparing training transaction by resource persons and classroom transaction by teachers after training in their schools. The increased use of desired skills in classroom transaction is also an indicator of impact on teachers. 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 change in school practices and teacher behaviour was also studied on the basis of focus group discussions (FGD). In addition, ranking of states on Class V 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 information from different sources like State Project Office of SSA, SCERTs, SIEs, DIETs, BRCs, CRCs and schools were collected and triangulated. The case studies of some training centres, both primary and upper primary, in each state were also conducted for complementing the field data.

## 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 states. Two districts were selected from smaller states like Nagaland and six from large states like Uttar Pradesh. Systematic sampling technique was used to select the training centres, teachers for classroom observation and student for FGD. In all, 61 districts in 15 sampled states were covered in the study. The sampled states and districts are shown in Figure 2.1.

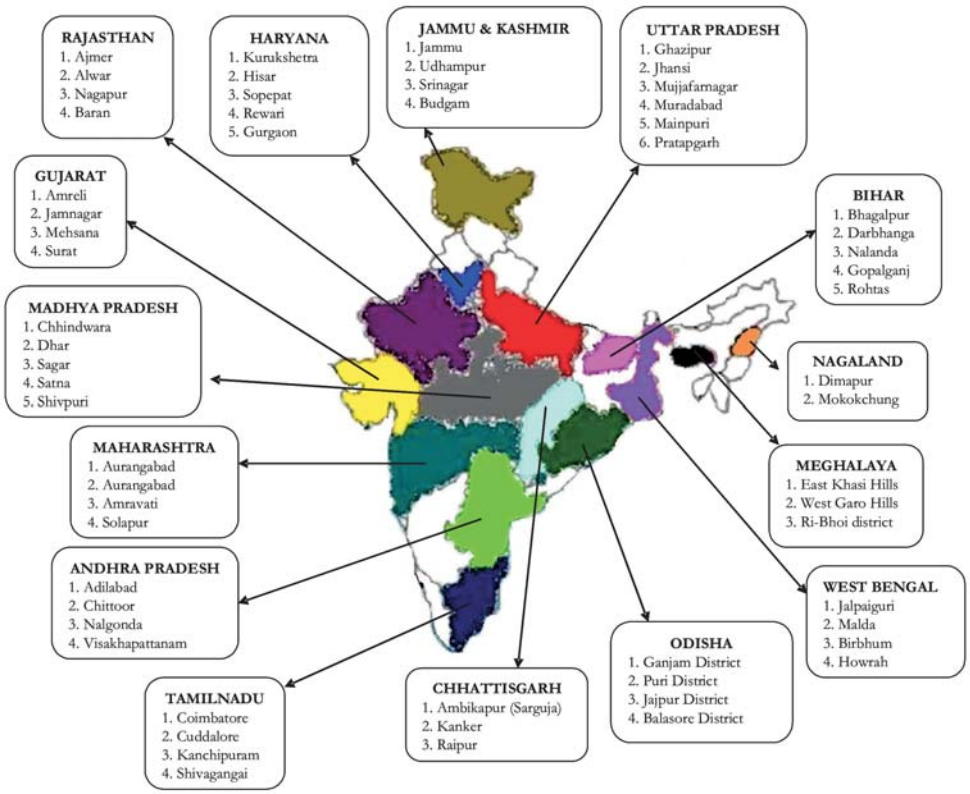


**Figure 2.1 :** Total Number of States and Districts Covered in the Study

### Training Centres

Systematic sampling technique was used to select the training centres. Alphabetical list of block training centres in sampled districts was prepared. The total number of blocks were divided by four and every third or fourth centre depending on the required number of training centres in the district that was selected on the basis of size. In each district, three to four training centers at block level were selected using systematic sampling method where training programmes were to be organised. Twelve training centres were selected from Gujarat, Haryana, Jammu and Kashmir, Odisha, Rajasthan, Tamil Nadu and West Bengal. In Uttar Pradesh 18 training centres were selected and in Meghalaya and Nagaland 10 training centres each were covered. An attempt was made to select two-thirds of the training centres for primary school teachers and one-third for upper primary teachers. From these centres, data were collected in respect of the training organised during 2010-11 except in Gujarat where data were collected for the training conducted in early 2011-12. The details about the training centres are given in Table 2.1.

Table 2.1
**Number of Training Centers Covered**

| State | Training Centres | | | Total |
|---|---|---|---|---|
| | Primary | Upper Primary | Elementary | |
| Andhra Pradesh | 12 | 4 | - | 16 |
| Bihar | 10 | 5 | - | 15 |
| Chhattisgarh | 12 | 3 | - | 15 |
| Gujarat | 8 | 4 | - | 12 |
| Haryana | 8 | 4 | - | 12 |
| Jammu & Kashmir | - | - | 12 | 12 |
| Madhya Pradesh | - | - | 5 | 5 |
| Maharashtra | - | - | 4 | 4 |
| Meghalaya | - | - | 10 | 10 |
| Nagaland | - | - | 10 | 10 |
| Odisha | 8 | 4 | - | 12 |
| Rajasthan | 8 | 4 | - | 12 |
| Tamil Nadu | - | - | 12 | 12 |
| Uttar Pradesh | - | - | 18 | 18 |
| West Bengal | 7 | 5 | - | 12 |
| Total | 73 | 33 | 71 | 177 |

Out of 177 training centres, 73 were exclusively for primary teachers, 33 for upper primary teachers and 71 were common for both primary and upper primary (elementary stage).

## Training Coordinators (TC)

The details of training coordinators of the centres in different states are given in Table 2.2.

The total number of training coordinators of the training centres based on incidental sampling was 177. Out of 177 training coordinators, 143 were men and 34 were women. There was no woman coordinator in the states of Maharashtra, Odisha and West Bengal.

## Resource Persons

The details of the resource persons who conducted the training are given in Table 2.3.

The number of resource persons based on incidental sample was 770. In Andhra Pradesh, 10 upper primary resource persons were covered

Table 2.2
**Number of Training Coordinators of Centres in States**

| State | Primary/Elementary | | | Upper Primary | | | Total | | |
|---|---|---|---|---|---|---|---|---|---|
| | Men | Women | Total | Men | Women | Total | Men | Women | Total |
| Andhra Pradesh | 10 | 2 | 12 | 4 | 0 | 4 | 14 | 2 | 16 |
| Bihar | 9 | 1 | 10 | 1 | 4 | 5 | 10 | 5 | 15 |
| Chhattisgarh | 11 | 1 | 12 | 2 | 1 | 3 | 13 | 2 | 15 |
| Gujarat | 7 | 1 | 8 | 3 | 1 | 4 | 10 | 2 | 12 |
| Haryana | 5 | 3 | 8 | 3 | 1 | 4 | 8 | 4 | 12 |
| *New Horizon* | *NA* | *NA* | *4* | *NA* | *NA* | *2* | *NA* | *NA* | *6* |
| *Educomp* | *NA* | *NA* | *4* | *NA* | *NA* | *2* | *NA* | *NA* | *6* |
| Jammu & Kashmir | 11 | 1 | 12 (E) | NA | NA | NA | 11 | 1 | 12 |
| Madhya Pradesh | 4 | 1 | 5 (E) | NA | NA | NA | 4 | 1 | 5 |
| Maharashtra | 4 | 0 | 4 (E) | NA | NA | NA | 4 | 0 | 4 |
| Meghalaya | 5 | 5 | 10 (E) | NA | NA | NA | 5 | 5 | 10 |
| Nagaland | 9 | 1 | 10 (E) | NA | NA | NA | 9 | 1 | 10 |
| Odisha | 8 | 0 | 8 | 4 | 0 | 4 | 12 | 0 | 12 |
| Rajasthan | 7 | 1 | 8 | 4 | 0 | 4 | 11 | 1 | 12 |
| Tamil Nadu | 6 | 6 | 12 (E) | NA | NA | NA | 6 | 6 | 12 |
| Uttar Pradesh | 14 | 4 | 18 (E) | NA | NA | NA | 14 | 4 | 18 |
| West Bengal | 7 | 0 | 7 | 5 | 0 | 5 | 12 | 0 | 12 |
| Total | 117 | 27 | 144 | 26 | 7 | 33 | 143 | 34 | 177 |

***NA:****Not Available*
***E:*** *(Common for both Primary and Upper Primary Stages)*

Table 2.3
**Number of Resource Persons Covered**

| State | Primary/Elementary | | | Upper Primary | | | Total | | |
|---|---|---|---|---|---|---|---|---|---|
| | Men | Women | Total | Men | Women | Total | Men | Women | Total |
| Andhra Pradesh | 34 | 2 | 36 | NA | NA | 10 | 34 | 2 | 46 |
| Bihar | 32 | 0 | 32 | 14 | 2 | 16 | 46 | 2 | 48 |
| Chhattisgarh | 28 | 10 | 38 | 6 | 1 | 7 | 34 | 11 | 45 |
| Gujarat | 41 | 25 | 66 | 17 | 9 | 26 | 58 | 34 | 92 |
| Haryana | 13 | 4 | 17 | 5 | 6 | 11 | 18 | 10 | 28 |
| *New Horizon* | *7* | *2* | *9* | *3* | *2* | *5* | *10* | *4* | *14* |
| *Educomp* | *6* | *2* | *8* | *2* | *4* | *6* | *8* | *6* | *14* |
| Jammu & Kashmir | 44 | 9 | 53 (E) | NA | NA | NA | 44 | 9 | 53 |
| Madhya Pradesh | 32 | 7 | 39 (E) | NA | NA | NA | 32 | 7 | 39 |
| Maharashtra | 3 | 2 | 5 (E) | NA | NA | NA | 3 | 2 | 5 |
| Meghalaya | 22 | 36 | 58 (E) | NA | NA | NA | 22 | 36 | 58 |
| Nagaland | 22 | 23 | 45 (E) | NA | NA | NA | 22 | 23 | 45 |
| Odisha | 18 | 7 | 25 | 25 | 3 | 28 | 43 | 10 | 53 |
| Rajasthan | 16 | 1 | 17 | 21 | 4 | 25 | 37 | 5 | 42 |
| Tamil Nadu | 6 | 15 | 21 (E) | NA | NA | NA | 6 | 15 | 21 |
| Uttar Pradesh | 67 | 16 | 83 (E) | NA | NA | NA | 67 | 16 | 83 |
| West Bengal | 30 | 12 | 42 | 46 | 24 | 70 | 76 | 36 | 112 |
| Total | 408 | 169 | 577 | 134 | 49 | 193 | 542 | 218 | 770 |

***E:*** *(Common for both Primary and Upper Primary Stages)*

and the bifurcation of men and women was not available. This has come in the way of reconciling row and column of total resource persons covered in the sample. However, 28 per cent women were covered against 72 per cent men from the states where disaggregated data were available.

## Teachers

The details of primary and upper primary school teachers covered in the study are given in Table 2.4.

In this study, 9100 teachers based on incidental sampling both at primary and upper primary stages were covered. In Maharashtra, 232 teachers were covered and the bifurcation of men and women as well as primary and upper primary was not available. The bifurcation of men and women was also not available in the states of Bihar, Jammu and Kashmir, Nagaland, Rajasthan and Tamil Nadu. This has come in the way of reconciling row and column of total teachers covered in the sample. However, 44 per cent women were covered against 56 per cent men from the states where disaggregated data were available.

## Experimental and Control Group Teachers

From the list of teachers who had received training at the selected centres during 2010-11, four or five teachers from each centre belonging to different schools representing both men and women were selected for classroom observation using systematic sampling technique. These teachers formed the experimental group. One teacher was selected from each school. In the same way, the teachers who did not receive training were selected from the same experimental school or nearby school for classroom observation in the control group. For control group, availability of teachers without training was the main consideration. In experimental and control groups 1741 and 817 teachers respectively from the same number of schools were selected for classroom observation. Two or three observers spent at least two days for classroom observation between one and two months after the training.

Table 2.4
**Total Number of Teachers Covered in Sampled States**

| State | Primary/Elementary | | | Upper Primary | | | Total | | |
|---|---|---|---|---|---|---|---|---|---|
| | Men | Women | Total | Men | Women | Total | Men | Women | Total |
| Andhra Pradesh | 201 | 189 | 390 | 168 | 78 | 246 | 369 | 267 | 636 |
| Bihar | NA | NA | 256 | NA | NA | 132 | NA | NA | 388 |
| Chhattisgarh | 681 | 416 | 1097 | 381 | 169 | 550 | 1062 | 585 | 1647 |
| Gujarat | 153 | 293 | 446 | 141 | 66 | 207 | 294 | 359 | 653 |
| Haryana | 219 | 228 | 447 | 128 | 104 | 232 | 347 | 332 | 679 |
| *New Horizon* | *126* | *105* | *231* | *60* | *60* | *120* | *186* | *165* | *351* |
| *Educomp* | *93* | *123* | *216* | *68* | *44* | *112* | *161* | *167* | *328* |
| Jammu & Kashmir | NA | NA | 192 | NA | NA | 294 | NA | NA | 486 |
| Madhya Pradesh | 144 | 66 | 210 | 120 | 40 | 160 | 264 | 106 | 370 |
| Maharashtra | NA | NA | NA | NA | NA | NA | NA | NA | 232 |
| Meghalaya | 170 | 324 | 494 | 97 | 125 | 222 | 267 | 449 | 716 |
| Nagaland | NA | NA | 184 | NA | NA | 134 | NA | NA | 318 |
| Odisha | 72 | 144 | 216 | 103 | 58 | 161 | 175 | 202 | 377 |
| Rajasthan | NA | NA | 136 | NA | NA | 63 | NA | NA | 199 |
| Tamil Nadu | NA | NA | 375 | NA | NA | 52 | NA | NA | 427 |
| Uttar Pradesh | 313 | 103 | 416 | 96 | 49 | 145 | 409 | 152 | 561 |
| West Bengal | 477 | 404 | 881 | 285 | 245 | 530 | 762 | 649 | 1411 |
| Total | 2430 | 2167 | 5740 | 1519 | 934 | 3128 | 3949 | 3101 | 9100 |

The details of the teachers and schools covered in the experimental and control groups are given in Table 2.5. Besides this, the details of total districts in 15 states, sampled districts and the number of sampled training centres are given in Table 2.5.

Table 2.5
**Number of Teachers and Schools Covered in Experimental and Control Groups**

| State | Number of districts | Number of sampled districts | Number of sampled trg. centres | Number of experimental group schools/teachers | | | Number of control group schools/teachers | | |
|---|---|---|---|---|---|---|---|---|---|
| | | | | Primary | U. Primary | Total | Primary | U. Primary | Total |
| Andhra Pradesh | 23 | 4 | 16 | 97 | 79 | 176 | 12 | 12 | 24 |
| Bihar | 38 | 5 | 15 | 40 | 20 | 60 | 20 | 10 | 30 |
| Chhattisgarh | 27 | 3 | 15 | 46 | 18 | 64 | 14 | 13 | 27 |
| Gujarat | 26 | 4 | 12 | 89 | 40 | 129 | 30 | 30 | 60 |
| Haryana | 21 | 5 | 12 | 52 | 20 | 72 | 24 | 13 | 37 |
| Jammu & Kashmir | 22 | 4 | 12 | 58 | 46 | 104 | 25 | 32 | 57 |
| Madhya Pradesh | 50 | 5 | 5 | 90 | 65 | 155 | 42 | 41 | 83 |
| Maharashtra | 35 | 4 | 4 | 48 | - | 48 | 24 | - | 24 |
| Meghalaya | 7 | 3 | 10 | 83 | 18 | 101 | 68 | 32 | 100 |
| Nagaland | 11 | 2 | 10 | 72 | 28 | 100 | 23 | 10 | 33 |
| Odisha | 30 | 4 | 12 | 118 | 40 | 158 | 37 | 24 | 61 |
| Rajasthan | 33 | 4 | 12 | 54 | 36 | 90 | 27 | 18 | 45 |
| Tamil Nadu | 32 | 4 | 12 | 101 | 55 | 156 | 31 | 28 | 59 |
| Uttar Pradesh | 71 | 6 | 18 | 109 | 50 | 159 | 24 | 12 | 36 |
| West Bengal | 19 | 4 | 12 | 99 | 70 | 169 | 89 | 52 | 141 |
| Total | 445 | 61 | 177 | 1156 | 585 | 1741 | 490 | 327 | 817 |

Table 2.6
**Number of Schools, Teachers and Students Involved in FGD in Sampled States**

| State | Primary (IV/V) | | | Upper Primary (VII/VIII) | | | Total | | |
|---|---|---|---|---|---|---|---|---|---|
| | No. of Schools/ Teachers | No. of FGDs | No. of Students | No. of Schools/ Teachers | No. of FGDs | No. of Students | No. of Schools/ Teachers | No. of FGDs | No. of Students |
| Andhra Pradesh | 60 | 60 | 300 | 20 | 20 | 120 | 80 | 80 | 420 |
| Bihar | 40 | 40 | 240 | 20 | 20 | 120 | 60 | 60 | 360 |
| Chhattisgarh | 40 | 40 | 220 | 38 | 38 | 190 | 78 | 78 | 410 |
| Gujarat | 89 | 89 | 540 | 40 | 40 | 240 | 129 | 129 | 780 |
| Haryana | 54 | 54 | 275 | 20 | 20 | 105 | 74 | 74 | 380 |
| *New Horizon* | *30* | *30* | *150* | *10* | *10* | *50* | *40* | *40* | *200* |
| *Educomp* | *24* | *24* | *125* | *10* | *10* | *55* | *34* | *34* | *180* |
| Jammu & Kashmir | 58 | 58 | 286 | 48 | 48 | 192 | 106 | 106 | 478 |
| Madhya Pradesh | 58 | 58 | 290 | 29 | 29 | 150 | 87 | 87 | 440 |
| Maharashtra | 12 | 12 | 36 | 60 | 60 | 300 | 72 | 72 | 336 |
| Meghalaya | 35 | 35 | 200 | 15 | 15 | 90 | 50 | 50 | 290 |
| Nagaland | 14 | 14 | 80 | 15 | 15 | 90 | 29 | 29 | 170 |
| Odisha | 60 | 60 | 360 | 60 | 60 | 300 | 120 | 120 | 660 |
| Rajasthan | 43 | 43 | 215 | 69 | 69 | 345 | 112 | 112 | 560 |
| Tamil Nadu | 84 | 84 | 420 | 48 | 48 | 40 | 132 | 132 | 460 |
| Uttar Pradesh | 48 | 48 | 276 | 24 | 24 | 122 | 72 | 72 | 398 |
| West Bengal | 35 | 35 | 215 | 22 | 22 | 134 | 57 | 57 | 349 |
| Total | 730 | 730 | 3953 | 528 | 528 | 2538 | 1258 | 1258 | 6491 |

## Schools and Students Covered by Focus Group Discussion (FGD)

In order to study students' perception about change in classroom practice after the training, 5-6 students of Class IV/V or VII/VIII were selected by following systematic sampling technique for FGD. The details of the number of school teachers and students both at primary and upper primary levels covered for FGD are given in Table 2.6.

As many as 1258 focus group discussions involving 6491 students from 1258 schools were conducted in which 3953 and 2538 students at primary and upper primary stages participated in FGD.

## CRC Monthly Meeting

For follow-on training, CRC monthly meetings were conducted for teachers to discuss ways and means to use inputs of training in classroom transaction. In the study, 2891 teachers attended monthly meetings in 140 Cluster Resource Centres. The same number of CRC coordinators, one from each CRC, conducted the meetings are given in Table 2.7

Table 2.7
**Number of CRC Coordinators, Centres and Teachers in Monthly Meeting**

| State | CRC Centres | CRC Coordinators | Teachers attending meeting |
|---|---|---|---|
| Andhra Pradesh | 8 | 8 | 668 |
| Bihar | 15 | 15 | 290 |
| Chhattisgarh | 13 | 13 | 405 |
| Gujarat | 8 | 8 | 133 |
| Haryana | 0 | 0 | 0 |
| Jammu & Kashmir | 23 | 23 | 192 |
| Madhya Pradesh | 10 | 10 | 63 |
| Maharashtra | 4 | 4 | 203 |
| Meghalaya | 0 | 0 | 0 |
| Nagaland | 0 | 0 | 0 |
| Odisha | 10 | 10 | 223 |
| Rajasthan | 11 | 11 | 77 |
| Tamil Nadu | 12 | 12 | 236 |
| Uttar Pradesh | 18 | 18 | 151 |
| West Bengal | 8 | 8 | 250 |
| Total | 140 | 140 | 2891 |

## Case Studies

Case studies of training centres of primary, upper primary and elementary stages were conducted for gathering in depth information. The details of 25 case studies of sampled states are given in Table 2.8.

Twenty five case studies of the training centres of primary, upper primary and elementary stages were conducted to seek detailed information of the training programme.

Table 2.8
**Total Number of Case Studies of Training Centres**

| Name of the State | Primary | Upper Primary | Elementary |
|---|---|---|---|
| Andhra Pradesh | - | ITDA School, Utnoor, Adilabad | - |
| Bihar | BRC Kuchaikote, Gopalganj | - | - |
| Chhattisgarh | BRC Abhanpur, Raipur | DIET Ambikapur, Sarguja | - |
| Gujarat | CRC Kamana, Mehsana | CRC Babapur, Amreli | |
| Haryana | BRC, Helimandi, Gurgaon (Educomp) | Sr.Secondary School, Kurukshetra (New Horizon) | - |
| Jammu & Kashmir | - | - | • Govt. Girls Hr. Sec School, Bakshi Nagar, Jammu<br>• Govt.Girls Hr.Sec School, Beerwah, Budgam, Kasmire |
| Madhya Pradesh | - | - | • DIET, Shivpuri<br>• DIET, Sagar |
| Maharashtra | - | - | Marathawada Prashaskiya Avam Vikas Prasikshan Prabodhani, Jayakwadi, Paithan Taluka, Aurangabad |
| Meghalaya | - | - | • BRC, Rongram, West Garo Hills, Shillong<br>• BRC, Mawryngkneng, East Khasi Hills, Shillong |
| Nagaland | - | - | Educational Block Resource Centre, Doyapur, Dimapur |
| Odisha | BRC Chatrapur, Ganjam | BRC, Barigobindpur, Satyabadi Block, Puri | - |
| Rajasthan | BRC Kuchaman Block, Nagaur | BRC Burja, Umrein Block, Alwar, | - |
| Tamil Nadu | Reddy Chaitram, BRC, Vandipalyam Block, Cuddalore, | - | - |
| Uttar Pradesh | BRC, Mainpuri | BRC Birno, Ghazipur | - |
| West Bengal | Jagacha Board Primary School, Howrah. | Junior High Madarsa, Labpur, Birbhum | - |

## TOOLS USED

In order to realise the objectives of the study, the following tools were developed by the National Study Team.

### Schedule and Guidelines for Assessment of Training Packages (ISTT-1)

This tool provides guidelines to analyse and evaluate the training packages developed and used in different states during the years 2008-09, 2009-10 and 2010-11. The training package refers to a complete set of training material. The tool consists of two parts. The first part deals with information about the training package and the second provides guidelines for the evaluation of the training package in the light of NCF-2005. The tool facilitates the task of analysis of the training packages. The guidelines also suggest different aspects of the packages which need to be evaluated in respect of objectives of the training, areas covered, transaction methodologies, time required and evaluation procedure given in the package.

The tool also provides guidelines to examine changes, if any, in the package(s) used in 2010-11 in comparison to the package used during 2008-09, 2009-10. In order to study the opinion of the experts about the training packages for the

years 2008-09, 2009-10 and 2010-11, fourteen statements are included in the tool. The expert opinion is sought on a 3-point scale, 'to a large extent', 'to some extent' and 'not at all'. The scoring values assigned for these options are 3 for 'to a large extent', 2 for 'to some extent', 1 for 'not at all'.

### Schedule for State Project Director (SPD) OF SSA/Director SCERT (ISST-2)

This tool is meant for seeking information from SPD/Director SCERT/State Training Coordinator on the planning and implementation of in-service training of teachers under SSA for primary and upper primary school teachers in sampled states. The tool consists of 31 items related to general information, number of teachers covered, location of training centres both for block and monthly meetings, role of different institutions in organising training, design of training package, selection of resource persons and evaluation of training and mode of receiving funds and problems in meeting the target.

### Facilities in the Training Centres (ISTT-3)

This tool is meant for collecting information regarding the availability of physical facilities, equipments and training material(s) at the training centres established in schools/CRCs/ BRCs/ DIETS in sampled states. There are 17 items in this schedule which are divided into three sections. Section A deals with basic information about location of teachers, resource persons and training coordinators. Section B deals with the infrastructural facilities available at the centres and Section C deals with the training material available/used at the centre.

### Training Observation Schedule (ISTT-4)

This schedule is meant for observing a training session conducted by the Resource Person during the training programme. It consists of 25 items. First 10 items are related to general information and the other 15 are related to skills and behaviour of the Resource Person during training transaction. These are related to introduction of lesson, presentation of new concepts, asking questions and answering them, treating the teachers on equal footing, use of resource material, attentiveness of teachers and concluding the lesson.

### Teachers' Perception about In-service Training (ISTT-5)

This questionnaire aims at eliciting teachers' perception about the training programme. The questionnaire is filled in by the teachers on the last day of the training programme. There are 31 items in the tool. The items seek to elicit their perception regarding the physical facilities available at the centre, the distribution of the training material and stationery, the quality of training material, the transactional mode, assessment of resource persons, self-assessment, relevance and benefit of training and the strengths and weaknesses of the training.

### Resource Persons' Perception about In-service Training (ISTT-6)

This questionnaire aims at studying the resource persons' perception about in-service training of teachers. It seeks to elicit their perception about various aspects of in-service training organised for primary/upper primary school teachers. There are 35 items in the tool. Items 1-6 deal with the general information and items 7-18 deal with the personal bio-data of the resource persons. Items 19-35 deal with the training programme in which they acted as resource person. These items seek to elicit their perception regarding the physical facilities available at the centre, the distribution of the training materials and stationery, the quality of training material, the transactional mode, quality of the training module used, strengths and weaknesses of the training and suggestions for improvement.

### Questionnaire for Training Coordinator (ISTT-7)

This questionnaire aims at studying perceptions of the training coordinators about the training programme. There are 26 items in the tool. Item

1-14 deal with the personal information about the training coordinators. Item 14-26 deal with the various issues related to physical facilities, procedure of inviting the teachers, preparation of training schedules, attendance of the teachers, procurement and distribution of training materials, mechanism to evaluate the performance of the resource person, funds, strengths and weaknesses of the programme and suggestions for further improvement.

### Guidelines for Conducting Focus Group Discussion with Students (ISTT-8)

This tool is meant to conduct the Focus Group Discussion (FGD) with the students in order to study the impact of training on the teachers in their classrooms teaching in schools. The Field Investigators conducted group discussions with students of Classes IV/V and VII/VIII in small groups (5-6 students) to find out changes in teaching practices of teachers who had undergone training. The Investigators/State Coordinators were required to conduct the discussion around the questions listed under guidelines for discussion. These questions were suggestive. Further questions were to be asked for deeper probing. All responses of the students were recorded. The guidelines focused on the changes in teachers and their teaching after the training related to the preparation and use of TLM, changes noticed in the behaviour, activities organised in the classroom and participation of the students in activities, type of new activities organised and students' involvement in activities.

### Case Study of a Training Centre (ISTT-9)

This tool provides guidelines to conduct case studies of two training centres, i.e. one for upper primary and the other for primary level. The guidelines suggest various techniques to be adopted for collection of data like conducting interviews with teachers, resource persons, training coordinators and non-academic staff about availability and functioning of physical facilities, equipments, training material, etc.

### Schedule for CRC Coordinator (ISTT-10)

This schedule aims at studying the perception of CRC coordinator about the monthly meetings. There are 31 items in the tool. Items 1-5 deal with the personal information about the CRC coordinator. The remaining questions deal with the monthly meetings held during 2009-10 and 2010-11, the physical facilities available at the centre, the availability of teaching aids/ equipments, details of the resource persons invited, reasons of absence of teachers in monthly meetings, use of different modes of transport for attending meetings, criteria for identifying the issues discussed at monthly meetings, mechanism to evaluate the performance of the teachers in the meetings, attendance and performance of the teachers in the monthly meetings, reasons for dissatisfaction, funds received and suggestions for improvement of monthly meetings.

### Schedule for Monthly Meetings for Teachers (ISTT-11)

This schedule aims at studying the perception of the teachers related to the organisation and impact of monthly meetings. The schedule to be filled by the teachers, details the activities conducted in the monthly meetings. There are forty items in the tool, which deal with different aspects of the monthly meetings. Items 1-7 deal with the personal information related to the teachers who attended the monthly meetings. Items 8-10 are related to the dates and venue of the meetings. Items 11 and 12 are related to the objectives of conducting the meetings and issue of invitation for monthly meetings. Item 16 is related to the mode of transport used by teachers for attending the meetings. Item 18 deals with the number of meetings held during 2009-10 and 2010-11. Seating arrangement is dealt within the items 21 and 22. Items 23 and 24 deal with the physical facilities and the aids and equipments available at the centres. Items 25-29 deal with the issues discussed in the meetings, clarification of doubts of the teachers, etc. The approaches/methods learnt in the meetings, the activities conducted in the meetings, usefulness of these activities in

the classroom, etc. are dealt within the items 30-32. Mechanism of evaluation of performance of the teachers, feedback of teachers utilised in the meetings, payment of TA/DA, providing lunch/breakfast, etc. are dealt within items 33-38. Items 39 and 40 deal with the reaction of the teachers regarding the meeting and general comments on the meetings.

### Observation Schedule for Monthly Meetings of CRC (ISTT-12)

This schedule is meant for facilitating observation of different activities in monthly meetings of the CRC. There are 19 items in this tool. Items 1-7 deal with the general information regarding the meetings. Items 8-11are related to the agenda, introduction, and issues of the meeting and the levels of participation of teachers. Activities conducted during the meetings, issues raised by teachers related to the curriculum and the innovations attempted by teachers are dealt within the items 12-14. Items 15-17 are related to usefulness, liking of agenda and weakness(es) of the meetings. Items 18 and 19 are related to the issues to be discussed in the next meeting and suggestions for organising meetings in an effective manner.

### Classroom Observation Schedule (ISTT-13)

This schedule is meant for the observation of the lesson of the teacher in the classroom. Separate schedules are to be filled in for each lesson taught by the teacher. This schedule has 30 items for classroom transaction. The items are related to introduction of the lesson, presentation, concepts explained, dealing with questions, students' participation, resource materials used, activities organised, use of text-books, evaluation of students, praiseworthy and undesirable features, etc. These are to be rated on a three/four point scale provided in the classroom observation schedule.

### Achievement Test (ISTT-14)

The achievement tests were prepared on the basis of training package(s) used for training programme organised during 2010-11 to study the training gains among the teachers. The test comprised of multiple choice type items. The numbers of questions vary in the sampled states. The details of each state are given in the first section of Chapter 4.

### Field Notes

During field visits by members of the national and state study teams, extensive field notes were taken about the unique incidents to supplement the field data.

## STRATEGY FOR CONDUCTING THE STUDY

The Department of Teacher Education and Extension (DTEE), NCERT prepared a research proposal and got it approved from the Committee of Approval for Research Projects (CARP) of MHRD, Govt. of India, New Delhi.

**Formation of the National Team:** After approval of the project by CARP of MHRD, the National Team was formed. The project staff including Consultant, Project Manager, Computer Assistant and Junior Project Fellow was appointed. The Department selected 15 state coordinators with the help of RIEs and Universities—10 State Coordinators from RIEs of Ajmer, Bhopal, Bhubaneswar, Mysore and Shillong and 5 from Jammu University, Kurukshetra University, Gujarat University, Banaras Hindu University and Pondichery University. The NCERT team supported the State Coordinators in the preparation of research proposal, administration of tools, plan for data collection, data analysis and tabulation and preparation of state reports.

**Constitution of the Advisory Group:** An Advisory Group was constituted for the study. Director NCERT was the Chairperson, and Principal Investigator was the convener of the Advisory Group. The other members were representatives of MHRD and Ed.CIL and teacher education experts. The composition details of the Advisory Group are given in Annexure I. This Group met thrice during the project period to discuss progress of the study

and also helped in the execution of the project including preparation of tools and orientation of State Coordinators.

**Formation of State Team:** The states appointed project staff including Assistant Coordinator, Junior Project Fellows, and Computer Assistant and Field Investigators, at least three for each district. They were oriented and trained in administration of tools and procedure for data collection with technical support from the National team.

**Scrutiny of Data:** Multilevel data scrutiny was carried out both at the state and national level. Besides this, on the spot checking of data by members of national team was undertaken.

**Appraisal of the training package:** The training packages in states were assessed by expert groups constituted by the State Coordinators. In most of the states at least one member of the national team joined the expert group as a quality control mechanism. A consolidated national report based on the 15 states reports was prepared. Thematic reports on assessment of training package, case studies of training centres and tool kits were also prepared.

## PROCEDURE FOR DATA COLLECTION

The data were collected from both primary and secondary sources by using the above mentioned tools. The sources of information were the relevant documents such as training modules or manuals, reports, circulars, letters, etc. issued in connection with the training programmes. The data were also collected from officials of SPO, SSA/SCERT/ DIETs/BRCs, and CRCs. The teachers who received training and students attending the classes of teachers who were trained were also covered. The details are discussed below:

- The training packages used for organising training in the sampled states were evaluated by the expert group formed by the state team. The expert group was assisted by at least one member of the national team in most of the states. The state reports were consolidated at the national level. A separate consolidated supplementary report based on this evaluation was prepared.
- A desk analysis of such documents as manuals, circulars, letters, reports, policy documents etc. supplied by SPDs of SSA was carried out.
- In addition to collection of data, interaction with SPD, SSA Director, SCERTs, Training Coordinators and Resource Persons was held.
- Data were collected from the training centres and classrooms regarding impact of training on teachers and students by administering the tools mentioned in the preceding paragraphs. The Field Investigators stayed during the training period and collected data by observing training transaction. At least one session of each Resource Person was observed. The tools related to perception of teachers, resource persons and training coordinators about the organisation of training were administered by the Field Investigator who collected the data during training. The Field Investigator scrutinised the data everyday and collected the missing data on the next day. Likewise, the same Field Investigator who collected the data during training programme, observed the teaching of the trained teachers in the school after one or two months of the training. Two to three Field Investigators stayed in the schools at least for two days for classroom observation of teachers and for conducting focus group discussion with students.
- Case studies of training centres were conducted for complementing the normative data.
- Focus Group Discussion (FGD) was 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 meetings. The functioning of the monthly meetings was observed by the state team.

## ANALYSIS PLAN

For studying the impact of INSET training on teachers and students, the following statistical analysis was carried out:

- Normative status of component skills used during training transaction by RPs in terms of percentages was worked out.
- Normative status (percentage) of data related to perception of teachers, Resource Persons and training coordinators about the different inputs like physical facilities, equipments, training package, relevance of training programme, etc. was carried out.
- Paired *t*-test' was used for studying the impact of training on teachers in terms of their achievement.
- Chi-square was used to compare the performance of teachers in the experimental and the control groups during classroom transaction.
- Comparison of percentage of component skills during training transaction by RPs and classroom transaction by teachers after training in their schools was carried out to study the transfer of training to classroom practice.
- Ranking of states on Class V 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 variable by using Spearman's rank order correlation.

The qualitative analysis was carried out in respect of the following:

- Content analysis and evaluation of the training packages by experts.
- Observation and analysis of the follow-on training during monthly meetings at CRCs.
- Analysis of Focus Group Discussion with students to assess impact in terms of their perception about change in teacher behaviour after participating in training.

The roadmap conceptualised initially in the design submitted for funding by CARP was adjusted to the on-ground situation and unforeseen events at the time of data collection, especially incidental sampling units. The details are further specified in different chapters along with data analysis. The next landmark on the roadmap is quality of training outlined in Chapter 3.

# 3 Quality of In-service Education for Teachers

## THE SETTING

Quality of In-service Education for Teachers (INSET) depends on actual training transaction (TT) during the session; the training package specifying the content and the suggested pedagogy; professional experience of the RPs, organisation and management of the training; physical facilities including teaching aids and technical equipments with technology support. Training transaction is at the centre stage.

This chapter has been divided into four sections. The first section deals with actual training transaction. The second section outlines assessment of the training package. The third section deals with human resources for TT, and the final section provides information about availability of aids and equipment and physical facilities. Outcome of TT is the training of teachers, which has been outlined in Chapter 4. Triangulation of information from different sources has been carried out, wherever necessary.

## SECTION ONE : TRAINING TRANSACTION

The 20-day INSET was to be conducted in two phases—10-day block training followed by 10 monthly meetings at the CRC. It may not be out of place here to mention that the duration of block training varied from State to State as indicated in the next section of this chapter. The block training transaction was observed by the trained Field Investigators (FIs). At least two sessions of RP were observed by the FIs each day during training transation. Sessions transacted by all 577 RPs were observed. This section provides an overview of the observation of the training transaction. The observation focused on the following aspects of the training transaction provided in the box.

**Training Transaction Perspective**

- How was the session theme introduced?
- How were the concepts/new ideas presented and explained?
- What was the purpose of asking questions and whom were the questions addressed to?
- How did the teachers participate in the discussion?
- How did RPs respond to the teachers?
- How were the teachers treated during training transaction sessions?
- How often were the teachers praised during the discussion in training transaction?
- To what extent were teaching learning aids and technology support used?
- To what extent were RPs satisfied with physical facilities and ICT equipment?
- How many teachers were found attentive in the session?
- How was the training session concluded?
- How were the modules used during the training session?
- How were the teachers evaluated?
- What percentage of time was spent on such activities as teacher talk, interaction with teachers, group work and other activities?

The frequencies for the use of categories under each of the training transaction items of the observation tool used in tables indicate the number of sessions and percentages (shown in parentheses). Observations refer to sessions and not the RPs because more than one session was observed for some of the RPs. Percentages have been used for discussion of the normative use of different categories in ten States, namely, Bihar, Gujarat, Haryana, Maharashtra, Meghalaya, Nagaland, Odisha, Rajasthan, Tamil Nadu and West Bengal. In the States of Andhra Pradesh, Chhattisgarh, Jammu and Kashmir, Madhya Pradesh and Uttar Pradesh training transaction could not be observed due to INSET completion before the study was launched. An issue cropped up for observation and coding of the categories used. In some situations more than one category could have been recorded. The ground rule that allowed the observer to select and code the predominantly observed alternative was framed. The observations by the FIs were supplemented by brief notes about the teaching acts that were considered critical by them. These descriptions were categorised as 'praiseworthy' and 'undesirable' acts. The status of the observed training transaction sessions is as follows:

**How was the theme introduced in the session?** The categories of the mode of introducing the lesson were by 'stating the topic,' 'reviewing the previous lesson,' 'posing a problem' and 'writing on the blackboard.' Posing problem is desirable as it is likely to provoke thinking in the teachers. This is a little closer to the constructivist approach suggested in NCF 2005 and SSA Framework 2008, though the level and sequence of questioning will determine the closeness. (Jangira, 1982, 1995). Figure 3.1 and Table 3.1 summarises the use of these categories during TT.

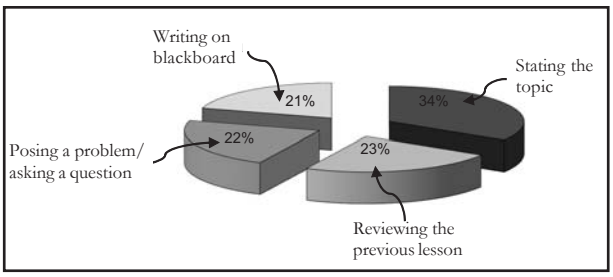


**Figure 3.1 :** Introduction of the Session Themes

Table 3.1
**Introduction of the Session Themes by Resource Persons**

| State | Introduction of theme by | | | | |
|---|---|---|---|---|---|
| | Stating the topic | Reviewing the previous lesson | Posing a problem | Writing on blackboard | Total |
| Bihar | 15 (41.67) | 4 (11.11) | 8 (22.22) | 9 (25) | 36 |
| Gujarat | 28 (30.43) | 26 (28.26) | 22 (23.91) | 16 (17.39) | 92 |
| Haryana | 38 (43.18) | 13 (14.77) | 25 (28.41) | 12 (13.64) | 88 |
| Maharashtra | 5 (10) | 30 (60) | 9 (18) | 6 (12) | 50 |
| Meghalaya | 39 (41.93) | 14 (15.05) | 16 (17.20) | 24 (25.81) | 93 |
| Nagaland | 29 (32.95) | 13 (14.77) | 23 (26.14) | 23 (26.14) | 88 |
| Odisha | 1 (3.45) | 13 (44.83) | 13 (44.83) | 2 (6.89) | 29 |
| Rajasthan | 9 (42.86) | 4 (19.05) | 1 (4.76) | 7 (33.33) | 21 |
| Tamil Nadu | 1 (8.33) | 0 (00) | 6 (50) | 5 (41.67) | 12 |
| West Bengal | 27 (45.76) | 16 (27.12) | 4 (6.78) | 12 (20.34) | 59 |
| Total | 192 (33.8) | 133 (23.42) | 127 (22.36) | 116 (20.42) | 568 |

Tamil Nadu (50%) and Odisha (45%) stood out in the use of problem posing for introducing the theme in the session. In about a quarter of the sessions this approach was used in the States of Bihar, Gujarat, and Haryana while its use was negligible in West Bengal and Rajasthan. Reviewing the previous lesson/theme was as prominent in Odisha as problem posing while this was used in most of the sessions (60%) in Maharashtra. In Maharashtra predominant use of this mode might be due to the nature of the training observed. Jeewan Vidhya training was imparted by special RPs associated with value-based training. Review of the previous lesson was an essential mode before starting each session. Conventional direct stating of the theme and writing on the blackboard were the most common modes of introducing the theme by RPs.

**How were the new concepts/ideas presented and explained?** This item covers the way new concepts or ideas on the theme were transacted in the training session. The presentation can be through the RP talking or discussion with explanation. Further explaining can be with or without examples and supported by demonstration which is also a kind of example and considered a little better than verbal example. Discussion and explaining with examples and demonstration are more desirable for learning. Table 3.2 provides occurrence of these forms of teacher behaviour.

The table reveals that predominant mode of presentation of new concepts or ideas were discussion with teacher explanation except in the State of Meghalaya where mere RP talking (72%) was the predominant mode. In Odisha discussion was the universal (100%) mode of presentation, followed by Gujarat (85%) and Bihar (75%). In the States of Haryana, Maharashtra, Rajasthan, Tamil Nadu and West Bengal, half to two-third sessions were featured with this mode of concept presentation. Explanation was supported by examples in more than two-third of the sessions in the States of Tamil Nadu, Meghalaya, Haryana, Maharashtra, Gujarat, Bihar and Nagaland. In Odisha half of the sessions used verbal examples while West Bengal was at the bottom on this attribute with 37 per cent of the sessions. The demonstration as an example was the least used for explaining new concepts or ideas. Its use was conspicuous by its absence in Haryana and Tamil Nadu. Activity-based learning in Tamil Nadu

Table 3.2
**Presentation and Explanation of New Concepts/Ideas**

| State | Presentation of new concepts/ideas | | | Explanation of concepts | | | |
|---|---|---|---|---|---|---|---|
| | Only resource person talking | Discussion with explanation | Total | With examples | Without examples | With demonstration | Total |
| Bihar | 9 (25) | 27 (75) | 36 | 24 (66.67) | 3 (8.33) | 9 (25) | 36 |
| Gujarat | 14 (15.22) | 78 (84.78) | 92 | 64 (69.57) | 12 (13.04) | 16 (17.39) | 92 |
| Haryana | 34 (38.64) | 54 (61.36) | 88 | 67 (76.14) | 21 (23.86) | 0 (00) | 88 |
| Maharashtra | 18 (36) | 32 (64) | 50 | 35 (70.00) | 11 (22.00) | 4 (8) | 50 |
| Meghalaya | 67 (72.04) | 26 (27.96) | 93 | 73 (78.49) | 7 (7.53) | 13 (13.98) | 93 |
| Nagaland | 41 (46.59) | 47 (53.41) | 88 | 63 (71.59) | 2 (2.27) | 23 (23.14) | 88 |
| Odisha | 0 (00) | 29 (100) | 29 | 16 (55.17) | 2 (6.90) | 11 (37.93) | 29 |
| Rajasthan | 9 (42.86) | 12 (57.14) | 21 | 10 (47.62) | 5 (23.81) | 6 (28.57) | 21 |
| Tamil Nadu | 5 (41.67) | 7 (58.33) | 12 | 11 (91.67) | 1 (8.33) | 0 (00) | 12 |
| West Bengal | 30 (50.85) | 29 (49.15) | 59 | 22 (37.93) | 19 (32.76) | 17 (29.31) | 58 |

might have excluded the demonstration since the stress was on actual activity by each learner. In Haryana the training was of a general nature. This might be responsible for the exclusion of demonstration. Its use was the highest (37%) in Odisha and about a quarter of it in the States of Rajasthan and Bihar.

**What was the purpose of asking questions and whom were the questions addressed to?** The purpose of asking questions during TT session was categorised as 'testing knowledge,' 'testing understanding,' 'testing application,' and 'eliciting teacher opinions.' The RPs' manner of addressing questions was 'whole class responding at the same time,' 'an individual expected to answer' and 'anyone who volunteers to answer.' Understanding and application questions that require information processing are more desirable. Eliciting opinion is for carrying the discussion forward during the training transaction and sometimes is also used for evaluating an idea or an event. Directing questions to the class as a whole requiring all to answer is usually for practice and drill for memorising. Asking questions mostly of volunteers tends to push some to the sidelines making them passive learners. Individual answering by both volunteers and non-volunteers stimulates them to active involvement in learning. The Table 3.3 provides the percentage of sessions showing occurrence of this behaviour.

Highest percentage of application questions was used in TT in Tamil Nadu (42%) followed by Gujarat, Odisha (38%) and Bihar (28%). In other States, the focus was a minimum of around 10 per cent or less. Understanding level questions were used in about one-third of the sessions in Odisha, Gujarat, Bihar and Haryana. This was conspicuously missing in Rajasthan which had the predominant use (90%) of 'eliciting opinion,' maybe due to project-based (Lehar) training

Table 3.3
**The Purpose of Asking Questions by the RPs and the Manner of Addressing Teachers to Answer Them**

| State | Questions asked to | | | | | Questions address to | | | |
|---|---|---|---|---|---|---|---|---|---|
| | Test factual knowledge | Test under-standing | Test appli-cation of knowledge to new situations | Elicit teacher opinion or perceptions | Total | The whole class may with many responding at the same time | A specific individual expecting only him/ her to answer | Anyone who would volunteer to answer | Total |
| Bihar | 9 (25) | 11 (30.55) | 10 (27.78) | 6 (16.67) | 36 | 21 (58.33) | 7 (19.44) | 8 (22.22) | 36 |
| Gujarat | 25 (27.17) | 28 (30.43) | 35 (38.04) | 4 (4.35) | 92 | 18 (19.57) | 30 (32.61) | 44 (47.83) | 92 |
| Haryana | 31 (35.23) | 27 (30.68) | 4 (4.55) | 26 (29.55) | 88 | 46 (52.27) | 15 (17.04) | 27 (30.68) | 88 |
| Maharashtra | 18 (36) | 11 (22) | 14 (28) | 7 (14) | 50 | 30 (60) | 11 (22) | 9 (18) | 50 |
| Meghalaya | 22 (23.66) | 25 (26.88) | 8 (8.60) | 38 (40.86) | 93 | 25 (26.88) | 5 (5.38) | 63 (67.74) | 93 |
| Nagaland | 13 (14.77) | 33 (37.5) | 11 (12.5) | 31 (35.23) | 88 | 31 (35.23) | 5 (5.68) | 52 (59.09) | 88 |
| Odisha | 2 (6.90) | 10 (34.48) | 11 (37.93) | 6 (20.69) | 29 | 16 (55.17) | 4 (13.79) | 9 (31.03) | 29 |
| Rajasthan | 1 (4.76) | 0 (00) | 1 (4.76) | 19 (90.48) | 21 | 18 (85.71) | 1 (4.76) | 2 (9.52) | 21 |
| Tamil Nadu | 4 (33) | 3 (25) | 5(42) | 0 (00) | 12 | 6 (50) | 3 (25) | 3 (25) | 12 |
| West Bengal | 17 (28.81) | 27 (45.76) | 9 (15.25) | 6 (10.16) | 59 | 18 (30.51) | 28 (47.46) | 13 (22.03) | 59 |

covering teachers of only Classes I and II. In Maharashtra, Meghalaya and West Bengal knowledge questions were used, but not in the States of Rajasthan and Odisha.

The whole class responding at a time was used in sessions in the States of Rajasthan (86%), followed by Maharashtra (60%), Bihar (59%), Odisha (55%) and Haryana (52%). This could either be due to drill and practice pattern of transaction or confusion created by uncalled for noise answering without specific designation of the respondent. The case study in Haryana reported such type of confusion in both the training centres visited by the national team member. The lack of control by the inexperienced RPs was evident. At least a part of this pattern could be attributed to the modality of RPs behaviour. Volunteer teachers were mostly designated to answer RP questions. Obviously, some teachers were ignored and they remained on the periphery of transaction (Jangira 1983). Focus on individual teachers to answer questions was relatively low (10 per cent or less) in most States except in the States of Gujarat (33%), Tamil Nadu (25%) and Maharashtra (22%). Evidently, the training package and transaction needs lot of improvement if NCF 2005 and SSA Framework 2008 goals relating to quality of education are to be realised.

**How did teachers participate in discussion?** The categories used for coding the way the teachers participated in the discussion were 'asking questions for seeking clarification,' 'seeking information on the topic,' 'making comments based on their experience,' and 'raising issues on the topic under discussion.' The extent of use of these categories was coded as 'often,' 'sometimes,' and 'rarely.' In interpretation more consideration has been given to the codes 'often' and 'rarely.' Raising issues and using experience for supporting one's position are relatively higher than the other two categories of behaviour using relatively higher reasoning. Thus these skills have greater value attached to them. This item is related to participation in training transaction. Table 3.4 profiles the percentage of sessions using the above mentioned mode of behaviour.

Table 3.4(a)
**Behaviour Facilitating Participation of Teachers in Discussion**

| State | Asking question for seeking clarification | | | | Seeking information on topic under discussion | | | |
|---|---|---|---|---|---|---|---|---|
| | Often | Sometimes | Rarely | Total | Often | Sometimes | Rarely | Total |
| Bihar | 4 (11.11) | 19 (52.78) | 13 (36.11) | 36 | 7 (19.44) | 18 (50.00) | 11 (30.55) | 36 |
| Gujarat | 39 (42.39) | 43 (46.74) | 10 (10.87) | 92 | 46 (50.00) | 40 (43.48) | 6 (6.52) | 92 |
| Haryana | 10 (11.36) | 69 (78.41) | 9 (10.23) | 88 | 12 (13.64) | 43 (48.86) | 33 (37.5) | 88 |
| Maharashtra | 18 (36) | 30 (60) | 2 (4) | 50 | 10 (20) | 36 (72) | 4 (8) | 50 |
| Meghalaya | 6 (6.45) | 44 (47.31) | 43 (46.24) | 93 | 4 (4.30) | 42 (45.16) | 47 (50.4) | 93 |
| Nagaland | 5 (5.68) | 68 (77.27) | 15 (17.05) | 88 | 2 (2.27) | 27 (30.68) | 59 (67.05) | 88 |
| Odisha | 22 (75.86) | 6 (20.69) | 1 (3.45) | 29 | 8 (27.59) | 18 (62.07) | 3 (10.34) | 29 |
| Rajasthan | 1 (4.76) | 15 (71.43) | 5 (23.81) | 21 | 3 (14.28) | 13 (61.90) | 5 (23.81) | 21 |
| Tamil Nadu | 9 (75) | 3 (25) | 0 (00) | 12 | 3 (25) | 6 (50) | 3 (25) | 12 |
| West Bengal | 11 (32.35) | 20 (58.82) | 3 (8.82) | 34 | 12 (35.29) | 20 (58.82) | 2 (5.88) | 34 |

Table 3.4(b)

| State | Making comments on the basis of their experiences | | | | Raising issues relating to the topic under discussion | | | |
|---|---|---|---|---|---|---|---|---|
| | Often | Sometimes | Rarely | Total | Often | Sometimes | Rarely | Total |
| Bihar | 14 (38.89) | 17 (47.22) | 5 (13.89) | 36 | 11 (30.56) | 15 (41.67) | 10 (27.78) | 36 |
| Gujarat | 45 (48.91) | 37 (40.22) | 10 (10.87) | 92 | 45 (48.91) | 41 (44.57) | 6 (6.52) | 92 |
| Haryana | 20 (22.73) | 53 (60.23) | 15 (17.04) | 88 | 13 (14.77) | 31 (35.23) | 44 (50) | 88 |
| Maharashtra | 6 (12) | 23(46) | 21 (42) | 50 | 9 (18) | 22 (44) | 19 (38) | 50 |
| Meghalaya | 4 (4.30) | 46 (49.46) | 43 (46.24) | 93 | 2 (2.15) | 32 (34.41) | 59 (63.44) | 93 |
| Nagaland | 10 (11.36) | 24 (27.27) | 54 (61.36) | 88 | 8 (9.09) | 16 (18.18) | 64 (72.73) | 88 |
| Odisha | 9 (31.03) | 10 (34.48) | 10 (34.48) | 29 | 12 (41.38) | 13 (44.82) | 4 (13.80) | 29 |
| Rajasthan | 9 (42.86) | 10(47.62) | 2 (9.52) | 21 | 3 (14.29) | 16 (76.19) | 2 (9.52) | 21 |
| Tamil Nadu | 5(41.67) | 2 (16.67) | 5 (41.67) | 12 | 1 (8.33) | 10 (83.33) | 1 (8.33) | 12 |
| West Bengal | 2 (5.88) | 28 (82.35) | 4 (11.76) | 34 | 7 (20.59) | 18 (52.94) | 9 (26.47) | 34 |

In the above table it is evident that raising issues, which is critical to the issues under discussion, was the least used behaviour in most of the States. It was used often in the States of Gujarat (49%) and Odisha (41%). In other States the average was around 10%. It was the lowest in Meghalaya (2%). This trend is supported by the data relating to 'rarely' category. The skill and its components are important in building quality participation in discussion in a democratic environment. Making comments based on one's own experience was often used in most of the training sessions (around 40%) in the States of Gujarat, Rajasthan, Tamil Nadu and Bihar. Odisha (31%) and Haryana (22%) seemed to be reasonable. In the remaining States its use was minimal. The trend was supported by the 'rarely' data category. The use of asking questions seeking clarification was predominantly used in the States of Odisha (76%), Tamil Nadu (75%), Gujarat (42%) and Maharashtra (36%). The data on the 'rarely' used category supports the emerging pattern. The States of Gujarat, Odisha and Tamil Nadu have commonality on the use of the preferred tools of participation in discussion.

**How did RPs respond to the teachers?** The manner of responding by the RPs was categorised as 'providing the answer to clarify,' 'asking someone else to respond,' 'postponing the answer to the next day,' and 'reprimanding for interruption.' This behaviour directing teachers to answer serves as a tool to encourage them to participate better in discussion or other learning activities. Postponing the answer to the next day usually happens when the RP is doubtful about the answer or its correctness. This response is valued since it is considered manifestation of professional integrity. Reprimanding for asking question and interruption in the discourse are basically negative behaviours. This discourages learner participation in transaction in the training session. Providing direct answer without reasoning is considered a soft option that goes against the NCF's (2005) position on curriculum transaction. Table 3.5 provides percentage of categories used by the RPs during training transaction.

For directing the question asked to another teacher for answer instead of RP answering, 'often' category was used sparingly during the training transaction. It was used in about one-third of the training transaction sessions in the States of Tamil Nadu and Bihar. It was conspicuous by its absence in the States of Gujarat and Nagaland. In Gujarat and Haryana, however, it was used sometimes in more than half of the sessions. In Odisha its use seemed reasonable (21%). In other States its use was minimal ranging

Table 3.5(a)
**RPs Response to Teachers Questioning Behaviour**

| State | Providing the desired answer or clarification | | | | Reprimanding teachers for interrupting the lecture | | | |
|---|---|---|---|---|---|---|---|---|
| | Often | Sometimes | Rarely | Total | Often | Sometimes | Rarely | Total |
| Bihar | 4 (11.11) | 18 (50) | 14 (38.89) | 36 | 18 (50) | 16 (44.44) | 2 (5.55) | 36 |
| Gujarat | 68 (73.91) | 24 (26.09) | 0 (00) | 92 | 1 (1.09) | 7 (7.61) | 84 (91.30) | 92 |
| Haryana | 48 (54.55) | 34 (38.64) | 6 (6.82) | 88 | 1 (1.14) | 14 (15.91) | 73 (82.95) | 88 |
| Maharashtra | 21 (42) | 28 (56) | 1(2) | 50 | 4 (8) | 37 (74) | 9 (18) | 50 |
| Meghalaya | 50 (53.76) | 37 (39.78) | 6 (6.45) | 93 | 0 (00) | 1 (1.08) | 92 (98.92) | 93 |
| Nagaland | 38 (43.18) | 35 (39.77) | 15 (17.05) | 88 | 0 (00) | 0 (00) | 88 (100) | 88 |
| Odisha | 20 (68.97) | 8 (27.59) | 1 (3.45) | 29 | 1 (3.45) | 4 (13.79) | 24 (82.76) | 29 |
| Rajasthan | 0 (00) | 7 (33.33) | 14 (66.67) | 21 | 1 (4.76) | 16 (76.19) | 4 (19.05) | 21 |
| Tamil Nadu | 7 (58.33) | 4 (33.33) | 1 (8.33) | 12 | 0 (00) | 7 (58.33) | 5 (41.67) | 12 |
| West Bengal | 15 (25.42) | 40 (67.80) | 4 (6.78) | 59 | 1 (1.69) | 30 (50.85) | 28 (47.46) | 59 |

Table 3.5(b)

| State | Asking someone else in class to respond | | | | Postponding the answer to the next day | | | |
|---|---|---|---|---|---|---|---|---|
| | Often | Sometimes | Rarely | Total | Often | Sometimes | Rarely | Total |
| Bihar | 12 (33.33) | 19(52.78) | 5 (13.89) | 36 | 31 (86.11) | 4 (11.11) | 1 (2.78) | 36 |
| Gujarat | 0 (00) | 53 (57.61) | 39(42.39) | 92 | 1 ( 1.09) | 3 (3.26) | 88 (95.65) | 92 |
| Haryana | 2 (2.27) | 60 (68.18) | 26 (29.55) | 88 | 0 (00) | 0 (00) | 88 (100) | 88 |
| Maharashtra | 1 (2) | 21 (42) | 28 (56) | 50 | 0 (00) | 12 (24) | 38 (76) | 50 |
| Meghalaya | 2 (2.15) | 16 (17.20) | 75 (80.65) | 93 | 0 (00) | 0 (00) | 93 (100) | 93 |
| Nagaland | 0 (00) | 11 (12.5) | 77 (87.5) | 88 | 0 (00) | 0 (00) | 88 (100) | 88 |
| Odisha | 6 (20.69) | 18 (62.07) | 5 (17.24) | 29 | 0 (00) | 1 (3.45) | 28 (96.55) | 29 |
| Rajasthan | 2 (9.52) | 17 (80.95) | 2 (9.52) | 21 | 16 (76.19) | 4 (19.05) | 1 (4.76) | 21 |
| Tamil Nadu | 4 (33.33) | 4 (33.33) | 4 (33.33) | 12 | 7 (58.33) | 5 (41.67) | 0 (00) | 12 |
| West Bengal | 11 (18.64) | 13 (22.03) | 35 (59.32) | 59 | 2 (3.39) | 6 (10.17) | 51 (86.44) | 59 |

from 2 to 9 per cent. Postponing the answer to the next day was very rarely used except in Bihar (86%). The percentage in Bihar might be high due to the large number of para teachers. It was not used at all in the States of Haryana, Maharashtra, Meghalaya, Nagaland and Odisha. This might also be due to 'know all' cultural syndrome in teachers. The Guru knows answers to all questions irrespective of whether they are right or wrong. This syndrome counters professional integrity. The RPs provided the clarification by answering the questions raised by the teachers. This seems to be a relatively soft option. Reprimanding for interruption was high in Bihar (86%). In other States its occurrence was minimal. Handling learners responses is a complex

skill and the data reveal that this skill is to be developed and practiced during training sessions. The training of RPs and teachers to be organised during 2011-12 should include the use of this skill.

**How were the teachers treated during training transaction sessions?** The way the teachers were treated during the training transaction sessions was categorised as 'in an authoritarian manner like schoolchildren,' 'in an indifferent manner,' 'respectfully,' and 'on an equal footing.' The first two are negative behaviours and the other two are positive. Table 3.6 summarises data regarding the manner in which teachers were treated by the RPs during training transaction sessions.

Table 3.6 (a)

**Manner in which Teachers were Treated during Training Transaction Session**

| State | In an authoritarian manner, like school children | | | | Respectuflly | | | |
|---|---|---|---|---|---|---|---|---|
| | Never | Sometimes | Quite Often | Total | Never | Sometimes | Quite Often | Total |
| Bihar | 29 (80.55) | 3 (8.33) | 4 (11.11) | 36 | 1 (2.78) | 7 (19.44) | 28 (77.78) | 36 |
| Gujarat | 72 (78.26) | 16 (17.39) | 4 (4.35) | 92 | 2 (2.17) | 20 (21.74) | 70 (76.09) | 92 |
| Haryana | 88 (100) | 0 | 0 | 88 | 0 | 0 | 88 (100) | 88 |
| Maharashtra | 7 (14) | 35 (70) | 8 (16) | 50 | 34 (68) | 11 (22) | 5 (10) | 50 |
| Meghalaya | 68 (73.12) | 22 (23.66) | 3 (3.23) | 93 | 1 (1.08) | 47 (50.54) | 45 (48.39) | 93 |
| Nagaland | 70 (79.55) | 18 (20.45) | 0 | 88 | 3 (3.41) | 24 (27.27) | 61 (69.32) | 88 |
| Odisha | 28 (96.55) | 0 | 1 (3.45) | 29 | 0 | 14 (48.27) | 15 (51.72) | 29 |
| Rajasthan | 2 (9.52) | 14 (66.67) | 5 (23.81) | 21 | 0 | 5 (23.81) | 16 (76.19) | 21 |
| Tamil Nadu | 9 (75) | 3 (25) | 0 | 12 | 0 | 4 (33.33) | 8 (66.67) | 12 |
| West Bengal | 17 (28.81) | 39 (66.10) | 3 (5.08) | 59 | 4 (6.78) | 37 (62.71) | 18 (30.51) | 59 |

Table 3.6 (b)

| State | In an indifferent manner | | | | On equal footing | | | |
|---|---|---|---|---|---|---|---|---|
| | Never | Sometimes | Quite Often | Total | Never | Sometimes | Quite Often | Total |
| Bihar | 22 (61.11) | 14 (38.89) | 0 | 36 | 11 (30.55) | 16 (44.44) | 9 (25) | 36 |
| Gujarat | 0 | 2 (2.17) | 90 (97.83) | 92 | 12 (13..04) | 37 (40.22) | 43 (46.74) | 92 |
| Haryana | 71 (80.68) | 17 (19.32) | 0 | 88 | 7 (7.95) | 14 (15.91) | 67 (76.14) | 88 |
| Maharashtra | 4 (8) | 13 (26) | 33 (66) | 50 | 45 (90) | 5 (10) | 0 | 50 |
| Meghalaya | 90 (96.77) | 3 (3.23) | 0 | 93 | 17 (18.28) | 56 (60.22) | 20 (21.51) | 93 |
| Nagaland | 78 (88.64) | 8 (9.09) | 2 (2.27) | 88 | 13 (14.77) | 32 (36.36) | 43 (48.86) | 88 |
| Odisha | 28 (96.55) | 1 (3.45) | 0 | 29 | 1 (3.45) | 3 (10.34) | 25 (86.21) | 29 |
| Rajasthan | 0 | 18 (85.71) | 3 (3.70) | 21 | 5 (23.81) | 15 (71.43) | 1 (4.76) | 21 |
| Tamil Nadu | 4 (33.33) | 6 (50) | 2 (16.67) | 12 | 0 | 6 (50) | 6 (50) | 12 |
| West Bengal | 33 (55.93) | 25 (42.37) | 1 (1.69) | 59 | 35 (59.32) | 7 (11.86) | 17 (28.81) | 59 |

In most of the States except Tamil Nadu and Rajasthan teachers were 'quite often' treated in an authoritarian manner. The Table indicates that over two-thirds of the sessions in the States of Odisha, Bihar, Gujarat, Haryana, Nagaland and Meghalaya RPs never treated teachers in an authoritarian manner. Field visit in Haryana revealed that the RPs were not assertive even in the case of disruption in the training session. The finding was also supported by the 'on equal footing' category use except in Bihar and Maharashtra where there is a contradiction. Overall, during the training transaction teachers were treated 'on equal footing' as well as 'respectfully.' It is a healthy aspect of training transaction and needs strengthening in the States with a contradiction and the States where use of 'treating in an authoritarian manner' was predominant.

**How often were the teachers praised during the discussion in training transaction?** This is another item relating to the socio-emotional ecology of the training session. The extent of use of praise was categorised as 'never,' 'sometimes' and 'quite often.' Table 3.7 provides State-wise percentages of the sessions where RPs used 'praise' to encourage participation in the discussion during teacher training transaction.

Table 3.7
**RPs Praising Teachers during Training Transaction Sessions**

| State | Praising of teachers by resource persons | | | |
|---|---|---|---|---|
| | Never | Sometimes | Quite often | Total |
| Bihar | 5 (13.89) | 21 (58.33) | 10 (27.78) | 36 |
| Gujarat | 5 (5.43) | 33 (35.87) | 54 (58.70) | 92 |
| Haryana | 7 (7.95) | 44 (50) | 37 (42.05) | 88 |
| Maharashtra | 7 (14) | 35 (70) | 8 (16) | 50 |
| Meghalaya | 19 (20.43) | 60 (64.52) | 14 (15.05) | 93 |
| Nagaland | 26 (29.54) | 41 (46.59) | 21 (23.86) | 88 |
| Odisha | 4 (13.79) | 10 (34.48) | 15 (51.72) | 29 |
| Rajasthan | 0 | 19 (90.48) | 2 (9.52) | 21 |
| Tamil Nadu | 0 | 5 (41.67) | 7 (58.33) | 12 |
| West Bengal | 4 (6.78) | 43 (72.88) | 12 (20.34) | 59 |

Table 3.7 indicates that teachers received praise from the RPs 'quite often' in more than half of the observed sessions in the States of Gujarat, Odisha and Tamil Nadu. In other States praise was used between 10 per cent in Rajasthan and 28 per cent in Bihar. It was 'never' used in over 20 per cent sessions in the States of Meghalaya and Nagaland. It is a cause of concern. Overall, the teachers being praised for better participation in discussion during the training-transaction session well complemented the findings regarding treating them on equal footing and respectfully.

**To what extent teaching-learning aids and technology support were used?** Learning aids and technology support included the use of blackboard, overhead projector, films/videos, computer and other learning aids such as dictionary, maps, charts, pictures, globe, working and static models, etc.

Table 3.8 indicates predominant use of blackboard followed by other aids. The use of technology support aids were mostly 'never' used except in Tamil Nadu. The reason for no use or scarce use of technology aids might be due to non-availability in most of the training centres as catalogued in the section on aids and equipment under section four. Wherever these facilities were available, they were mostly not functioning as indicated by the case study of training centres and field visit notes. This is a serious gap in support facilities that adversely affects the quality of training transaction. Other learning aids like globe, charts, maps, models, dictionary, etc. were used sometimes in the States of Odisha, Nagaland, Meghalaya and Haryana.

Table 3.8
**Use of Learning Aids and Technology Support**

| Blackboard | | | | |
|---|---|---|---|---|
| State | Never | Sometimes | Quite often | Total |
| Bihar | 2 (5.56) | 11 (30.56) | 23 (63.88) | 36 |
| Gujarat | 2 (2.17) | 20 (21.74) | 70 (76.09) | 92 |
| Haryana | 19 (21.59) | 19 (21.59) | 50 (56.82) | 88 |
| Maharashtra | 32 (64) | 14 (28) | 4 (8) | 50 |

| | | | | |
|---|---|---|---|---|
| Meghalaya | 58 (62.37) | 33 (35.48) | 2 (2.15) | 93 |
| Nagaland | 3 (3.41) | 34 (38.64) | 51 (57.95) | 88 |
| Odisha | 0 | 5 (17.24) | 24 (82.76) | 29 |
| Rajasthan | 0 | 9 (42.86) | 12 (57.14) | 21 |
| Tamil Nadu | 0 | 0 | 12 (100) | 12 |
| West Bengal | 3 (5.08) | 35 (59.32) | 21 (35.59) | 59 |
| **OHP (Overhead Projector)** | | | | |
| State | Never | Sometimes | Quite often | Total |
| Bihar | 36 (100) | 0 | 0 | 36 |
| Gujarat | 90 (97.83) | 2 (2.17) | 0 | 92 |
| Haryana | 74 (84.09) | 4 (4.55) | 10 (11.36) | 88 |
| Maharashtra | 5 (10) | 5 (10) | 40 (80) | 50 |
| Meghalaya | 43 (46.24) | 1 (1.07) | 49 (52.69) | 93 |
| Nagaland | 82 (93.18) | 3 (3.41) | 3 (3.41) | 88 |
| Odisha | 29 (100) | 0 | 0 | 29 |
| Rajasthan | 21 (100) | 0 | 0 | 21 |
| Tamil Nadu | 9 (75) | 3 (25) | 0 | 12 |
| West Bengal | 28 (47.46) | 30 (50.85) | 1 (1.69) | 59 |
| **Films/Videos** | | | | |
| State | Never | Sometimes | Quite often | Total |
| Bihar | 35 (97.22) | 1 (2.78) | 0 | 36 |
| Gujarat | 87 (94.57) | 4 (4.35) | 1 (1.09) | 92 |
| Haryana | 88 (100) | 0 | 0 | 88 |
| Maharashtra | 50 (100) | 0 | 0 | 50 |
| Meghalaya | 93 (100) | 0 | 0 | 93 |
| Nagaland | 87 (98.86) | 1 (1.14) | 0 | 88 |
| Odisha | 29 (100) | 0 | 0 | 29 |
| Rajasthan | 21 (100) | 0 | 0 | 21 |
| Tamil Nadu | 0 | 12 (100) | 0 | 12 |
| West Bengal | 35 (59.32) | 24 (40.68) | 0 | 59 |
| **Computer** | | | | |
| State | Never | Sometimes | Quite often | Total |
| Bihar | 36 (100) | 0 | 0 | 36 |
| Gujarat | 84 (91.30) | 7 (7.61) | 1 (1.09) | 92 |
| Haryana | 75 (85.23) | 2 (2.27) | 11 (12.5) | 88 |
| Maharashtra | 50 (100) | 0 | 0 | 50 |
| Meghalaya | 48 (51.61) | 45 (48.39) | 0 | 93 |
| Nagaland | 82 (93.18) | 5 (5.68) | 1 (1.14) | 88 |
| Odisha | 29 (100) | 0 | 0 | 29 |
| Rajasthan | 20 (95.24) | 0 | 1 (4.76) | 21 |
| Tamil Nadu | 0 | 12 (100) | 0 | 12 |
| West Bengal | 53 (89.83) | 6 (10.17) | 0 | 59 |
| **Other learning aid(s)** | | | | |
| State | Never | Sometimes | Quite often | Total |
| Bihar | 18 (50) | 13 (36.11) | 5 (13.89) | 36 |
| Gujarat | 76 (82.61) | 11 (11.96) | 5 (5.43) | 92 |
| Haryana | 36 (40.91) | 29 (32.95) | 23 (26.14) | 88 |
| Maharashtra | 41 (82) | 8 (16) | 1 (2) | 50 |
| Meghalaya | 56 (60.22) | 17 (18.28) | 20 (21.51) | 93 |
| Nagaland | 40 (45.45) | 23 (26.14) | 25 (28.41) | 88 |
| Odisha | 5 (17.24) | 17 (58.62) | 7 (24.14) | 29 |
| Rajasthan | 15 (71.43) | 4 (19.04) | 2 (9.52) | 21 |
| Tamil Nadu | 0 | 12 (100) | 0 | 12 |
| West Bengal | 31 (52.54) | 16 (27.12) | 12 (20.34) | 59 |

**To what extent was RPs satisfied with Physical facilities and ICT equipment?** The issue is whether RPs were satisfied with both, physical facilities and learning-teaching aids. RP's satisfaction is presented here in Table 3.9.

Table 3.9

**Resource Persons' Satisfaction with Physical Facilities and ICT Equipment**

| **Satisfied with physical facilities** | | | |
|---|---|---|---|
| State | Yes | No | Total |
| Bihar | 25 (78.13) | 7 (21.88) | 32 |
| Gujarat | 65 (98.48) | 1 (1.52) | 66 |
| Haryana | 13 (76.47) | 4 (23.53) | 17 |
| Maharashtra | 3 (60) | 2 (40) | 5 |
| Meghalaya | 33 (56.90) | 25 (43.10) | 58 |
| Nagaland | 29 (64.44) | 16 (35.36) | 45 |
| Odisha | 21 (84) | 4 (16) | 25 |
| Rajasthan | 16 (94.12) | 1 (5.88) | 17 |
| Tamil Nadu | 17 (80.95) | 4 (19.05) | 21 |
| West Bengal | 37 (88.10) | 5 (11.90) | 42 |
| **Satisfied with equipments** | | | |
| State | Yes | No | Total |
| Bihar | 26 (81.25) | 6 (18.75) | 32 |
| Gujarat | 62 (93.94) | 4 (6.06) | 66 |
| Haryana | 6 (35.29) | 11 (64.71) | 17 |

| | | | |
|---|---|---|---|
| Maharashtra | 4 (80) | 1 (20) | 5 |
| Meghalaya | 40 (68.97) | 18 (31.03) | 58 |
| Nagaland | 17 (37.78) | 28 (62.22) | 45 |
| Odisha | 14 (56) | 11 (44) | 25 |
| Rajasthan | 16 (94.12) | 1 (5.88) | 17 |
| Tamil Nadu | 17 (80.95) | 4 (19.05) | 21 |
| West Bengal | 38 (90.48) | 4 (9.52) | 42 |

Overall, one in five RPs was not satisfied with the physical facilities available in the training centres. However, in Maharashtra and Meghalaya 40 per cent RPs were not satisfied. For Maharashtra, one fails to understand the reason for such dissatisfaction since training programmes were conducted in well-equipped institutions. Maybe, in some institutions restricted use of facilities was allowed for the training. This was confirmed by the observation made by the project team. Anyhow, dissatisfaction of about 20 per cent RPs might have affected training transaction in those centres.

A quarter of the RPs was dissatisfied with the equipment available in the training centres. The dissatisfaction was highest in the State of Haryana (65%), followed by Nagaland (62%), Odisha (44%) and Meghalaya (31%). The dissatisfaction of RPs combined with availability and use indicated above must have adversely affected the quality of INSET. Similar trend was noticed in respect of RPs training the upper primary school teachers. Similar findings were reported by Aggrawal and Mittal (1997), Dang (1998) and Yadav (1998, 1999, 2000 and 2002). The SPD intervention is considered essential to augment and upgrade the quality of learning-teaching aids and keeping the related facilities and equipment functioning.

**How many teachers were found attentive in the session?** The estimated attentive teachers during the observed training transaction sessions were covered under such categories as 'session was disrupted by teachers,' 'very few,' 'some of them,' 'most of them,' and 'all of them.' Table 3.10 summarises distribution of attentive teachers in these categories.

Disruption of the session, though in a small number of sessions, was reported in the States of Haryana, Bihar and Maharashtra. In Haryana training had been outsourced and some of the young and inexperienced RPs could not cope with teachers. About a quarter of sessions with 'a few' and 'some of them' were in Haryana and Bihar. In most of the States 'most of them' and 'all of them' reported attentiveness in above 80 per cent of the sessions. This is indicative of attention management in the sessions by RPs during training transaction. The three States, where disruption of the sessions had been reported, need to take action for improving teacher's attention.

**How was the training session concluded?** The modality used for concluding the session covered such categories as 'ending abruptly,' 'summarising the main points,' 'giving assignments,' and 'highlighting some points for reflection.' Giving assignment is for follow on learning opportunity beyond the session or for practice of some skills, including intellectual skills. Ending abruptly is undesirable behaviour. It may be a symptom of inadequate planning regarding transaction during the session duration. Table 3.11 summarises the percentage sessions under each of these categories.

More than one-third of the sessions were concluded by summarising main points in the States of Gujarat, Haryana, Nagaland, West Bengal and Maharashtra. In others, corresponding percentages ranged from 11 per cent in Bihar to 29 per cent in Rajasthan. About one-third of the sessions were concluded by highlighting some points for reflection in the States of Gujarat, Bihar and Nagaland. Giving assignment was not high in most of the States except in Odisha and West Bengal. 'Abruptly ending the lesson' was high in the States of Rajasthan, Meghalaya, Haryana and Bihar. In these States there is a need to match training transaction coverage to the duration of the session.

**How were the modules used during training transaction session?** The categories used for observation covered 'reading before the session,' 'reading at the beginning of the session,' 'selective reading during a session to highlight some points,' and 'reading after the session.' The data are given in Table 3.12. Also see Figure 3.2

Table 3.10
**Estimated Number of Attentive Teachers during the Training Transaction Session**

| State | Session was disrupted by teachers | Very few | Some of them | Most of them | All of them | Total |
|---|---|---|---|---|---|---|
| Bihar | 1 (2.78) | 2 (5.56) | 7 (19.44) | 22 (61.11) | 4 (11.11) | 36 |
| Haryana | 6 (6.82) | 14 (15.91) | 25 (28.41) | 32 (36.36) | 11 (12.5) | 88 |
| Maharashtra | 2 (4) | 1 (2) | 7 (14) | 14 (28) | 26 (52) | 50 |
| Meghalaya | 0 | 0 | 11 (11.83) | 62 (66.67) | 20 (21.51) | 93 |
| Nagaland | 0 | 0 | 15 (17.05) | 63 (71.59) | 10 (11.36) | 88 |
| Odisha | 0 | 1 (3.45) | 7 (24.14) | 18 (62.07) | 3 (10.34) | 29 |
| Rajasthan | 0 | 0 | 11 (52.38) | 10 (47.62) | 0 | 21 |
| Tamil Nadu | 0 | 0 | 1 (8.33) | 2 (16.67) | 9 (75) | 12 |

Table 3.11
**The Manner of Concluding the Training Transaction Session**

| State | Abruptly | Summarising the main points | Giving assignments | Highlithing some points for reflection | Total |
|---|---|---|---|---|---|
| Bihar | 11 (30.56) | 4 (11.11) | 8 (22.22) | 13 (36.11) | 36 |
| Gujarat | 6 (6.52) | 32 (34.78) | 20 (21.74) | 34 (36.96) | 92 |
| Haryana | 31 (35.23) | 31 (35.23) | 3 (3.41) | 23 (26.14) | 88 |
| Maharashtra | 16 (32) | 31 (62) | 2 (4) | 1 (2) | 50 |
| Meghalaya | 46 (49.46) | 19 (20.43) | 10 (10.75) | 18 (19.35) | 93 |
| Nagaland | 3 (3.41) | 35 (39.77) | 15 (17.05) | 35 (39.77) | 88 |
| Odisha | 4 (13.79) | 5 (17.24) | 15 (51.72) | 5 (17.24) | 29 |
| Rajasthan | 12 (57.14) | 6 (28.57) | 2 (9.52) | 1 (4.76) | 21 |
| Tamil Nadu | 2 (16.67) | 7 (58.33) | 1 (8.33) | 2 (16.67) | 12 |
| West Bengal | 2 (3.39) | 28 (47.46) | 22 (37.29) | 7 (11.86) | 59 |

Table 3.12
**Use of Module/Material during Training Transaction Session**

| State | Reading before the session | Reading at the beginning of the session | Selective reading during session to highlight some portion | Reading after the session | Total |
|---|---|---|---|---|---|
| Bihar | 8 (22.22) | 6 (16.67) | 19 (52.78) | 3 (8.33) | 36 |
| Gujarat | 31 (33.70) | 43 (46.74) | 13 (14.13) | 5 (5.43) | 92 |
| Haryana | 0 | 0 | 0 | 0 | 0 |
| Maharashtra | 6 (40) | 3 (20) | 6 (40) | 0 | 15 |
| Odisha | 1 (3.45) | 13 (44.83) | 11 (37.93) | 4 (13.79) | 29 |
| Rajasthan | 8 (38.10) | 8 (38.10) | 4 (19.05) | 1 (4.76) | 21 |
| Tamil Nadu | 1 (8.33) | 3 (25) | 1 (8.33) | 7 (58.33) | 12 |
| West Bengal | 19 (32.20) | 22 (37.29) | 16 (27.12) | 2 (3.39) | 59 |
| Total | 74 (28.03) | 98 (37.12) | 70 (26.52) | 22 (8.33) | 264 |

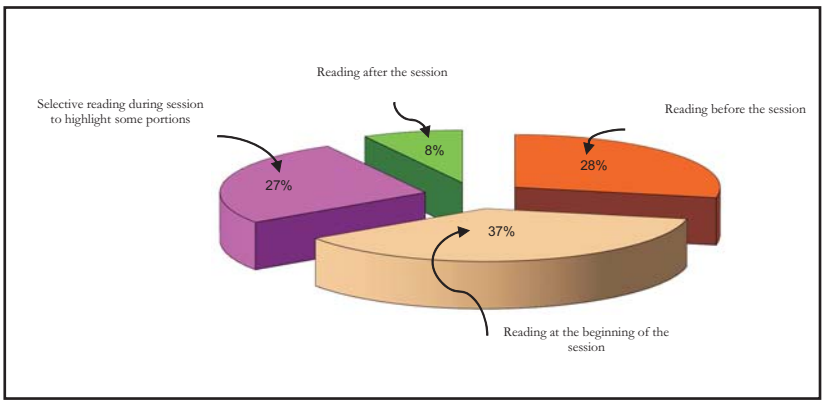


**Figure 3.2 :** Use of Module/Material for Training Transaction

The above table reveals that in some States such as Gujarat, Maharashtra, Rajasthan and West Bengal about one-third teachers read the training material before the session. This might be due to the fact that some RPs and trainining coordinators encourage their clients to study the material before transacting the session in order to make learning more informed and meaningful. It is also a fact that modules were supplied and were available before the training and conscientious teachers read them before coming for the training. For some teachers it might also be a 'repeat' of the same training, especially in project-based training like Lehar in Rajasthan. Selective reading to highlight some portions was used more in Bihar, Maharashtra, Odisha and West Bengal. 'Reading after the session' was prominent in the State of Tamil Nadu due to the reason that ABL material used for training was also used for implementing this approach by the teachers in the training transaction. In other States 'reading after session' was minimal (about 10 %). Major reading of the material by the teachers was during the training transaction session.

**How were the teachers evaluated?** The categories used for evaluation of teachers during the training transaction sessions covered 'no evaluation,' 'oral questioning,' 'assignments,' and 'written test.' Table 3.13 presents an overview across the States.

Teachers were not evaluated in more than half of the sessions in the States of Haryana, Maharashtra and Meghalaya. A quarter of such sessions were reported in Nagaland. This is not a desirable situation. Oral questioning was observed as the primary mode of evaluation and feedback in almost all the States. Use of written test was conspicuous by its absence in the States of Bihar, Haryana, Maharashtra, Meghalaya, Nagaland, Odisha and Tamil Nadu; and was

Table 3.13
**The Mode of Evaluating the Teachers during Training Session**

| State | No Evaluation | Oral questioning | Assignments | Written test | Total |
|---|---|---|---|---|---|
| Bihar | 4 (11.11) | 27 (75) | 5 (13.89) | 0 | 36 |
| Gujarat | 13 (14.13) | 56 (60.87) | 18 (19.57) | 5 (5.43) | 92 |
| Haryana | 53 (60.23) | 27 (30.68) | 8 (9.09) | 0 | 88 |
| Maharashtra | 28 (56) | 20 (40) | 2 (4) | 0 | 50 |
| Meghalaya | 54 (58.06) | 22 (23.66) | 17 (18.28) | 0 | 93 |
| Nagaland | 24 (27.27) | 47 (53.41) | 17 (19.32) | 0 | 88 |
| Odisha | 3 (10.34) | 6 (20.69) | 9 (31.03) | 11 (37.93) | 29 |
| Rajasthan | 1 (4.76) | 16 (76.19) | 1 (4.76) | 3 (14.29) | 21 |
| Tamil Nadu | 4 (33.33) | 8 (66.67) | 0 | 0 | 12 |

minimal in Gujarat, Odisha and Rajasthan. This was the weakest area in the transaction of the training modules/material and needs to be addressed with a sense of urgency in the forthcoming programmes. It should be incorporated in the training package and the training of RPs.

**How was the time spent by RPs during training transaction?** The activities giving estimates of time spent in training transaction were 'RP talking', 'interaction with the teachers', 'group work' and 'other activities'. Other activities were preparing TLM, arranging furniture, helping in using technology, aids, etc. Estimated time categories were 'zero' time spent on the activity, 1-25, 26-50, 51-75 and above 75 training-transaction sessions. Percentages of the sessions are in parentheses in Table 3.14

Table 3.14 (a)
**Estimated Time Spent by the RPs during Training Transaction**

| State | Percentage of Estimated Time on Teacher talking | | | | | |
|---|---|---|---|---|---|---|
| | Zero | 1-25 | 26-50 | 51-75 | >75 | Total |
| Bihar | 0 | 10 (27.78) | 22 (61.11) | 3 (8.33) | 1 (2.78) | 36 |
| Haryana | 0 | 11 (12.50) | 21 (23.86) | 52 (59.09) | 4 (4.55) | 88 |
| Maharashtra | 0 | 1 (2) | 14 (28) | 22 (44) | 13 (26) | 50 |
| Meghalaya | 3 (3.23) | 12 (12.90) | 13 (13.98) | 14 (15.05) | 51 (54.84) | 93 |
| Nagaland | 0 | 9 (10.23) | 34 (38.64) | 28 (31.82) | 17 (19.32) | 88 |
| Odisha | | 15 (51.72) | 8 (27.59) | 6 (20.69) | 0 | 29 |
| Rajasthan | 0 | 4 (19.05) | 15 (71.43) | 2 (9.52) | 0 | 21 |
| Tamil Nadu | 0 | 2 (16.67) | 5 (41.67) | 4 (33.33) | 1 (8.33) | 12 |
| West Bengal | 0 | 4 (6.90) | 45 (77.59) | 9 (15.52) | 0 | 58 |

Table 3.14 (b)

| State | Percentage of Estimated Time on Interaction with Teachers | | | | | |
|---|---|---|---|---|---|---|
| | Zero | 1-25 | 26-50 | 51-75 | >75 | Total |
| Bihar | 1 (2.78) | 11 (30.56) | 21 (58.33) | 3 (8.33) | 0 | 36 |
| Haryana | 0 | 47 (53.41) | 41 (46.59) | 0 | 0 | 88 |
| Maharashtra | 0 | 25 (50) | 24 (48) | 0 | 1 (2) | 50 |
| Meghalaya | 14 (15.05) | 70 (75.27) | 9 (9.68) | 0 | 0 | 93 |
| Nagaland | 0 | 60 (68.18) | 28 (31.82) | 0 | 0 | 88 |
| Odisha | 0 | 5 (17.24) | 24 (82.76) | 0 | 0 | 29 |
| Rajasthan | 0 | 10 (47.62) | 11 (52.38) | 0 | 0 | 21 |
| Tamil Nadu | 0 | 1 (8.33) | 10 (83.33) | 1 (8.33) | 0 | 12 |
| West Bengal | 0 | 32 (54.25) | 27 (45.76) | 0 | 0 | 59 |

Table 3.14 (c)

| State | Percentage of Estimated Time on Group work | | | | | |
|---|---|---|---|---|---|---|
| | Zero | 1-25 | 26-50 | 51-75 | >75 | Total |
| Bihar | 2 (5.56) | 15 (41.67) | 18 (50) | 1 (2.78) | 0 | 36 |
| Haryana | 33 (37.50) | 44 (50) | 11 (12.50) | 0 | 0 | 88 |
| Maharashtra | 18 (36) | 28 (56) | 4 (8) | 0 | 0 | 50 |
| Meghalaya | 69 (74.19) | 5 (5.38) | 10 (10.75) | 5 (5.38) | 4 (0.04) | 93 |
| Nagaland | 0 | 59 (67.05) | 23 (26..14) | 6 (6.82) | 0 | 88 |
| Odisha | 0 | 20 (68.97) | 9 (31.03) | 0 | 0 | 29 |
| Rajasthan | 0 | 14 (66.67) | 7 (33.33) | 0 | 0 | 21 |
| Tamil Nadu | 0 | 2 (28.57) | 5 (71.43) | 0 | 0 | 7 |
| West Bengal | 2 (3.39) | 37 (62.71) | 14 (23.73) | 6 (10.17) | 0 | 59 |

Table 3.14 (d)

| State | Percentage of Estimated Time on other activities | | | | | |
|---|---|---|---|---|---|---|
| | Zero | 1-25 | 26-50 | 51-75 | >75 | Total |
| Bihar | 26 (72.22) | 10 (27.78) | 0 | 0 | 0 | 36 |
| Haryana | 46 (52.27) | 42 (47.73) | 0 | 0 | 0 | 88 |
| Maharashtra | 48 (96) | 2 (4) | 0 | 0 | 0 | 50 |
| Meghalaya | 69 (74.19) | 15 (16.13) | 4 (4.30) | 2 (2.15) | 3 (3.23) | 93 |
| Nagaland | 0 | 84 (95.43) | 3 (3.41) | 1 (1.14) | 0 | 88 |
| Odisha | 0 | 10 (71.43) | 11 (37.93) | 8 (27.59) | 0 | 29 |
| Rajasthan | 10 (71.43) | 0 | 4 (28.57) | 0 | 0 | 14 |
| Tamil Nadu | 0 | 1 (100) | 0 | 0 | 0 | 1 |
| West Bengal | 5 (8.47) | 36 (61.02) | 1 (1.69) | 17 (28.81) | 0 | 59 |

No time for interaction with the teachers in 15 per cent sessions in Meghalaya and group work in 74 per cent sessions in the same State was a cause for serious concern. No group work in 37 per cent of the sessions in Haryana and 36 per cent in Maharashtra was equally disturbing. It was more so in the case of Haryana where training was outsourced to two private companies for giving a professional touch in place of institutionalised system of training. This might be due to poor quality of RPs hired by the companies. Predominant use of RPs talking for more than half or more of the training transaction sessions in Bihar, Maharashtra, Haryana, Meghalaya, Nagaland, Rajasthan and West Bengal was on the higher side at the cost of interaction and group work. Only in States of Odisha and Tamil Nadu group work and interactive modes were used to a greater extent. This indicated active learning with the involvement of teachers. Group work and interactive learning need to be encouraged in the forthcoming INSET.

The training transaction perspective that emerges from the discussion in this section shows that the quality varies across the sampled States in several ways. Simple components were transacted reasonably well in most of the States while in the matter of attentiveness of the

teachers and reading of training materials, success during the training transaction sessions was modest. Although the impact chapter reveals the overall quality perspective of training, it seems that it was relatively more reasonable in a few States like Gujarat, Tamil Nadu, Andhra Pradesh, Madhya Pradesh and Chhattisgarh.

## SECTION TWO : TRAINING PACKAGE

Training packages were developed by the States year after year keeping in view the Training Need Assessment (TNA) of teachers. At the same time, other needs were met through addressing the emerging supply related demands such as RTE Act, implementation of NCF-2005, SSA Framework-2008, meeting special educational needs through inclusive education, and so on. Timing and balancing the supply and demand based needs are essential for teachers' professional development. This section covers both content and pedagogical concerns. The major concern at the moment is implementation of the NCF-2005 which is considered a major school curriculum reform initiative as a part of SSA. It was, therefore, considered essential to assess the training packages in terms of addressing the supply related demand and the TNA of teachers. It was also to be assessed how training packages had developed over a period of three years 2008-09, 2009-10 and 2011. The 2010-11 packages received special attention since transaction of this package formed the core of the study.

For assessment of the training package used for INSET 2010-11, guidelines were prepared by the national team at NCERT. The guidelines covered information about the year when the package was developed, the central theme, the agency involved in its development, addressing the SSA guidelines 2008, changes over time, and appraisal of the constituent components. Each State coordinator identified a team of 4-5 curriculum and teacher education experts. A committee of experts was invited for a three-day workshop for assessment and appraisal of the training package. At least one member of the national team was also a participant observer in this evaluation workshop in most of the States. This section provides outcome of this exercise.

Figure 3.3 provides information about training packages developed and used for

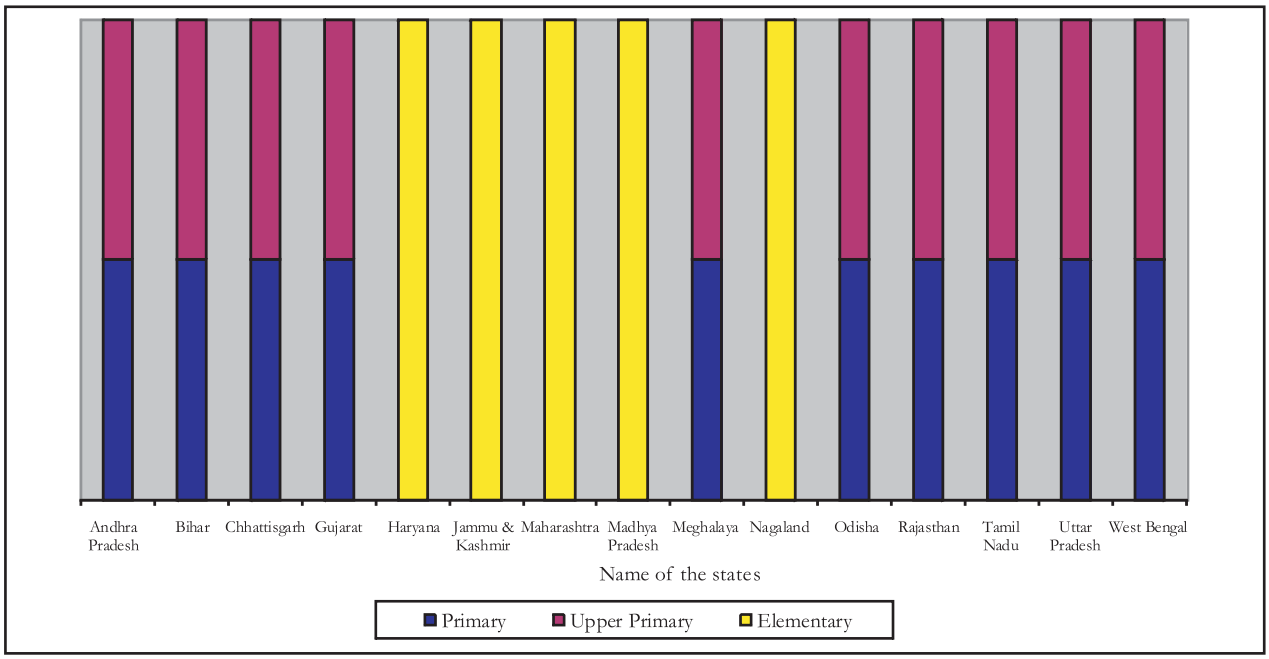


**Figure 3.3 :** Training Packages Prepared for Different States


*INSET Packages in States*

primary/upper primary and combined for both for organising trialing for teachers during 2010-11.

Ten States prepared separate training packages for primary and upper primary teachers. The States of Haryana, Jammu and Kashmir, Maharashtra, Madhya Pradesh and Nagaland packages addressed both primary and upper primary teachers.

The combined training package for primary and upper primary school teachers was prepared in Haryana as the SPO, SSA Coordinator informed that teachers had received sufficient subject-specific training. They were not motivated enough. The INSET was discontinued during 2008 and 2009. In 2010, the State decided that training should be motivational aiming at attitudinal change. General training for both primary and upper primary school levels along with development of the training package was, therefore, outsourced to two private companies, Educomp Solutions and New Horizon India Ltd. In the states of Jammu and Kashmir and Nagaland, combined training of primary and upper primary school teachers was the practice since most of the teachers taught classes at both stages of elementary education in schools. Even multigrade teaching was reported at both levels.

In Maharashtra the need for value-based training, 'Jeewan Vidhya' was considered relevant for primary as well as upper primary school teachers.The training needs in these States reflected system perceived needs rather than expressed needs of teachers arising out of TNA. It is not yet clear as to how specific needs of primary and upper primary teachers related to subject teaching were addressed by the SPO, SSA.

## Assessment Dimensions

The dimensions of assessment of the training package covered development of the training package; format and content; the agency that developed the package; consonance with the NCF-2005 and INSET guideline 2008 and overall quality of the package in respect of conformity with objectives, caste and gender bias, sequential treatment of the content, adequacy of elaboration of the concept covered, appropriate illustrations, simple and easy to understand language, encouraging activity based teaching, arousing and sustaining interest of teachers, appropriateness of the suggested transactional methodology, sectional review in modules, review exercises at the end, activities for tackling learning difficulties of children, suggesting readings and follow up activities to reinforce learning.

## Development of the Training Package

INSET training is managed and funded by the SPD in the States. The services of the institutions, agencies and private companies can be mobilised for preparing training packages. The practice varies from State to State. Table 3.15, 3.16 and 3.17 provide information about the training package for INSET 2010-11, agency that prepared it and the year in which training packages were prepared.

Table 3.15
**Development of the Training Package for the Primary Stage**

| Name of the State | Title of the Training Package used in 2010-11 | Agency(s) that developed the package | Publication Year |
|---|---|---|---|
| Andhra Pradesh | • Learning Enhancement Programme (LEP): Telugu, Mathematics, EVS, English<br>• Snehbala-Environmental Studies Cards (SLIM) | Rajiv Vidya Mission | 2009-2010 |
| Bihar | • Bodhi Sambad Bhag-I (Class III-V): The package is comprehensive subjects like Language, Mathematics, EVS along with Art education. The package includes content, process and assessment along with Classroom Management | BEPC | 2009-2010 |
| Chhattisgarh | • Shikshak Prashiksan Sandarshika: English, Mathematics and General Issues like-Enrolment and Retention, Learning and Knowledge, SSA, Concept of Area etc | SCERT | 2010-2011 |
| Gujarat | • Gujrati, Environment and Maths: Content and method<br>• Activity Based Learning (Pragna), Teacher Learning Process, CCE Plan, TLM and Puppet, School administration, planning and organisation, IED, Gender education, ADEPTS, ERAC (Experience Reflection Application and Consolidation), Time Management etc | SPO, SSA | 2009-2010 |
| Meghalaya | • An orientation on active learning, Teaching on – EVS, Mathematics and English, Art and Craft, Practice Teaching | DERT and DIET | 2010 |
| Odisha | • Anwesana-I (Science): Objective of Scientific Learning, Project work, Food, Water and Diseases, Earth and Space etc.<br>• Sambhav-I (Mathematics): Numbers, Factors and Multiples, Division, Common Fraction etc | SSA, Odisha | 2009-2010 |
| Rajasthan | • LEHAR (Learning Enhancement Activity in Rajasthan) for Class-I and II: Hindi, English and Mathematics | REEC, SSA | 2010 |
| Tamil Nadu | • Simplified Activity Based Learning Method (SALM), IED Training, SALM- Reinforcement, Training (All subjects), Science Experiments Training | SCERT/SPD | 2010-2011 |
| Uttar Pradesh | • English: Characteristics of English Language, Development of English Language, Teaching of Structure etc, | English Language Teaching Institute, Allahabad | 2009-2010 |
| | • Reading ability (Hindi) and Numeric Ability (Mathematics):concept of Language, Reading writing and its development, concept of 'less and more', 'one and many', 'big and small' etc | SPO, Lucknow | 2009-2010 |
| West Bengal | • English Class-III (My English Book), Mathematics (Naba Ganiti Mukul), Curriculum and Syllabus | WBBSE | 2010 |

Table 3.15 provides information regarding training packages for primary school teachers. The packages included modules in some States and in some other States teachers' handbooks/ guides for example, English in Chhattisgarh. The Bihar package addressed the training of teachers of Classes III-V. Training packages in some States (Gujarat and Meghalaya) covered general areas of training with assorted themes/topics while the other States covered different teaching subjects of Science and Mathematics in the States of Odisha, Tamil Nadu, Uttar Pradesh and West Bengal. The most comprehensive coverage was found in Tamil Nadu. Teachings of all subjects in Classes I-V were covered. Odisha also provided special input for multigrade teaching. Revised package in Gujarat included RTE on demand of teachers' demand.

The packages developed earlier were revised for INSET during 2010-11 in most of the States.

The training packages for primary school teachers were got developed by SPDs from different sources. In the States of Bihar, Gujarat, Rajasthan and Tamil Nadu SPO developed the training package with the involvement of SCERTs. Odisha Primary Education Project Authority prepared the training package while private companies were involved in this exercise

Table 3.16
**Development of the Training Package for the Upper Primary Stage**

| State | Title of the Training Package used in 2010-11 | Agency(s) that developed the package | Publication Year |
|---|---|---|---|
| Andhra Pradesh | **Success Schools*** <br>• Teaching Learning Process: Mathematics, Science Social Studies and Languages (English, Hindi and Telugu- Common) {English medium-based on CBSE Syllabus} <br>**General Schools** <br>• Language Improvement Programme (LIP):Telugu, English and Hindi, Science Through Experiments and Projects (STEP), Mathematical Abilities Acquisitions Programme (MAAP), Programme for Acquisition of Social Studies (PASS) | Rajiv Vidya Mission | 2009-2010 <br> 2010-2011 |
| Bihar | • Bodhi Bhaskar (Mathematics): Knowing Numbers, Algebraic terms, Number Game, Fraction etc <br>• Bodhi Bhaskar (Science): Metabolism in Plants, Water, Air and its Pollution, Acid, Base and Salts etc <br>• Patanjali : Yoga Training | BEPC | 2010-2011 |
| Chhattisgarh | • Shikshak Prashiksan Sandarshika:Angraji, Ganit, Vigyan aur Samanya Muddey like- Meaning of Map and its History, Latitude and Longitude, Health and Food, Effective Communication etc <br>• Some of the modules were developed by the external organizations whose support was taken for the training. For example AV Aids etc | SCERT <br> Franklin Covey Company | 2010-2011 <br> 2010-2011 |
| Gujarat | • Gujarati, Environment, Maths: Content and method (Std. V –VIII) <br>• Activity Based Learning (Pragna) (Std. V –VIII), Teacher Learning Process (Std. V –VIII), CCE Plan (Std. V –VIII), TLM and Puppet (Std. V –VIII), School administration, planning and organization, IED, Gender education, ADEPTS, ERAC (Experience Reflection Application and Consolidation), Time Management etc (Std. V –VIII) | SPO, SSA | Revised 2009-2010 |
| Meghalaya | • Source Material for Upper Primary Teachers: Teaching of English, Social Studies, Science and Mathematics | DERT and DIET | 2010 |
| Odisha | • Anwesana-II(Science): Questionnaire preparation and presentation-Air and Weather, Living, Non-living and Aquatic life etc <br>• Sambhav-II (Mathematics): Brackets and Natural numbers, Integers, Rational numbers, Angle, Circle etc. | SSA, Odisha | 2009-2010 |
| Rajasthan | • Use of Science and Mathematics Kit | REEC | 2010-2011 |
| Tamil Nadu | • Middle School Development Programme (Master Trainer Participants Worksheets) English Language: The area covered are skill of Writing, Thinking, Error correction, Dictation, Creative and Critical thinking | SSA and British Council | 2010-2011 |
| Uttar Pradesh | • English: Development of English language skills, Peculiarities of English language, Teaching of prose, poetry, composition and structure is explained with model lesson plan etc. | English Language Teaching Institute, Allahabad | 2009-2010 |
| | • Mathematics (Karke Sikhe Ganit): 23 hands on activity based on hard sports of mathematics are explained in practice oriented style. | SPO, Lucknow | 2009-2010 |
| | • Science (Karke Sikhe Vigyan): Our surroundings, Suppression of substances, Measurement, Change, Speed etc. | SPO, Lucknow | 2009-2010 |
| West Bengal | • Framing of Evaluation Papers/Revision of Tools, "Project based activities in Mathematics, Science (Physical and Life Science) and Social Studies (History and Geography) <br>• NCF | WBBSE | 2009-2010 |

** Success Schools are set up by Govt. of Andhra Pradesh vide G.O.Ms. No. 76, Education (SE Trg) Department, Dt. 10/06/2008 with English Medium and CBSE/State Syllabus*

Table 3.17
**Development of the Training Package for the Elementary Stage**

| State | Title of the Training Package used in 2010-11 | Agency(s) that developed the package | Publication Year |
|---|---|---|---|
| Haryana | • Shiksha Prashikshan Programme: Sensitisation of Teachers, Child Psychology, Methods of Teaching, Assessment and Evaluation, Continuous and Comprehensive Evaluation, Use of Technology in Education | Educomp Solutions Ltd. | 2010-11 |
| | • Prashikshan Pustika: Sensitisation of Teachers, Motivation of teachers. Education Technology, Child Psychology, Role of parents and community in the education, Identification of CWSN (Children with Special Needs) and teaching according to their levels and needs, Use of ICT (Information and Communication Technology) in Education and evaluation, Stress management techniques, Classroom Skills and Process includes discussion on teaching learning strategies, Lesson Planning and Assessment, Methods of teaching include Micro-Teaching techniques (Lecture, Discussion etc), Evaluation and discusses CCE, Guidance and Counseling, Personality development | New Horizon India Ltd. | 2010-11 |
| Jammu & Kashmir | • Inclusive Education, Community Mobilization, Disaster Management, Leadership Learning Disabilities, Right to Education (RTE), Right to Information Act, Health Disorders to School Children, Multi-grade Teaching, Heritage Education, Peace Education and Vocational Education, Subject Modules, Language Teaching (English), Language Teaching (Urdu), Pedagogy of Kashmiri, Pedagogy of Mathematics | SIE, Jammu and SIE, Srinagar | Revised 2009-2010 |
| Maharashtra | • Jeewan Vidhya Part-I and II (Marathi Version): An introduction to Jeewan Vidhya, Structure of life, Questions and Answers related to Jeewan Vidhya | Jeewan Vidhya Prakashan, Shri Bhajanashram, Amarkantak | 2008 |
| Madhya Pradesh | SAMARTHYA<br>• Part-I: Multi-stage teaching, What-How-Why TLM? Examination and evaluation, SSA, Inclusive Education, Activity Learning Method, Activity Based Learning, etc.<br>• Part-II: What Why How-activities?, Utility of Teaching Material, What is Evaluation, Example of Activities (according to subjects and classes) | MPSEC | 2010 |
| Nagaland | • 'Thematic Papers and Sessions Plans for the Mass Teachers Training Programme' is meant for grade I to IV covering 10 thematic areas viz: New Pedagogy, Psychology, EVS (Environmental Study), Language (English) Mathematics, Management, TLM, Evaluation, Planning, Community Participation (Developed before NCF-2005) | SCERT in collaboration with UNICEF | 2002-03 |

in Chhattisgarh along with IGNOU. British Council was involved in preparing the package for the teaching of English in the State of Tamil Nadu.

As is evident from Table 3.16 the exclusive training packages for the upper primary school teachers in the ten States focused on the teaching of subjects. Bihar introduced training of yoga. Andhra Pradesh and Tamil Nadu continued focus on quality through activity-based approach including experiments and project work in schools. The agencies involved in preparing the training packages were mostly the same as for primary school teachers mentioned above except for the addition of Regional Institute of English for South India, Bengaluru.

Four States had developed combined training packages for both primary and upper primary teachers. In Haryana INSET was discontinued and restarted in 2010-11 after a gap of two years to revitalise it by introducing general training in place of repetitive 'hot spot' based training. The State identified 14 themes relating to learning and teaching covered and outsourced it including development of the training package to two private companies. Jammu and Kashmir, Madhya

Pradesh, Maharashtra and Nagaland covered general pedagogical issues in their combined packages for the elementary stage. The point about the combined package is not clear as there was no basis for covering more general issues in the training.

## Changes in the Content of Training Package

Overall, change in content areas in the package for 2010-11 used in 2008-09 and 2009-10, was noticed in the State reviews. At the primary stage, the training package included some new areas like art and heritage, health and physical education, work education and peace education, multigrade teaching (Andhra Pradesh); art education, classroom management (Bihar), school hygiene and child cabinet, disaster management, pupils evaluation and teachers motivation (West Bengal). In some States, training package was revised with particular reference to activity based teaching-learning process as recommended under NCF 2005 and SSA Framework 2008. Project based approach was focused in Rajasthan (LEHAR-Learning Enhancement Activity in Rajasthan) for Classes I and II. Similarly, Odisha stressed training in Science and Mathematics. General issues such as RTE, inclusive education, right to learn, comprehensive and continuous evaluation also found a place in 2010-11 training packages in several States.

For the upper primary stage each State developed a specific training package keeping in view the need of assessment of teachers and pedagogical concerns. For example, training packages in the State of Andhra Pradesh catered to teachers in English medium success schools following CBSE syllabus and general schools following State Board Syllabus. Language Improvement Programme (LIP)—Telugu, English and Hindi; Science Through Experiments and Projects (STEP); Mathematical Abilities Acquisition Programme (MAAP); Programme for Acquisition of Social Skills (PASS). In Bihar the training package covered only three subject areas of science, mathematics and yoga training. In Chhattisgarh training package addressed English teaching. The State of Gujarat focused on modules on Right to Education (RTE) and to follow ADEPT. In Odisha, the focus was on the teaching of science and mathematics. In Rajasthan, the training package centred around the NCERT—produced science and mathematics kits introduced in schools, whereas Uttar Pradesh package featured training in english, science and mathematics. West Bengal developed new modules such as disaster management (9 modules): training package on teacher's handbook on cleanliness, student council and disaster management; training packages on preparation of competency based continuous and comprehensive evaluation for physical and life sciences (10 modules); art of framing evaluation papers in english (8 units ); corporal punishment (12 modules); shikshan sahayika (Bengali); CCE and grading (5 modules); constructivist approach in classroom teaching learning curriculum transaction and evaluation in the light of NCF-2005 (7 chapters); and awareness on safe traffic.

Common training packages for both primary and upper primary schools were revised to meet the emerging needs. In Nagaland, no training package was developed in 2010-11. The State was still using the training package developed in 2003. In Haryana, Jammu and Kashmir, Madhya Pradesh and Maharashtra, the training packages had 'general themes' covering some concerns as reflected in RTE Act (2009) with focus on pedagogical approach. New areas like art and heritage, health and physical education, work education and peace education were also included in the training packages.

Content analysis further revealed that the objectives of the training package were indicated either in the preface of the module or in the introductory chapter of the training package. However, objectives were not explicitly spelt out in the training package for Bihar and Chhattisgarh. Activity based learning and interactive modalities were built in the training package to some extent but there was no separate statement about the transaction modalities as such. In some of the States programmes schedule was indicated and

further instruction by SPD office given to follow this programme schedule. But, the recommendation of split-up model as envisaged in the SSA Framework-2008 was not followed.

## 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 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 using this approach.
- **Reflective teacher to guide students constructing knowledge:** This approach was not found to permeate the training packages. However, some glimpses were noticed in the project based packages such as STEP in Andhra Pradesh, Lehar in Rajasthan, 'experiments' in Tamil Nadu and social projects in Gujarat.
- **Split-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 follow their own model due to state specific considerations. Haryana divided training in two phases of seven days each. Madhya Pradesh provided training for 8 days, Maharashtra for 8-9 days, and Nagaland organised 10 day 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 eduction, 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 finding.
- **Reference to readings and audio-video programmes:** These were conspicuous by their absence in most of the States.

It is evident that RTE Act, revised SSA Framework-2011, new schemes to be availed by children with special needs, changes in curriculum and textbooks and continuous comprehensive evaluation found a place in the training packages. The decision should be based on consultation with all stakeholders, especially the user, the teacher. Training needs assessment should form an essential component of this decision-making. Top down approach needs to be replaced by bottom up assessment modality. The INSET should not only improve skills of teachers but also stimulate them for innovation through reflective classroom transaction. The training packages should induct futurist areas like digital literacy, multiple intelligences, communication skill and productivity. Population education, role of teacher education as elaborated by Yadav (2010) and adolescence education also need to be included. Inclusive education for CWSN too needs to be covered (Jangira, 1995). One important missing element in the training packages was the concept of multiple intelligences and how teachers can use it to enrich learning achievement of children according to their strength in each component with excellence in the dominant ones.

## Overall Quality of Training Package Assessment

To ascertain the overall quality of the training package, experts were required to rate on a three-point scale on the identified parameters, namely, agreement with the objectives, caste and gender bias, sequential treatment, adequacy of treatment of the concept, appropriateness of illustrations, simple and easy to understand language, encouraging activity-based learning, arousing interest of the teachers, sectional review in the modules, review exercises at the end, tackling learning difficulties of children, suggested readings and follow-on activities for reinforcement of learning. The three points for rating were 3 for 'to a large extent', 2 for 'to some extent', 1 for 'very little or not at all'. Training packages for three years 2008-09, 2009-10 and 2010-11 were rated by the experts.

Table 3.18 provides ratings in respect of the quality of the 14 parameters relating to the training package for primary school teachers in the 10 States that prepared a separate package for teachers, Table 3.19 for training upper primary school teachers and Table 3.20 for the common training packages prepared for both primary and upper primary school teachers. The tables are dimensional, columns specify the States and the parameters while rows specify the year for which the training package is intended.

**Agreement with the objectives of the modules:** The States of Andhra Pradesh and Gujarat were consistently in agreement with the objectives in the training package for primary school teachers. Tamil Nadu and West Bengal were also consistent but still had scope for improvement. In Meghalaya the rating was the lowest. It was a cause of concern while in other States there is noticeable improvement over the period of three years. Training package for upper primary school teachers indicated similar findings. In the common package for primary and upper primary school teachers either objective was not specified (Haryana and Nagaland) or there was enough scope for improvement (Jammu and Kashmir and Madhya Pradesh).

**No caste and gender bias in the modules:** Content in all training packages in the States did not reflect caste and gender bias except in Uttar Pradesh, which had scope for improvement. The training materials in this State do not indicate corrective action in this respect over the last three years.

**Sequential treatment of the content:** The training packages for primary school teachers for Bihar and West Bengal received the lowest rating while the remaining states except Rajasthan, Tamil Nadu and Uttar Pradesh had scope for improvement. The quality improvement on this parameter was rather slow over the three year period under study. The issue of sequence can, however, be questioned in the context of NCF-2005 since constructivist approach and reflective teachers require quite a bit of flexibility in constructing knowledge. Similar finding was noticed in the states with common training package for both levels of teachers. About 56 per cent teachers reported that there was no sequential presentation in the training module.

**Concept dealt with adequately:** Training package for primary school teachers in respect of this parameter was rated the lowest for Meghalaya and Rajasthan while it received the highest rating in Tamil Nadu, Andhra Pradesh, Bihar and Uttar Pradesh. Other States had scope for improvement. Similar ratings were reported for the training package meant for upper primary school teachers as well as common packages for both levels of teachers. Improvement is needed across states for accelerating the pace of improving quality of training in the ensuing years. More than half of the teachers who had received training felt that the content was too theoretical and concepts had not been fully clarified in the training package. It was reported by the teachers that training material was not made available before the training and was distributed during the training programme. In the states of Meghalaya and Nagaland, the training material was not distributed at all and in other states the training material was distributed among a limited number of teachers. The details are given in table 3.21 and Figure 3.4.

Table 3.18
**Experts' Rating of the Training Package Relating to Quality of Parameters for Primary School Teachers**

| Areas | Year | States | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | AP | BR | CG | GJ | ML | OR | RJ | TN | UP | WB |
| Agreement with objectives | 2009 | 3 | 1 | 1 | 3 | NA | NA | 2 | 2 | 1 | 2 |
| | 2010 | 3 | 3 | 1 | 3 | NA | NA | 3 | 2 | 3 | 2 |
| | 2011 | 3 | 3 | 2 | 3 | 1 | 3 | 3 | 2 | 3 | 2 |
| No caste and gender bias | 2009 | 3 | 2 | 2 | 3 | NA | NA | 3 | 3 | 2 | 1 |
| | 2010 | 3 | 3 | 2 | 3 | NA | NA | 3 | 3 | 2 | 3 |
| | 2011 | 3 | 3 | 3 | 3 | 1 | 3 | 3 | 3 | 2 | 3 |
| Sequential treatment | 2009 | 3 | 2 | 2 | 2 | NA | NA | 2 | 2 | 1 | 1 |
| | 2010 | 3 | 1 | 2 | 2 | NA | NA | 3 | 3 | 3 | 1 |
| | 2011 | 2 | 1 | 2 | 2 | 2 | 2 | 3 | 3 | 3 | 1 |
| Concept dealt was adequate | 2009 | 2 | 2 | 2 | 1 | NA | NA | 2 | 2 | 1 | 2 |
| | 2010 | 2 | 3 | 2 | 2 | NA | NA | 1 | 2 | 3 | 2 |
| | 2011 | 3 | 3 | 2 | 2 | 1 | 2 | 1 | 3 | 3 | 2 |
| Appropriate illustrations | 2009 | 2 | 1 | 2 | 1 | NA | NA | 1 | 2 | 2 | 3 |
| | 2010 | 2 | 3 | 2 | 1 | NA | NA | 1 | 2 | 1 | 3 |
| | 2011 | 2 | 3 | 2 | 2 | 1 | 1 | 1 | 2 | 1 | 2 |
| Simple and easy to understand language | 2009 | 3 | 2 | 2 | 2 | NA | NA | 2 | 2 | 2 | 3 |
| | 2010 | 3 | 2 | 2 | 2 | NA | NA | 2 | 3 | 3 | 3 |
| | 2011 | 3 | 2 | 3 | 3 | 2 | 3 | 2 | 3 | 3 | 3 |
| Encourage activity-based teaching | 2009 | 3 | 2 | 2 | 2 | NA | NA | 2 | 3 | 2 | 3 |
| | 2010 | 3 | 3 | 3 | 2 | NA | NA | 2 | 3 | 3 | 3 |
| | 2011 | 3 | 3 | 3 | 3 | 1 | 1 | 3 | 3 | 3 | 2 |
| Arouse and sustain interests of trainees | 2009 | 2 | 3 | 1 | 2 | NA | NA | 2 | 2 | 1 | 2 |
| | 2010 | 3 | 2 | 2 | 2 | NA | NA | 2 | 2 | 2 | 2 |
| | 2011 | 3 | 2 | 2 | 2 | 1 | 1 | 2 | 2 | 2 | 1 |
| Appropriate transactional methodology | 2009 | 3 | 3 | 3 | 1 | NA | NA | 2 | 2 | 1 | 3 |
| | 2010 | 3 | 3 | 3 | 2 | NA | NA | 2 | 2 | 2 | 3 |
| | 2011 | 3 | 3 | 3 | 2 | 2 | 3 | 2 | 2 | 2 | 3 |
| Sectional review in modules | 2009 | 1 | 1 | 1 | 1 | NA | NA | 1 | 2 | 1 | 1 |
| | 2010 | 1 | 3 | 2 | 1 | NA | NA | 1 | 2 | 1 | 1 |
| | 2011 | 2 | 3 | 1 | 2 | 1 | 1 | 1 | 2 | 1 | 1 |
| Review exercises at the end | 2009 | 0 | 1 | 1 | 3 | NA | NA | 1 | 2 | 2 | 2 |
| | 2010 | 0 | 3 | 1 | 2 | NA | NA | 1 | 2 | 3 | 2 |
| | 2011 | 0 | 3 | 1 | 3 | 1 | 1 | 1 | , | 3 | 1 |
| Activities for tackling learning difficulties of children | 2009 | 2 | 1 | 2 | 1 | NA | NA | 1 | 1 | 1 | 1 |
| | 2010 | 2 | 1 | 2 | 1 | NA | NA | 1 | 1 | 1 | 1 |
| | 2011 | 3 | 1 | 2 | 2 | 1 | 1 | 1 | 1 | 1 | 1 |
| Suggesting reading | 2009 | 0 | 1 | 1 | 1 | NA | NA | 1 | 1 | 1 | 1 |
| | 2010 | 0 | 3 | 1 | 2 | NA | NA | 1 | 2 | 1 | 1 |
| | 2011 | 0 | 3 | 1 | 3 | 1 | 1 | 1 | 2 | 1 | 1 |
| Follow-up activities to reinforce learning | 2009 | 1 | 1 | 1 | 1 | NA | NA | 2 | 1 | 1 | 2 |
| | 2010 | 2 | 2 | 1 | 1 | NA | NA | 2 | 1 | 2 | 2 |
| | 2011 | 2 | 2 | 2 | 2 | 2 | 1 | 2 | 2 | 2 | 2 |

Table 3.19

**Experts' Rating of the Training Package Relating to Quality of Parameters for Upper Primary School Teachers**

| Areas | Year | States | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | AP | BR | CG | GJ | ML | OR | RJ | TN | UP | WB |
| Agreement with objectives | 2009 | NA | 3 | 1 | 3 | NA | NA | 2 | 3 | 1 | NA |
| | 2010 | 3 | 3 | 1 | 3 | NA | NA | 2 | 3 | 3 | 3 |
| | 2011 | 3 | 2 | 2 | 3 | 1 | 2 | 3 | 3 | 3 | 1 |
| No caste and gender bias | 2009 | NA | 3 | 2 | 2 | NA | NA | 3 | 3 | 2 | NA |
| | 2010 | 3 | 3 | 2 | 2 | NA | NA | 3 | 3 | 2 | 3 |
| | 2011 | 3 | 3 | 3 | 2 | 1 | 3 | 3 | 3 | 2 | 3 |
| Sequential treatment | 2009 | NA | 3 | 2 | 1 | NA | NA | 3 | 2 | 1 | NA |
| | 2010 | 3 | 3 | 2 | 1 | NA | NA | 3 | 2 | 3 | 3 |
| | 2011 | 3 | 3 | 2 | 2 | 2 | 2 | 3 | 3 | 3 | 3 |
| Concept dealt was adequate | 2009 | NA | 2 | 2 | 1 | NA | NA | 2 | 2 | 1 | NA |
| | 2010 | 2 | 2 | 2 | 1 | NA | NA | 2 | 3 | 3 | 3 |
| | 2011 | 2 | 2 | 2 | 2 | 1 | 2 | 2 | 3 | 3 | 1 |
| Appropriate illustrations | 2009 | NA | 2 | 2 | 1 | NA | NA | 2 | 2 | 2 | NA |
| | 2010 | 3 | 2 | 2 | 1 | NA | NA | 2 | 2 | 3 | 3 |
| | 2011 | 3 | 1 | 2 | 2 | 1 | 1 | 2 | 2 | 3 | 1 |
| Simple and easy to understand language | 2009 | NA | 3 | 2 | 2 | NA | NA | 2 | 3 | 2 | NA |
| | 2010 | 3 | 3 | 2 | 2 | NA | NA | 3 | 3 | 2 | 3 |
| | 2011 | 3 | 3 | 3 | 3 | 2 | 3 | 3 | 3 | 2 | 3 |
| Encourage activity-based teaching | 2009 | NA | 3 | 2 | 1 | NA | NA | 2 | 3 | 2 | NA |
| | 2010 | 3 | 2 | 3 | 2 | NA | NA | 3 | 3 | 3 | 1 |
| | 2011 | 3 | 2 | 3 | 3 | 1 | 1 | 3 | 3 | 3 | 3 |
| Arouse and sustain interests of trainees | 2009 | NA | 2 | 1 | 2 | NA | NA | 2 | 3 | 1 | NA |
| | 2010 | 3 | 3 | 2 | 2 | NA | NA | 3 | 3 | 3 | 1 |
| | 2011 | 2 | 1 | 2 | 2 | 1 | 1 | 2 | 3 | 3 | 3 |
| Appropriate transactional methodology | 2009 | NA | 3 | 3 | 1 | NA | NA | 2 | 2 | 1 | NA |
| | 2010 | 2 | 2 | 3 | 2 | NA | NA | 2 | 2 | 2 | 1 |
| | 2011 | 2 | 1 | 3 | 2 | 2 | 3 | 3 | 2 | 2 | 1 |
| Sectional review in modules | 2009 | NA | 1 | 1 | 1 | NA | NA | 2 | 2 | 1 | NA |
| | 2010 | 3 | 1 | 2 | 1 | NA | NA | 2 | 2 | 1 | 1 |
| | 2011 | 3 | 1 | 1 | 2 | 1 | 1 | 3 | 2 | 1 | 1 |
| Review exercises at the end | 2009 | NA | 1 | 1 | 2 | NA | NA | 2 | 2 | 2 | NA |
| | 2010 | 3 | 1 | 1 | 2 | NA | NA | 2 | 2 | 3 | 1 |
| | 2011 | 3 | 1 | 1 | 3 | 1 | 1 | 1 | 2 | 3 | 1 |
| Activities for tackling learning difficulties of children | 2009 | NA | 1 | 2 | 1 | NA | NA | 1 | 2 | 1 | NA |
| | 2010 | 2 | 2 | 2 | 1 | NA | NA | 1 | 2 | 1 | 1 |
| | 2011 | 2 | 1 | 2 | 2 | 1 | 1 | 1 | 2 | 1 | 1 |
| Suggesting reading | 2009 | NA | 1 | 1 | 1 | NA | NA | 1 | 1 | 1 | NA |
| | 2010 | 3 | 1 | 1 | 1 | NA | NA | 1 | 1 | 1 | 1 |
| | 2011 | 3 | 1 | 1 | 3 | 1 | 1 | 1 | 1 | 1 | 1 |
| Follow-up activities to reinforce learning | 2009 | NA | 2 | 1 | 1 | NA | NA | 1 | 1 | 1 | NA |
| | 2010 | 3 | 1 | 1 | 1 | NA | NA | 1 | 2 | 2 | 1 |
| | 2011 | 3 | 1 | 2 | 1 | 2 | 1 | 2 | 2 | 2 | 1 |

Table 3.20

**Experts' Rating of the Common Training Package Relating to Quality of Parameters for both Primary and Upper Primary School Teachers**

| Areas | Year | States | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | | HR | | JK | | MH | MP | NL |
| | | NHI | EDUCOM | JD | KD | | | |
| Agreement with objectives | 2009 | NA | NA | 1 | NA | 2 | 2 | 3 |
| | 2010 | NA | NA | 1 | 1 | 2 | 2 | NA |
| | 2011 | 1 | 2 | 1 | 1 | 2 | 2 | NA |
| No caste and gender bias | 2009 | NA | NA | 3 | NA | 3 | 3 | 3 |
| | 2010 | NA | NA | 3 | 3 | 3 | 3 | NA |
| | 2011 | 3 | 3 | 3 | 3 | 3 | 3 | NA |
| Sequential treatment | 2009 | NA | NA | 2 | NA | 3 | 2 | NA |
| | 2010 | NA | NA | 2 | 2 | 2 | 3 | NA |
| | 2011 | 1 | 2 | 2 | 2 | 3 | 2 | NA |
| Concept dealt was adequate | 2009 | NA | NA | 1 | NA | 3 | 2 | 3 |
| | 2010 | NA | NA | 2 | 2 | 3 | 2 | NA |
| | 2011 | 1 | 1 | 3 | 3 | 3 | 2 | NA |
| Appropriate illustrations | 2009 | NA | NA | 1 | NA | 3 | 2 | 2 |
| | 2010 | NA | NA | 2 | 2 | 2 | 2 | NA |
| | 2011 | 1 | 1 | 2 | 2 | 3 | 2 | NA |
| Simple and easy to understand language | 2009 | NA | NA | 2 | NA | 3 | 3 | 3 |
| | 2010 | NA | NA | 3 | 3 | 3 | 3 | NA |
| | 2011 | 1 | 2 | 3 | 3 | 3 | 3 | NA |
| Encourage activity-based teaching | 2009 | NA | NA | 2 | NA | 3 | 3 | 3 |
| | 2010 | NA | NA | 3 | 3 | 3 | 3 | NA |
| | 2011 | 1 | 1 | 3 | 3 | 3 | 2 | NA |
| Arouse and sustain interests of trainees | 2009 | NA | NA | 2 | NA | 2 | 2 | 3 |
| | 2010 | NA | NA | 3 | 3 | 2 | 2 | NA |
| | 2011 | 1 | 1 | 3 | 3 | 3 | 2 | NA |
| Appropriate transactional methodology | 2009 | NA | NA | 2 | NA | 2 | 1 | 3 |
| | 2010 | NA | NA | 2 | 2 | 2 | 1 | NA |
| | 2011 | 1 | 1 | 2 | 2 | 2 | 1 | NA |
| Sectional review in modules | 2009 | NA | NA | 1 | NA | 1 | 1 | 1 |
| | 2010 | NA | NA | 1 | 1 | 1 | 2 | NA |
| | 2011 | 1 | 1 | 1 | 1 | 2 | 2 | NA |
| Review exercises at the end | 2009 | NA | NA | NA | NA | 1 | 1 | 1 |
| | 2010 | NA | NA | NA | NA | 1 | | NA |
| | 2011 | 1 | 1 | NA | NA | 1 | 1 | NA |
| Activities for tackling learning difficulties of children | 2009 | NA | NA | 1 | NA | 1 | 1 | 1 |
| | 2010 | NA | NA | 1 | 1 | 1 | 1 | NA |
| | 2011 | 1 | 1 | 1 | 1 | 1 | 1 | NA |
| Suggesting reading | 2009 | NA | NA | 1 | NA | 1 | 1 | 1 |
| | 2010 | NA | NA | 1 | 1 | 1 | 1 | NA |
| | 2011 | 1 | 1 | 1 | 1 | 1 | 1 | NA |
| Follow-up activities to reinforce learning | 2009 | NA | NA | 1 | NA | 1 | 1 | 2 |
| | 2010 | NA | NA | 1 | 1 | 1 | 1 | NA |
| | 2011 | 1 | 1 | 1 | 1 | 1 | 1 | NA |

Table 3.21
**Training Package/Set of Modules Given to Teachers**

| State | Before commencement of the training | On the first day of the training | Partial distribution during the training | Not distributed | Total |
|---|---|---|---|---|---|
| Andhra Pradesh | 0 | 14 | 2 | 0 | 16 |
| Bihar | 0 | 4 | 5 | 6 | 15 |
| Chattisgarh | 0 | 7 | 8 | 0 | 15 |
| Gujarat | 0 | 6 | 6 | 0 | 12 |
| Haryana | 0 | 0 | 11 | 1 | 12 |
| Jammu & Kashmir | 0 | 3 | 3 | 6 | 12 |
| Madhya Pradesh | 0 | 3 | 2 | 0 | 5 |
| Maharastra | 0 | 0 | 2 | 2 | 4 |
| Meghalaya | 0 | 0 | 0 | 10 | 10 |
| Nagaland | 0 | 0 | 0 | 10 | 10 |
| Odisha | 0 | 5 | 1 | 6 | 12 |
| Rajasthan | 0 | 6 | 5 | 1 | 12 |
| Tamil Nadu | 0 | 1 | 9 | 2 | 12 |
| Uttar Pradesh | 0 | 12 | 5 | 1 | 18 |
| West Bengal | 0 | 2 | 2 | 8 | 12 |
| Total | 0 | 63 (35.60) | 61 (34.46) | 53 (29.94) | 177 |

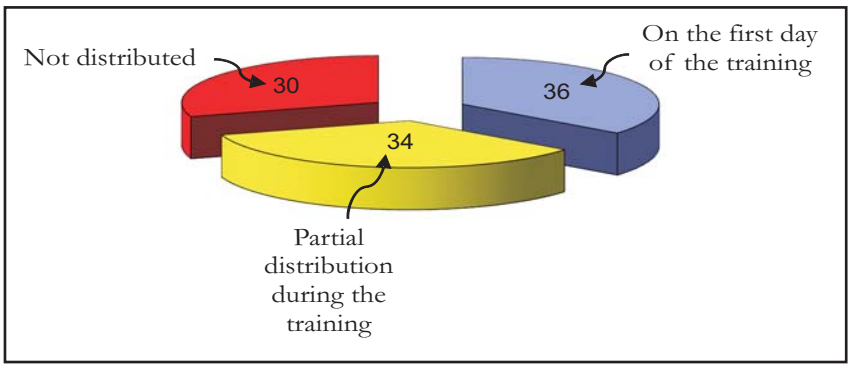


**Figure 3.4 :** Training Package/Set of Modules Given to Teacher

About 40 per cent teachers read the material during the training and 22 per cent of the teachers did not read any module. Only 4 per cent of the teachers read more than 75 per cent of the training modules. As many as 77 per cent teachers stated that they did not read the modules because the training package was uninteresting and difficult to understand. 17 per cent of the teachers reported that they did not find time to read. They also supported the need for improvement of the presentation and elaboration of the concepts.

**Appropriateness of illustrations:** Illustrations emerged as the weakest training package related to quality of parameter in terms of rating by the experts in respect of all the three target groups. Little improvement was noticed over the three-year period studied. There could be several reasons for this State of affairs. This was also confirmed by RPs since about two-thirds of them felt that illustrations were appropriate to some extent or not appropriate. More than half of the teachers opined that most of the modules lacked appropriate illustrations. There seemed to be a convergence in the assessment of all the three INSET actors (Teachers, RPs and Experts) on this issue. Maybe the cost considerations led to inappropriate illustrations. Maybe genuine artists did not care due to poor compensation. It is also possible that briefing of the artists by the package developers was not appropriate. Both might be economising time at the cost of quality of illustrations. The cause could be different in different States.

**Use of simple and easy to understand language:** According to rating of this component the quality of language used in the training packages showed improvement over time in most of the states except in the states of Bihar, Odisha, Rajasthan and Uttar Pradesh where there was scope for improvement. Rating for Meghalaya package was the lowest. Almost half of the RPs felt the need for further simplifying the language of the training package. About a quarter of the RPs in Bihar and Madhya Pradesh considered the modules difficult to understand

to a large extent. About 50 per cent teachers expressed difficulty in understanding the language, especially in Bihar, Chhattisgarh, Uttar Pradesh, West Bengal and Jammu and Kashmir. The background of teachers who found the language difficult to understand was not clear. Follow-up micro-study may provide the answer. The triangulated information, however, suggests the need for simplifying the language of the training packages to facilitate learning.

**Activity-based learning:** Progressive improvement over the three years was evident in the expert ratings in training packages for primary school teachers except in the States of Meghalaya and Odisha where improvement with regard to this parameter is warranted. In West Bengal there was scope of improvement. The upper primary school teachers' training package of Meghalaya and Odisha got the lowest rating while Bihar indicated scope for improvement. In the common training packages for both levels of teachers, Haryana training packages of both private agencies were rated the lowest due to questionable content validity. Nagaland package was not rated for this parameter while Madhya Pradesh package had scope for improvement. Half of the teachers reported that the training material did not have enough practical exercises. To that extent the material was not tuned to activity-based learning approach in school.

**Arouse and sustain interest of the teachers:** In this regard, the training packages meant for the training of primary school teachers showed almost no improvement over the three year period in the states except in Andhra Pradesh. Meghalaya, Odisha and West Bengal packages were rated the lowest while in other states there was scope for improvement. The rating was better in respect of the packages for upper primary teachers in the States of Rajasthan, Tamil Nadu and Uttar Pradesh where subject specific project based training packages showed better presentation and ensured interest through thinking and reasoning for application to school teaching context. The common packages for Haryana developed by the two private agencies were rated low, and there was scope for improvement in the States of Maharashtra and Madhya Pradesh also.

**Appropriateness of the suggested transaction methodology:** Meghalaya and Odisha training packages were not rated on this parameter. Other states showed improvement over the years covered in the study. The training packages from the states of Gujarat, Rajasthan, Tamil Nadu and Uttar Pradesh had scope for improvement. The training packages for the upper primary school teachers showed decline over the three year period in all states except the States of Chhattisgarh and Odisha. Similar situations were obtained in the states with common packages for both levels of teachers. Lot of improvement is called for at this stage in respect of this parameter.

**Sectional reviews in modules:** The situation in all states except Andhra Pradesh was found to be quite low. There was little or no provision for sectional reviews. For structuring cognitive learning this component is vital and needs to be employed in the training packages. This is required for self reading, consolidation of learning and using feedback in adjusting learning process in the session.

**Review exercises at the end:** The expert ratings seemed to indicate sporadic scatter without consistency either over the years or across the states.

**Provision for tackling of learning difficulties of children:** The training packages of almost all states were rated quite low on this vital parameter. The learning difficulties of children with special needs and other children with low educability received the mandate for inclusive education in the RTE 2009. This component needs to be addressed with a sense of urgency in the forthcoming INSET.

**Suggested readings:** For diversifying learning opportunity and mode of learning this component is considered very significant. ICT also plays a significant role in learning, especially self learning through search and research. The absence of this component in the training

packages was at the cost of quality of training transaction.

**Follow-up activities to reinforce learning:** The training packages were found to be low on this parameter too. The forthcoming INSET training packages need to be strengthened in this respect.

The analysis of the training packages reveals wide variation across the sampled states. The variation is natural since training needs vary. The worrying factor is that these are not based on systematic training needs assessment. The trend of top down decision about the content of training is questionable. It makes the supply aspect of the training dominant at the cost of demand aspect ignoring real needs of teachers. Yadav (2006) indicates the direction along which self learning material for teacher educators needs to be developed.

The NCF 2005 is not reflected in the training packages of the sampled states. It should have been the main supply side content in the training packages during the last three years. As a result teachers remain at sea to transact the changed curriculum in schools. The INSET after the next few years will have to respond to the challenge of this major reform. A mix of both the supply side needs emerging from NCF and needs expressed by the teachers will have to be met by the INSET.

## SECTION THREE : HUMAN RESOURCES

Training Coordinators, Resource Persons, Teachers and CRC Coordinators constitute the major human resource for managing the training and its transaction for improving the quality of INSET. It will be desirable to discuss the academic and professional background of the human resources involved in the training programme.

### Training Coordinators (TCs)

The training coordinators in most of the BRCs or secondary schools had dual responsibilities. BRC coordinators had full time administrative work. Similarly in the secondary school one of the senior teachers was given this responsibility with full teaching load (for example in Haryana). The coordinators in DIETs in Madhya Pradesh and some of them in Chhattisgarh and Bihar had full INSET responsibility. The assessment of both follows.

The number of training coordinators covered in the study was 177, one each for the same number of training centres. Out of these 177, 143 (80%) were men and 34 (20%) women. The representation of women was low. No woman coordinator was found in Maharashtra, Odisha and West Bengal Most of the coordinators were about 50 years of age and maximum (40%) were between 40-50 years. Regarding academic qualifications, 58 (33%) training coordinators were graduates and 117 (67%) were post graduates. However, two coordinators were undergraduate in Gujarat. Most of the training coordinators were B.Ed (60%) and M.Ed (32%) and the remaining 7 per cent had D.Ed in Gujarat, Bihar, Chhattisgarh, Jammu and Kashmir and Uttar Pradesh. Most of the TCs had experience of teaching upto secondary level. On the face of it, the training coordinators seemed to be academically and professionally accomplished. Did they receive training to organise and manage INSET? A legitimate question indeed!

About 60 per cent training coordinators received training to organise training programmes and training coordinators who did not receive training were in Bihar (73%), Haryana (67%), Meghalya (60%), Rajasthan (83%), Uttar Pradesh (44%) and West Bengal (50%). Specific information was not provided by the training coordinators. However, field notes indicated that most of them were not oriented to the training package 2010-2011. They also expressed the need for specific training on issues emerging from NCF 2005 for implementation in their state. SPD needs to build capacity of all the stakeholders involved in SSA implementation, especially the training coordinators, who were functioning as Block Education Officers as well. Their support and supervisory guidance during school visits is

important for reinforcement of the use of block training in classroom transaction. About 70 per cent coordinators had acted as training coordinator earlier and 30 per cent coordinators in the state of Haryana, Chhattisgarh Odisha, Rajasthan and Uttar Pradesh had no experience of organising training. None of the training coordinators prepared a time schedule for training because it was provided by the SPD. 38 per cent of the training coordinators from the states of Andhra Pradesh, Gujarat and Tamil Nadu were involved in the selection of RPs for training.

## Resource Persons (RPs)

Resource Persons were drawn from schools, BRCs, DIETs and SCERTs for training delivery. In some States like Andhra Pradesh and Odisha, RPs were selected on the basis of written test and interview. The quality of the TT depends to a large extent on the quality of the RP. A total of 770 RPs were involved in transacting block training of primary and upper primary school teachers in 177 training centres. Out of total of 770, 542 (72%) RPs were men and 218 (28%) women. In Maharashtra only one RP conducted the whole training at a centre. In Haryana only two RPs conducted the whole training at a centre.

The number of Resource Persons belonging to scheduled castes were 71(9%), scheduled tribes 130 (17%) and other backward classes 188 (25%). The under representation of women in the RPs was high in the States of Andhra Pradesh, Bihar, Jammu and Kashmir, Odisha and Rajasthan. The number of RPs was 486 (63%) in the age group of 31-45 years, followed by 147 (19%) in the age group of upto 30 years. Most of the RPs were in the younger age group. Only about 18% were above 45 years of age.

Surprisingly, the female resource persons constituted only about 29 per cent which was gross under-representation. The reasons mentioned during the field visit to the training centres were non availability of women RPs and their reluctance to travel and undertake work in training centres located away from the district headquarters. The SPD however might like to look into it. Efforts need to be made to encourage potential women RPs.

The highest number 406 (53%) of RPs were post graduates, followed by graduates 295 (38%) and senior secondary pass-outs only 54 (7%) in the states of Gujarat, West Bengal, Chhattisgarh, Odisha, Uttar Pradesh, Bihar, Madhya Pradesh. It is encouraging to note that 15 (2%) had Ph.D. degree in Andhra Pradesh (1), J & K (1), M.P. (2), Meghalaya (1), Odisha (1), Uttar Pradesh (5), West Bengal (4). Regarding professional training, (42%) of the RPs had B.Ed. degree, (9%) had M.Ed degree and (19%) had Diploma in Elementary Education. It was noted that 55 RPs (30%) were without any professional qualification in the States of Nagaland (20), Meghalaya (11), Jammu and Kashmir (8), Gujarat (4), Chhattisgarh (3), West Bengal (3), Bihar (2) and Haryana (1).

*Resource person in action*

About 80 per cent RPs had received orientation for conducting training. A good number of RPs had no experience in states like Haryana which outsourced training to private companies. The companies had

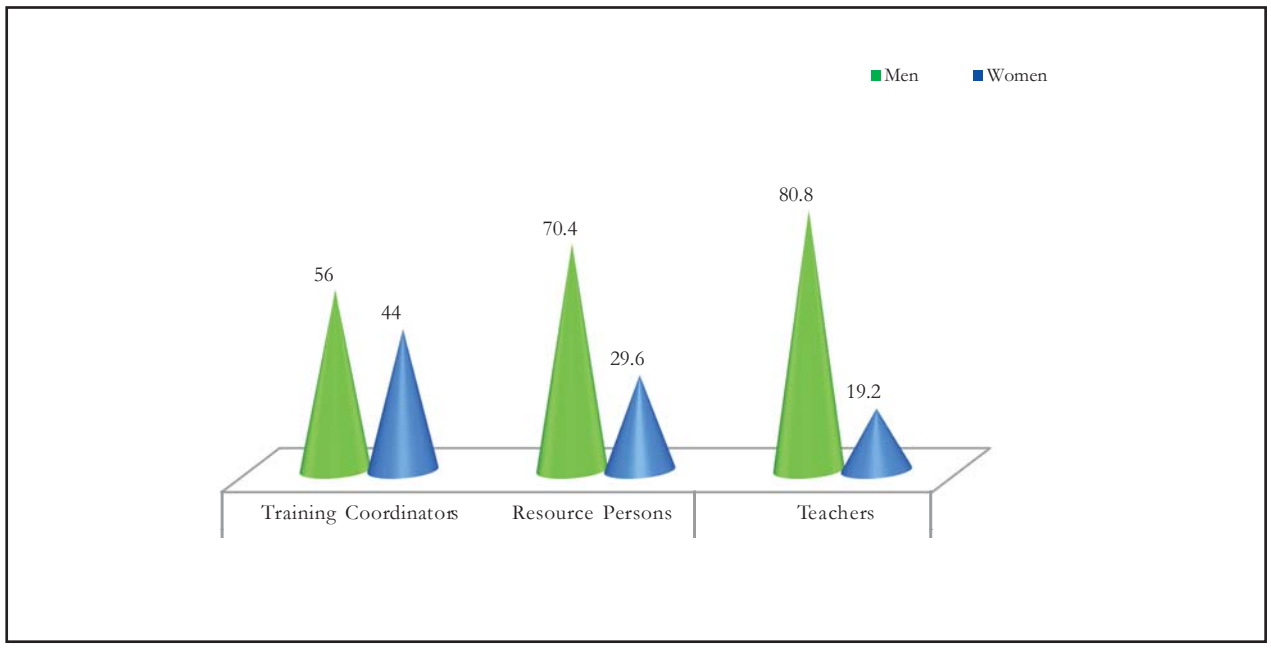


**Figure 3.5 :** Men and Women Representation

employed some inexperienced RPs as observed during field visits and supported by case studies. However, RPs were not provided training in most of the States related to INSET 2010-11 that they were required to transact. This is also supported by Yadav (2002). The situation was compounded by the fact that training manuals or detailed focused guidelines were also not provided to the RPs. Good number of RPs mentioned difficult language used in some of the modules comprising the training package which was also complemented by teachers. Training package prepared for teachers was used by RPs. It was not provided before training. In some of the states even these were not made available for example, Haryana, Meghalaya, Jammu and Kashmir, West Bengal, Nagaland, Bihar and Maharashtra. The quality of training seemed to have been affected adversely by this.

## CRC Coordinators

CRC coordinators are expected to organise the follow on training in terms of monthly meetings to carry forward the block training for improving classroom transaction. They are also expected to provide on site guidance through school visits. In some states (Andhra Pradesh, Gujarat and Tamil Nadu) resource persons are arranged to tackle subject specific hard-spots in CRCs. Demonstration of good practices and innovations are also presented in monthly meetings. They constitute a significant link between block training and practice in the classroom.

Profile of 140 CRC coordinators emerging from field visits covering 140 monthly meetings attended by 2891 teachers in the sampled states follows. It was observed that in most states CRC coordinators had dual responsibilities as Head of the primary/upper primary/high school and CRC coordinator. In some states like Tamil Nadu Cluster Resource Teacher Educator (CRTE) equivalent to CRC coordinator was full time. Only CRTEs who were having post graduate qualifications with minimum five years teaching experience in schools were appointed. Dual responsibilities were a hurdle in the way of performing the stipulated CRC responsibilities. Most of the CRC coordinators were men. Out of 140 CRCs, 70 (50%) were graduates and 21(15%) post graduates.

The states which had CRC coordinators with higher secondary qualifications were Bihar, Chhattisgarh, Gujarat, Odisha, and Uttar Pradesh.

Regarding professional qualifications 72 (51%) were B.Ed., 19 (14%) M.Ed. and 49 (35%) D.Ed. The CRC coordinators with Diploma in Education spread over all States except Andhra Pradesh, Maharashtra and Tamil Nadu.

## Teachers Covered in Training

Teachers who attended INSET also form human resources. The background characteristics of teachers contribute to the quality of training. A total of 9100 primary and upper primary teachers received INSET with representation of men being 56 per cent and women 44 per cent. Out of available disaggregated data, 78 per cent teachers belonged to rural areas and the remaining 22 per cent were from urban areas. More than 88 per cent teachers were below 50 years at both levels. Fig. 3.5 depicts a trend about the representation of women in human resources. The representation of women decreases as the level of professionals rises. From representation 44 per cent in teachers it is only 19.2 per cent in training coordinators.

### *Social Group Representation*

Overall, about 14 per cent of the primary school teachers were less than the population proportion of Scheduled Castes (SCs) while 22 per cent Scheduled Tribes (STs) were more than their representation in the national population. Higher ST representation was due to 95 per cent STs from the States of Meghalaya and Nagaland.

### *Academic and Professional Accomplishment*

The primary school teachers were graduates (35%) and post graduates (23%), while 28 per cent had high school and 14 per cent had ten year schooling certificate that is below the NCTE recommended qualifications of senior secondary. A higher number of secondary and higher secondary teachers were from Meghalaya, Haryana, Nagaland and Gujarat. Professional accomplishment of both primary and upper primary school teachers ranged from without pre-service training to M.Ed. Overall one-third of the teachers had not received pre-service training. Most of the untrained teachers were in Meghalaya (88%) followed by Nagaland (69%), Bihar (59%), West Bengal (51%), and Jammu & Kashmir (36%). About 47 per cent primary school teachers had Diploma in Education and about 23 per cent were B. Ed. Similar situation was found at upper primary stage.

### *School Experience*

More than half of the primary and upper primary school teachers had an experience below 10 years while about a quarter had an experience of 11 to 20 years. Only 5 per cent teachers had an experience of above 30 years. It provided an opportunity for teachers to benefit from each other's experience. Diversity of experience of the teachers is indicative of quality.

### *Other In-Service Training*

During 2009-10, primary school teachers did not avail themselves of in-service training in the States of Haryana (100%), Bihar (80%), Meghalaya (56%) and Nagaland (53%). Similar situation was noted for the upper primary school teachers. In other States more than half of the school teachers had 1-5 days training. But 89 per cent teachers received up to 5 days training in Andhra Pradesh and Odisha followed by West Bengal (76%) and Jammu and Kashmir (63%).

### *Difficulties Faced by Teachers in Attending Training*

Overall 73 per cent teachers reported no difficulty in attending the training, 10 per cent felt that notice for training was short and 14 per cent considered long distance from the training venue caused difficulty for them. The upper primary school teachers also expressed their difficulty in a similar manner. The highest percentage of teachers not attending 'all sessions' was in the State of Madhya Pradesh (42%) followed by Jammu and Kashmir (31%). More than 80 per cent teachers missed five sessions of block training in all States. Almost half of the teachers missed 6-15 sessions.

## SECTION FOUR : PHYSICAL FACILITIES AND EQUIPMENT IN TRAINING CENTRES

In the 15 sampled States, the total number of training centres was 177 out of which 73 centres were exclusively used for training of primary teachers, 33 for upper primary teachers and 71 were common for both primary and upper primary teachers. Break-up of these training centres is given in Chapter 2, Table 2.1.

### Location of Training Centres

The location of training centres for block in-service training programmes varies in sampled States. Mandal Resource Centre, High Schools and DIETs in Andhra Pradesh; Block Resource Centre and DIETs in Bihar and Chhattisgarh; only Block Resource Centres in the states of Rajasthan, Tamil Nadu and Uttar Pradesh; DIETs in Madhya Pradesh; Zonal Training Centres and DIETs in Jammu and Kashmir; Education Block Resource Centres in Nagaland; and Block Resource Centres and High Schools in Gujarat, Haryana, and Odisha served as training centres. In the state of Maharashtra, training was organised in earmarked established institutions for Jeewan Vidhya training. In Meghalaya training was conducted in Block Resource Centres and District Mission Coordinator Office. In West Bengal, training was conducted in Cluster Level Resource Centre, DIETs and Schools. However, BRCs served as training centres for transacting full scale INSET.

Locating training in diverse institutions indicated above could be due to the State policy in this regard or/and lack of development of the infrastructure for INSET under SSA.

In Andhra Pradesh, Haryana, Meghalaya, Nagaland, Tamil Nadu and Uttar Pradesh, training was non-residential in nature, whereas in Bihar, Chhattisgarh, Gujarat, Jammu and Kashmir, Madhya Pradesh, Maharashtra, Odisha, Rajasthan and West Bengal, it was residential in some of the training centres.

### Physical Facilities

About 60 per cent of the centres had more than two rooms and in the remaining centres one or two rooms were available for training in the States of Haryana, Jammu and Kashmir, Uttar Pradesh West Bengal and Chhattisgarh. Considering the size of the training batch generally varying between 40 and 60 teachers, half of the training centres had inadequate space for seating. Furniture for seating was also inadequate in almost all training centres except in DIETs. Chairs were available in about sixty per cent of the centres for seating. These were mostly in the States of Gujarat, Odisha, Haryana, Rajasthan and Uttar Pradesh while many centres were provided *durries* for seating. However, seating arrangements were without any writing facility.

Space for training session was available in more than 90 per cent of all the training centres. However, it was

*BRC Training Centre*

inadequate in half of the centres. Space for group work, though available in more than eighty per cent of the centres, was adequate only in 40 per cent of the centres particularly in Madhya Pradesh, Chhattisgarh, Bihar and Haryana. With focus on activity based approach, there is urgent need for making adequate space for group work available in all the training centres.

Safe drinking water facility for teachers was available in almost all the training centres. In Nagaland, mineral water was provided to the teachers. The tap water, bore-well and hand pump were available in almost all the centres. Toilet facility was inadequate in 38 per cent centres more in Rajasthan, Chhattisgarh, Meghalaya, Jammu and Kashmir and West Bengal. Separate toilet facilities for women were available in less than 80 per cent of the centres and it was adequate in 50 per cent of the centres but were not clean in most of the centres. These facilities need improvement for upgrading the effectiveness of the training programmes.

Electricity provision was available in more than 80 per cent of the centres and was adequate in half of the training centres. In rest of the training centres, electric connection was not available, more so, in Rajasthan and Uttar Pradesh.

Library facility/reading room was available in half of the centres. This facility was not available at all in Haryana, Meghalaya and Nagaland. In some of the centres the facility was available but was inadequate in Andhra Pradesh, Uttar Pradesh, Bihar, Chhattisgarh. In the name of library, the books were kept in one or two almirahs at the training centre. About 25 per cent of the teachers did not use library at all and 64 per cent used library sometimes.

## Status of Teaching Aids/Equipments Used during Training Programme

Blackboard and notice board facility were available in all the training centres. It was used frequently in two-thirds of these centres and in one third of the centres it was used sometimes.

Power-point presentation was the need of all the training centres, but it was available in about 33 per cent of centres. Out of the centres having this facility, 40 per cent of them rarely used it and 60 per cent used it sometimes. In order to make the INSET effective, all the training centres should have the facility for power-point presentation and the RPs should be trained for frequent use of power-point. The position of the internet facility was almost the same. Immediate attention needs to be given to its availability along with the facility of power-point presentation.

Television facility was available in one-fourth of the training centres. Here also, one-third of the centres, having this facility, rarely used it for training and 40 per cent of the centres used it sometimes. Television facility should be made available in all the centres and RPs should be trained for its frequent use to make their sessions alive.

VCP/VCR/Projector facility, Video CDs and DVD facility were available only in one fourth of the training centres and was being used sometimes during the training. The facilities need to be made available in all the training centres and RPs will have to be thoroughly trained for their proper use.

Dictionary was available in 70 per cent of the training centres. Teachers needed to use the dictionary in all the centres. In more than 40 per cent of the centres, where dictionary was available, teachers used it sometimes. Dictionary should be available in all the training centres and the teachers should be trained to use it frequently so that they train the students as and when required.

Science and Mathematics kits were available in more than 60 per cent of the training centres and need to be used in all the training centres. However, they were being used frequently in less than 25 per cent of the centres. Almost, at 30 per cent of the centres, the kits were used rarely and at 45 to 50 per cent of the centres, the kits were used sometimes.

Globes were available in more than 70 per cent of the training centres and were needed for use in all centres. However, globe was used in more than 60 per cent centres sometimes and 20 per cent of the centres rarely. Maps/Charts were available in more than 85 per cent of the training

centres. Use of maps/charts was frequent in almost one-third of the centres and sometimes in 42 per cent of the centres.

This aspect needs to be taken into account for selecting the location for training. The SPD should have a reasonably equipped training centre with adequate space and suitable furniture. If an existing institution is to be selected for use as training centre, criteria for selecting should be spelt out. The criteria should be based on the ease of reaching it, sufficient space for seating and group work, flexible furniture for seating and writing support, well equipped library ICT and conventional learning teaching aids, electricity supply with alternative arrangement in case of power failure, safe drinking water, toilet facilities separate for women, display facilities etc.

It seems that the potential of the human resources could not be mobilised and used fully to realise the stipulated INSET objectives. To that extent effectiveness of INSET remained limited. The SPD needs to pay attention to the preparation of the human resources in order to raise the quality of training.

The issue concerning human resources emerging from the situational analysis based on field notes, direct information from the course coordinators, resource persons, cluster resource coordinators and teachers was as follows:

**Dual responsibilities of BEO and BRC coordinators:** The dual responsibilities are based on the assumption of organising block training during vacations. The policy makers at the State level feel that persons exclusive for this work are not required. The assumption seems fragile as the responsibility of the training coordinator also includes training needs assessment, school visits to collect feedback and providing support to teachers in classroom transaction process, visits to CRCs and attending CRC monthly meetings, preparation for the next year's INSET, attending training for managing training programmes, selecting and orienting resource persons, facilitating development of the local specific materials for the training, timely distribution of the material before the training is launched, managing boarding and lodging, etc. Obviously, BRC coordinators' job is not part time. The SPDs should systematically study the workload of the BEO and examine whether the left-over time from the normal administrative responsibility is sufficient for organising INSET. The field experience shows that it is not. States like Haryana tried to overcome the problem through outsourcing training which turned out to be questionable in the way it was implemented by the hired agencies. The State needs to take a policy decision to correct the distortion due to dual responsibilities. CRC coordinators in most States have dual responsibilities since they are teachers of schools where CRC is located. With teaching and school management load, it is difficult to perform CRC coordinators, role in extending support in schools and organising follow on training through monthly meetings.

Lack of training of human resources included in this section was conspicuous. The training packages provided no guidelines for the RPs to transact the material. The package was not made available to the RPs before the training. Training manual was not available. There was no meeting of the RPs involved before the training to develop a common vision of what would be achieved through complete transaction of the package. Taking training transaction with on-the-spot handing over of the module and not the entire package created problems for RPs. They glanced through it in haste just before its transaction. It remained an isolated act affecting the quality of transaction adversely. The result was that one-third of the RPs expressed difficulty to understand some of the modules and this multiplied in the case of teachers evident from the fact that almost half of them found difficulty in understanding some of the modules. This aspect needs serious consideration of the SPD. In addition to improving the quality of the training package, the TCs and RPs need to be provided the training package ahead of the course, develop a shared vision of training transaction, if needed, provide training

especially if it is focused on NCF 2005 curriculum transaction. This is bound to improve the quality of training.

As reported earlier in this chapter, functioning technology based teaching aids were available on a limited scale in a couple of centres in some States. Even where such aids were available those were not used frequently. The reason was that most of the RPs did not have the skills to use them. The SPD need to include this requirement also in the criteria for the selection of the RPs. In case sufficient numbers of RPs are not available in some core training areas, a programme for capacity development should be undertaken. If an orientation programme for RP is organised it may be extended by a day or two for developing essential skills relating to relevant aids for immediate use. No time should be lost in this area of capacity building activity. Another way is to sponsor some lead RPs and master trainers to undergo such training, if available in the neighbourhood.

# 4 Impact of Training on Teachers

In the preceding chapter on 'quality of INSET', the infrastructure, physical facilities and the analysis of the training package in the light of the guidelines provided in the SSA Framework 2008 were discussed. In the present chapter, the impacts of training on teachers were discussed in four sections. Section one presents results of the achievement of teachers on the content of the training package before and after the training. Section two presents perception of teachers who attended the block training. Section three deals with classroom practice of teachers of the experimental and control groups who attended the training and teachers who did not attend training organised in 2010-11. Section four deals with transfer of training gains of teachers to classroom practice.

## SECTION ONE : TEACHERS' ACHIEVEMENT IN THE TRAINING CONTENT

In this section an attempt has been made to present the results of the assessment of the impact of INSET on teachers who had undergone the training under SSA. For this purpose it was initially planned to compare the achievement scores of trained teachers using pre-test and post-test design, that is, comparison of achievement scores before the start of the training and after the completion of training. It was, however, discovered at the time of data collection that training of teachers had already been completed in states of Andhra Pradesh, Chhattisgarh, Jammu and Kashmir, Madhya Pradesh, Rajasthan and Uttar Pradesh. Therefore, in these states it was not feasible to apply pre-test and post-test design. Therefore, it was decided to compare the achievement scores of teachers trained in the year 2010-11 with the scores of those teachers who had not undergone such training in the same year. In Maharashtra, pre-test and post-test were administered on primary and upper primary teachers to find the impact of *Jeewan Vidhya* training in terms of change in their thinking on the quality of life. In the state of Jammu and Kashmir, single shot post-test design was employed since groups without training were not available.

Therefore, pre-test-post-test design was adopted in the remaining seven states included in the sample of the study. In the state of Jammu and Kashmir, single shot post-test design was employed since groups without training were not available.

The impact of INSET in terms of achievement of teachers in the content of training in different States using the above mentioned designs is discussed below for primary and upper primary teachers separately.

### Primary Teachers

#### *Pre-test and Post-test Design*

In order to obtain mean achievement scores of teachers in different subjects before and after training, the tests were administered on the first day of the commencement of training (pre-test)

and on the last day of the training (post-test). The same test was used on both occasions. Tests were prepared by the states because different training packages were used by the states and a common test would not have served the purpose. In each state, test included multiple choice questions based on the topics covered in the training package. The maximum score of the test varied from 20 in West Bengal (English and Science subjects) to 100 in Haryana. As stated in Chapter 3, the training package included general and subject specific topics in all states. After administering the tests, two sets of achievement scores were obtained, which were then compared using paired *t*-test. Mean difference scores and *t*-values for the seven States are given in Table 4.1.

Table 4.1 reveals that the *t*-values in respect of difference in mean scores are significant at .01 level of significance in Bihar, Gujarat, Haryana (EDUCOMP solutions), Meghalaya, Nagaland, Odisha (Mathematics and Science) and West Bengal (English, Mathematics and Science). It indicates that the teachers benefited from the block training during the session 2010-11. In the case of teachers who received training through New Horizon agency in Haryana, *t*-value was not found significant even at .05 levels which implies that teachers did not benefit from the in-service training conducted by the Agency. It may be worthwhile to mention here that the post-test was administered on the last day of the training programme in the seven states. In other words, there was not a sufficient gap between the training and the administration of achievement test based on the training modules administered on them.

### *Trained and Untrained Teachers*

As stated earlier, due to completion of training at the time of data collection in some states, the same achievement test was given to teachers who had received the training and to the teachers who had not undergone training in the year 2010-11. The *t*-values were computed by using the formula meant for two independent random samples. Table 4.2 gives the mean achievement scores and standard deviations for both trained and untrained teachers along with *t*-values for different States.

Table 4.1
**Mean Difference Achievement Scores and t-values of Primary Teachers**

| State | Subject | Sample size | Maximum score | Mean difference score | Degrees of freedom | *t*-value |
|---|---|---|---|---|---|---|
| Bihar | General topics | 254 | 30 | 8.64 | 253 | 24.37** |
| Gujarat | General Subject | 446 | 30 | 1.24 | 445 | 6.74** |
| Haryana *(Educomp)* | General topics | 210 | 100 | 13.60 | 209 | 12.04** |
| *(New Horizon)* | General topics | 220 | 100 | 0.55 | 219 | 0.60 |
| Meghalaya | General topics | 351 | 50 | 3.21 | 350 | 10.23** |
| Nagaland | General topics | 178 | 75 | 6.94 | 177 | 8.97** |
| Odisha | Maths | 229 | 30 | 5.47 | 228 | 20.76** |
| | Science | 155 | 30 | 4.02 | 154 | 9.07** |
| West Bengal | English | 222 | 20 | 0.77 | 221 | 5.01** |
| | Maths | 156 | 30 | 1.44 | 155 | 6.43** |
| | Science | 97 | 20 | 2.86 | 96 | 8.76** |

**significant at 0.01 level

Table 4.2
**Mean Achievement Scores, Standard Deviations of Trained and Untrained Teachers and t-values**

| State | Subject | Sample size | Maximum score | Mean difference score | SD | Degrees of freedom | t-value |
|---|---|---|---|---|---|---|---|
| Andhra Pradesh | Trained | 390 | 60 | 37.97 | 6.33 | 484 | 8.26** |
| | Untrained | 96 | | 31.53 | 6.65 | | |
| Chhattisgarh | Trained | 325 | 100 | 67.07 | 25.26 | 353 | 7.39** |
| (English) | Untrained | 30 | | 31.67 | 23.16 | | |
| Chhattisgarh | Trained | 574 | 100 | 70.70 | 13.99 | 605 | -0.44 |
| (Mathematics) | Untrained | 33 | | 71.82 | 19.92 | | |
| Chhattisgarh | Trained | 41 | 100 | 79.30 | 14.64 | 58 | 5.71** |
| (General) | Untrained | 19 | | 45.37 | 23.77 | | |
| Madhya Pradesh | Trained | 180 | 50 | 26.99 | 7.49 | 262 | 7.31** |
| | Untrained | 84 | | 20.25 | 5.73 | | |
| Rajasthan | Trained | 252 | 30 | 16.43 | 2.80 | 473 | 19.09** |
| | Untrained | 223 | | 11.24 | 3.09 | | |
| Tamil Nadu | Trained | 89 | 122 | 89.36 | 25.75 | 186 | 2.43* |
| | Untrained | 99 | | 80.96 | 22.28 | | |
| Uttar Pradesh | Trained | 259 | 60 | 38.62 | 7.20 | 312 | 1.50 |
| | Untrained | 55 | | 37.03 | 6.93 | | |

Trained Teachers are those who received training during 2010-11
Untrained Teachers are those who did not receive training during 2010-11
*Significant at 0.05 level . ** Significant at 0.01 level

The above table reveals value of *t* at .01 level of significance in respect of the states of Andhra Pradesh, Chhattisgarh (in English and General topics but not in Mathematics), Madhya Pradesh and Rajasthan. It implies that teachers gained significantly from the training in these states. In the case of Tamil Nadu, t-value is significant at .05 level indicating gains in achievement of teachers. In Uttar Pradesh, significant difference has not been found in the achievement of teachers with and without training. One of the possible reasons may be a longer gap between the training and the administration of achievement test. Another possible reason could be the participation of untrained teachers in the training in previous years on the same or similar content.

### *Post-test Design*

In Jammu and Kashmir, achievement test based on the training modules made available to teachers was given to 192 trained primary teachers after completion of the training. This test contained 20 multiple choice items with score of 1 each. Table 4.3 shows the distribution of teachers according to marks obtained by them in the achievement test.

Table 4.3
**Distribution of Teachers According to Achievement Scores Obtained by them**

| | Number of teachers and marks secured | | |
|---|---|---|---|
| Below 60% | 60 to 75% | Above 75% | Total |
| 123 (64.06) | 50 (26.04) | 19 (9.90) | 192 (100.00) |

Figures within parentheses indicate percentages.

It is observed from the above table that only 9.90 per cent teacher's secured more than 75 per cent marks, 26.04 per cent teachers obtained marks between 60 and 75 per cent. 64.06 per cent of teachers secured less than 60 per cent marks in the achievement test. The results are indicative of partial learning of the training content.

## Upper Primary Teachers

### *Pre-test and Post-test Design*

As stated earlier in the beginning of this section, pre-test and post-test design was used in seven states to examine the impact of INSET on trained teachers. Tests were given to teachers on the first day of the commencement of training programme (pre-test) and on the last day of the training (post-test). The same test was used on both occasions. Tests prepared by respective states included multiple choice questions based on the topics covered in the training package. The maximum score of the test varied from 20 in West Bengal to 100 in Haryana. As stated in Chapter 3, the training package included general and subject specific topics. After administering these tests on teachers, two sets of achievement scores were obtained, which were then compared using paired *t*-test. Mean difference scores and *t*-values for the seven states are presented in Table 4.4

Table 4.4 reveals that the t-values are significant at .01 level in both Mathematics and Science in Bihar and Odisha and in the general and subject training in Nagaland, Gujarat and Haryana. In the case of West Bengal, mean difference scores are significant in respect of the training on disaster management (at 0.01 level), traffic rules (0.01 level) and NCF-2005 (0.05 level). The result indicates that the teachers benefited from the training they received during the session 2010-11. However, in the case of training on Evaluation in West Bengal, the t-value is not significant even at .05 level which implies that there is no evidence of teachers benefited from the in-service training in this programme. It may be worthwhile to mention here that the post-test was administered on the last day of the training. In other words there was not sufficient gap between the training and the administration of the achievement test based on the training modules administered on them.

In Maharashtra the impact of Jeewan Vidhya training on primary and upper primary teachers together in terms of change in their thoughts on quality of life was studied. For this purpose, an inventory of statements regarding the content of

Table 4.4
**Mean Difference Achievement Scores and t - values of Upper Primary Teachers**

| State | Subject | Sample size | Maximum score | Mean difference score | Degrees of freedom | *t*-value |
|---|---|---|---|---|---|---|
| Bihar | Mathematics | 132 | 30 | 4.80 | 131 | 10.76** |
| | Science | 132 | 30 | 5.88 | 131 | 15.65** |
| Gujarat | General + Subject | 207 | 30 | 1.09 | 206 | 3.93** |
| Haryana *(Educomp)* | General | 107 | 100 | 11.07 | 106 | 6.84** |
| *(New Horizon)* | General | 91 | 100 | 8.63 | 90 | 6.90** |
| Meghalaya | General + Subject | 189 | 50 | 1.37 | 188 | 3.94** |
| Nagaland | General + Subject | 121 | 75 | 7.07 | 120 | 9.23** |
| Odisha | Mathematics | 67 | 30 | 3.65 | 66 | 9.68** |
| | Science | 139 | 30 | 3.76 | 138 | 7.31** |
| West Bengal | Disaster Management | 530 | 20 | 1.56 | 529 | 9.87** |
| | Traffic Rules | 140 | 25 | 3.07 | 139 | 8.58** |
| | NCF - 2005 | 207 | 20 | 0.52 | 206 | 2.13* |
| | Evaluation | 212 | 20 | - 0.34 | 211 | -1.66 |

*Significant at 0.05 level . ** Significant at 0.01 level

the training was developed by the State study team. It consisted of three parts—views of teachers before the training, their views after the training and what they propose to do after the training. It aimed at ascertaining the change in behaviour on the basis of the understanding of Jeewan Vidhya. The inventory contained 35 statements on four major areas, namely, *vyaktigat* (individual), *shikshak ke rup me* (as a teacher), *parivar ke rup me* (as a member of family), and *samaj avam shiksha vyavastha* (society and education system).

The inventory was filled by 216 teachers on the first day as well as on the last day of the training. Their responses were compared to find out if some change had occurred in their thoughts. It is interesting to note that all the 216 teachers changed their perception relating to 'aim of life'. On the contrary, minimum number of teachers (190) changed their perception relating to 'government and system'. Although, change was noticed in the perception of about 88 per cent teachers on all the items, major change was noticed in understanding about meaningful living, teaching and employment, attitude towards children and meeting needs of the family.

Qualitative analysis of teachers' responses received before and after the training on the value-based Jeewan Vidhya training also revealed either a change in the quality of responses or addition to the repertoire of awareness and knowledge about Jeewan Vidhya. For example, the teachers expressed preference for 'respect for parents' before the training but after the training, it changed to 'respect for all'; 'self respect' changed to 'self-realisation'. 'Dedicating life to others' good' was an addition. 'material possession' was qualified with 'contentment' after the training. After training, 'social dimensions relating to others,' was a positive change. 'Search for happiness' through meaningful living was also a welcome change. 'problem-solving' as a means for improving the quality of life was a substantive addition. 'Hard work' as an instrument of self-improvement and improvement in others' life was a qualitative change.

In the value based training of Jeewan Vidhya, awareness about the values mentioned above increased among teachers. This is, however, the first level of value development. The training of 7 to 9 days did create awareness about the values for meaningful living. They need follow on training for the acquisition of higher level of learning values.

### *Trained and Untrained Teachers*

As stated earlier, due to completion of training at the time of data collection in some States, same achievement test was given to teachers who had received the training and to the teachers who had not undergone training in the year 2010-11. The *t*-values were computed by using the formula meant for two independent random samples. Table 4.5 gives the mean achievement scores and standard deviations for both trained and untrained teachers alongwith *t*-values for different states.

Table 4.5 shows that the t-value is significant at level of significance in respect of the states of Andhra Pradesh, Chhattisgarh (in all the four subjects) and Rajasthan. It means the teachers gained significantly from the training. In the states of Tamil Nadu and Uttar Pradesh, no significant difference was found between the achievement of the trained and untrained teachers even at .05 level. The reason for negative *t*-value in the case of Tamil Nadu might be the teachers' participation in the ALM training during the last two years. One of the possible reasons for Uttar Pradesh may be a longer gap between the training and administration of the test. Another possible reason could be the participation of untrained teachers in the training in the previous year on the same or similar content.

### *Post-test Design*

In Jammu and Kashmir, achievement test based on the training modules or training inputs made available to the trained upper primary teachers was given to 294 teachers. This test contained 20

Table 4.5
**Mean Achievement Scores, Standard Deviations of Trained and Untrained Teachers and t-values**

| State | Subject | Sample size | Maximum score | Mean difference score | SD | Degrees of freedom | t-value |
|---|---|---|---|---|---|---|---|
| Andhra Pradesh | Trained | 246 | 60 | 36.92 | 9.03 | 256 | 6.98** |
| | Untrained | 12 | | 18.50 | 6.36 | | |
| Chhattisgarh | Trained | 143 | 100 | 63.64 | 12.92 | 162 | 8.76** |
| (English) | Untrained | 21 | | 38.10 | 8.73 | | |
| Chhattisgarh | Trained | 114 | 100 | 84.20 | 13.99 | 129 | 11.23** |
| (Mathematics) | Untrained | 17 | | 40.82 | 19.92 | | |
| Chhattisgarh | Trained | 112 | 100 | 85.93 | 15.40 | 125 | 8.01** |
| (Science) | Untrained | 15 | | 53.13 | 10.18 | | |
| Chhattisgarh | Trained | 171 | 100 | 73.60 | 17.31 | 199 | 12.38** |
| (General) | Untrained | 30 | | 33.63 | 8.36 | | |
| Rajasthan | Trained | 120 | 30 | 19.26 | 4.90 | 210 | 4.34** |
| | Untrained | 92 | | 16.57 | 4.12 | | |
| Tamil Nadu | Trained | 64 | 86 | 62.53 | 17.93 | 86 | -0.38 |
| | Untrained | 24 | | 64.08 | 13.89 | | |
| Uttar Pradesh | Trained | 193 | 62 | 12.76 | 4.50 | 241 | 0.84 |
| | Untrained | 50 | | 12.17 | 4.06 | | |

** Significant at 0.01 level

multiple choice items of 1 mark each. Table 4.6 shows the distribution of teachers according to marks obtained by them in achievement test.

Table 4.6
**Distribution of Teachers According to Achievement Scores Obtained by them**

| | Number of teachers and marks secured | | |
|---|---|---|---|
| Below 60% | 60 to 75% | Above 75% | Total |
| 182(61.90) | 76 (25.85) | 36 (12.25) | 294 (100.00) |

*Figures within parentheses indicate percentages.*

It is observed from the above table that only 12.25 per cent of teachers secured more than 75 per cent marks, 25-85 per cent teachers obtained marks between 60 and 75 per cent and about 62 per cent of teachers secured less than 60 per cent marks in the achievement test. The results are indicative of partial learning of the training content.

Despite the limitation of post-test administered immediately after training or on parallel groups of teachers with or without training, there is evidence of gain in achievement scores of the trained group of teachers. This is indicative of the improvement in teachers' knowledge in most of the States, which is indeed the first stage of impact of training.

## SECTION TWO : TEACHERS' PERCEPTION

The normative data and its descriptive analysis of perception of teachers are presented in this section. An important indicator of the impact of training on teachers is to ascertain how they perceived its component dimensions. The learning achievement of the teachers is reflected in their perceptions of the training transaction that is profiled in the next session. It is a step ahead of the achievement gain scores presented in the preceding section. The background characteristics of the teachers such as their age, sex, academic and professional qualifications, etc. have been covered in Chapter 3

in the section on human resources. The perceptions of the teachers about different components of training are presented in this section. The perception parameters correspond to the component items in the observation tool. In addition, discussion covers relevance of the training to teachers' needs; the training package content covered, its nature, presentation, comprehensibility of the language, examples, illustrations; suggested learning aids and technology support for curriculum transaction; evaluation procedures and assignments and the aspects of learning of new skills and innovations that the teachers would use in actual classroom transaction.

### *Relevance of Training to Primary School Teachers*

Table 4.7 provides percentage of primary school teachers indicating the extent to which training was relevant to their needs.

In seven out of fifteen states, more than 50 per cent of the primary school teachers found the training relevant to their needs to a large extent. However percentage of such teachers was the lowest in Madhya Pradesh (26.67%) followed by Haryana (21.03%) and Rajasthan (31.62%). Some teachers from the sampled states felt that the training was 'not relevant at all.' The highest percentage of the teachers who considered training relevant was in Tamil Nadu (82.67%).

Table 4.8 gives percentage of rural and urban upper primary teachers' perception about the relevance of the 2010-11 training to their needs in the sampled States.

Table 4.7 indicates that about half of the rural school teachers considered training relevant to their needs in the states except in the states of Chhattisgarh, Haryana, Odisha and Rajasthan. The lowest percentage was in respect of Rajasthan, followed by Haryana, Chhattisgarh and Odisha. The same trend was visible in urban school teachers. Some teachers did not find the training relevant at all and the percentage of such teachers was the highest in Gujarat followed by Haryana. The training in Haryana focused on general subject areas considered important by the teachers. Supply side was the dominant feature of the training programme. Training needs were

Table 4.7
**Relevance of Training to Primary School Teachers**

| State | Rural | | | Urban | | | Total | | |
|---|---|---|---|---|---|---|---|---|---|
| | To a large extent | To some extent | Not at all | To a large extent | To some extent | Not at all | To a large extent | To some extent | Not at all |
| Andhra Pradesh | 64.19 | 25.68 | 10.14 | 57.45 | 26.60 | 15.96 | 62.56 | 25.90 | 11.54 |
| Bihar | 55.14 | 43.21 | 1.65 | 69.23 | 30.77 | - | 55.86 | 42.58 | 1.56 |
| Chhattisgarh | 25.46 | 71.44 | 3.10 | 28.13 | 71.88 | - | 25.62 | 71.47 | 2.92 |
| Gujarat | 59.01 | 39.51 | 1.48 | 51.22 | 48.78 | - | 58.30 | 40.36 | 1.35 |
| Haryana | 19.75 | 77.25 | 3.00 | 31.91 | 68.09 | - | 21.03 | 76.29 | 2.68 |
| Jammu & Kashmir | 73.68 | 25.56 | 0.75 | 61.02 | 38.98 | - | 69.79 | 29.69 | 0.52 |
| Madhya Pradesh | 17.81 | 76.03 | 6.16 | 46.88 | 48.44 | 4.69 | 26.67 | 67.62 | 5.71 |
| Maharashtra | 50.88 | 44.74 | 4.39 | 82.20 | 17.80 | - | 66.81 | 31.03 | 2.16 |
| Meghalaya | 46.39 | 52.84 | 0.77 | 48.11 | 50.94 | 0.94 | 46.76 | 52.43 | 0.81 |
| Nagaland | 52.98 | 46.36 | 0.66 | - | 9.09 | 90.91 | 43.48 | 39.67 | 16.85 |
| Odisha | 33.55 | 65.81 | 0.65 | 54.10 | 45.90 | - | 39.35 | 60.19 | 0.46 |
| Rajasthan | 29.60 | 67.20 | 3.20 | 54.55 | 45.45 | - | 31.62 | 65.44 | 2.94 |
| Tamil Nadu | 85.58 | 13.02 | 1.40 | 78.75 | 21.25 | - | 82.67 | 16.53 | 0.80 |
| Uttar Pradesh | 63.00 | 35.25 | 1.75 | 62.50 | 37.50 | - | 62.98 | 35.34 | 1.68 |
| West Bengal | 48.39 | 49.00 | 2.60 | 36.40 | 61.40 | 2.19 | 45.29 | 52.21 | 2.50 |

Table 4.8
**Relevance of Training to Upper Primary School Teachers**

| State | Rural | | | Urban | | | Total | | |
|---|---|---|---|---|---|---|---|---|---|
| | To a large extent | To some extent | Not at all | To a large extent | To some extent | Not at all | To a large extent | To some extent | Not at all |
| Andhra Pradesh | 57.53 | 37.63 | 4.84 | 70.00 | 2.17 | 8.33 | 60.57 | 33.74 | 5.69 |
| Bihar | 49.18 | 45.08 | 5.74 | 70.00 | 3.00 | 0 | 50.76 | 43.94 | 5.30 |
| Chhattisgarh | 25.30 | 70.36 | 4.35 | 20.45 | 7.50 | 4.55 | 24.91 | 70.73 | 4.36 |
| Gujarat | 59.42 | 29.95 | 10.63 | 0 | 0 | 0 | 59.42 | 29.95 | 10.63 |
| Haryana | 20.00 | 68.72 | 11.28 | 18.92 | 7.84 | 2.70 | 19.83 | 70.26 | 9.91 |
| Odisha | 39.57 | 60.43 | 0 | 22.73 | 7.73 | 0 | 37.27 | 62.73 | 0 |
| Rajasthan | 16.00 | 76.00 | 8.00 | 23.08 | 7.69 | 0 | 17.46 | 76.19 | 6.35 |
| West Bengal | 71.96 | 27.51 | 0.53 | 37.54 | 6.04 | 2.05 | 49.81 | 48.68 | 1.51 |

not assessed leaving the demand side of training very weak. This is also supported by Vinita Ram Chandran as reported in Times of India, "no one asks teachers what training they want. Somebody else plans and teachers are forced to go. I have interviewed some 1000 teachers and most said the training was irrelevant". (Times of India dated 22.1.2012). A strong message for the SPD who makes large investment in INSET! This needs to be looked into and taken note of while planning for INSET 2011-12.

### *Content Enrichment of Teachers*

The outcome of training in terms of content enrichment is an important dimension of training transaction. Table 4.9 indicates the extent to which the rural and urban primary teachers in different States perceived enrichment in their knowledge of content as a result of training.

The highest percentage of teachers perceiving content enrichment to a 'large extent' was in the States of Gujarat (81%) and Tamil Nadu (77%)

Table 4.9
**Primary Teachers' Perceptions Regarding Enrichment of their Understanding of the Training Content**

| State | Rural | | | Urban | | | Total | | |
|---|---|---|---|---|---|---|---|---|---|
| | To a large extent | To some extent | Not at all | To a large extent | To some extent | Not at all | To a large extent | To some extent | Not at all |
| Andhra Pradesh | 42.57 | 48.99 | 8.45 | 25.53 | 55.32 | 19.15 | 38.46 | 50.51 | 11.03 |
| Bihar | 35.80 | 46.91 | 17.28 | 38.46 | 53.85 | 7.69 | 35.94 | 47.27 | 16.80 |
| Chhattisgarh | 29.04 | 69.51 | 1.45 | 28.13 | 70.31 | 1.56 | 28.99 | 69.55 | 1.46 |
| Gujarat | 81.48 | 16.79 | 1.73 | 56.10 | 43.90 | 0 | 79.15 | 19.28 | 1.57 |
| Haryana | 30.00 | 68.25 | 1.75 | 29.79 | 65.96 | 4.26 | 29.98 | 68.01 | 2.01 |
| Jammu & Kashmir | 47.37 | 51.88 | 0.75 | 50.85 | 49.15 | 0 | 48.44 | 51.04 | 0.52 |
| Madhya Pradesh | 34.25 | 61.64 | 4.11 | 39.06 | 59.38 | 1.56 | 35.71 | 60.95 | 3.33 |
| Maharashtra | 50.88 | 48.25 | 0.88 | 50.85 | 42.37 | 6.78 | 50.86 | 45.26 | 3.88 |
| Meghalaya | 40.72 | 56.44 | 2.84 | 49.06 | 50.00 | 0.94 | 42.51 | 55.06 | 2.43 |
| Nagaland | 51.66 | 46.36 | 1.99 | 54.55 | 45.45 | 0 | 52.17 | 46.20 | 1.63 |
| Odisha | 53.55 | 46.45 | 0 | 49.18 | 50.82 | 0 | 52.31 | 47.69 | 0 |
| Rajasthan | 29.60 | 65.60 | 4.80 | 18.18 | 54.55 | 27.27 | 28.68 | 64.71 | 6.62 |
| Tamil Nadu | 76.74 | 14.42 | 8.84 | 89.38 | 10.63 | 0 | 82.13 | 12.80 | 5.07 |
| Uttar Pradesh | 54.75 | 45.00 | 0.25 | 56.25 | 37.50 | 6.25 | 54.81 | 44.71 | 0.48 |
| West Bengal | 46.40 | 52.68 | 0.92 | 22.81 | 76.75 | 0.44 | 40.30 | 58.91 | 0.79 |

while it was only around 30 per cent in the states of Chhattisgarh, Haryana and Rajasthan. The percentage of teachers who considered training 'not at all relevant' was about 17 per cent in the States of Bihar and 11 per cent in Andhra Pradesh. This implies limited relevance of training in these States. The situation varied in respect of upper primary teachers.

Table 4.10 provides the percentage of rural and urban upper primary school teachers mentioning the extent to which their understanding of the content was enriched as a result of training.

Highest percentage of rural teachers (73%) who perceived enrichment in their understanding of the content to a large extent was in Gujarat (73%), followed by Andhra Pradesh (65%) and West Bengal (54%). The finding is also supported by Yadav (1999). The lowest was in Rajasthan (12%), followed by Chhattisgarh (27%) and Haryana (31%). In urban areas, the percentage hovered around a quarter except in Bihar (70%). The teachers perceiving 'not at all' enrichment was the highest in Andhra Pradesh (25%) followed by Bihar (15%). If the teachers do not learn to the mastery level how can one expect them to teach primary school students to achieve at mastery level, the basic skills which serve as the tool of further learning. To that extent there is an urgency to improve design and follow-up of the INSET, diversify and improve training transaction modality, diversify learning resources, ensure follow-up and in-school support and streamline evaluation and feedback mechanism. SPD and SCERT with professional support from NCERT and its outreach through RIEs must step into improve the design and delivery of INSET.

### *Usefulness of the Learning*

To what extent the learning was useful to the teachers was also examined. Table 4.11 profiles the extent of usefulness of the learning during the training of the rural and urban primary school teachers in different states sampled for the study.

Overall, almost half of the teachers reported training as the most useful except in the states of Haryana, Chhattisgarh and Madhya Pradesh. The percentage of rural primary school teachers considered the extent of usefulness of the learning lower than what was reported for content enrichment. This was also reinforced by percentage of such teachers who considered learning least useful in most of the states. In the case of urban school teachers the percentage in this category was higher in most of the states. Table 4.12 provides percentages of rural and urban upper primary school teachers receiving INSET 2010-11 in different States.

Table 4.10
**Upper Primary Teachers' Perception Regarding the Enrichment of their Understanding of Content Covered in Training**

| State | Rural | | | Urban | | | Total | | |
|---|---|---|---|---|---|---|---|---|---|
| | To a large extent | To some extent | Not at all | To a large extent | To some extent | Not at all | To a large extent | To some extent | Not at all |
| Andhra Pradesh | 64.52 | 22.58 | 12.90 | 16.67 | 20.00 | 63.33 | 52.85 | 21.95 | 25.20 |
| Bihar | 39.34 | 45.90 | 14.75 | 70.00 | 0 | 30.00 | 41.67 | 42.42 | 15.91 |
| Chhattisgarh | 27.27 | 71.15 | 1.58 | 27.27 | 72.73 | 0 | 27.27 | 71.27 | 1.45 |
| Gujarat | 72.95 | 26.57 | 0.48 | 0 | 0 | 0 | 72.95 | 26.57 | 0.48 |
| Haryana | 30.77 | 67.69 | 1.54 | 24.32 | 70.27 | 5.41 | 29.74 | 68.10 | 2.16 |
| Odisha | 49.64 | 50.36 | 0 | 18.18 | 81.82 | 0 | 45.34 | 54.66 | 0 |
| Rajasthan | 12.00 | 88.00 | 0 | 23.08 | 76.92 | 0 | 14.29 | 85.71 | 0 |
| West Bengal | 53.97 | 43.92 | 2.12 | 37.54 | 61.88 | 0.59 | 43.40 | 55.47 | 1.13 |

Table 4.11
**Extent of Usefulness of Training to Primary School Teachers**

| State | Rural | | | Urban | | | Total | | |
|---|---|---|---|---|---|---|---|---|---|
| | Least useful | Useful to some extent | Most useful | Least useful | Useful to some extent | Most useful | Least useful | Useful to some extent | Most useful |
| Andhra Pradesh | 39.19 | 41.89 | 18.92 | 26.60 | 41.49 | 31.91 | 36.15 | 41.79 | 22.05 |
| Bihar | 4.12 | 48.97 | 46.91 | 7.69 | 23.08 | 69.23 | 4.30 | 47.66 | 48.05 |
| Chhattisgarh | 10.26 | 67.09 | 22.65 | 7.81 | 71.88 | 20.31 | 10.12 | 67.37 | 22.52 |
| Gujarat | 12.35 | 34.57 | 53.09 | 0 | 36.59 | 63.41 | 11.21 | 34.75 | 54.04 |
| Haryana | 5.50 | 75.25 | 19.25 | 0 | 85.11 | 14.89 | 4.92 | 76.29 | 18.79 |
| Jammu & Kashmir | 0.75 | 25.56 | 73.68 | 0 | 38.98 | 61.02 | 0.52 | 29.69 | 69.79 |
| Madhya Pradesh | 20.55 | 58.22 | 21.23 | 20.31 | 54.69 | 25.00 | 20.48 | 57.14 | 22.38 |
| Maharashtra | 24.56 | 33.33 | 42.11 | 2.54 | 29.66 | 67.80 | 13.36 | 31.47 | 55.17 |
| Meghalaya | 7.22 | 36.86 | 55.93 | 4.72 | 33.02 | 62.26 | 6.68 | 36.03 | 57.29 |
| Nagaland | 4.64 | 47.68 | 47.68 | 6.06 | 51.52 | 42.42 | 4.89 | 48.37 | 46.74 |
| Odisha | 3.87 | 49.03 | 47.10 | 22.95 | 59.02 | 18.03 | 9.26 | 51.85 | 38.89 |
| Rajasthan | 7.20 | 42.40 | 50.40 | 9.09 | 54.55 | 36.36 | 7.35 | 43.38 | 49.26 |
| Tamil Nadu | 24.19 | 26.98 | 48.84 | 6.25 | 65.63 | 28.13 | 16.53 | 43.47 | 40.00 |
| Uttar Pradesh | 9.75 | 59.25 | 31.00 | 18.75 | 56.25 | 25.00 | 10.10 | 59.13 | 30.77 |
| West Bengal | 17.76 | 52.68 | 29.56 | 16.67 | 65.79 | 17.54 | 17.48 | 56.07 | 26.45 |

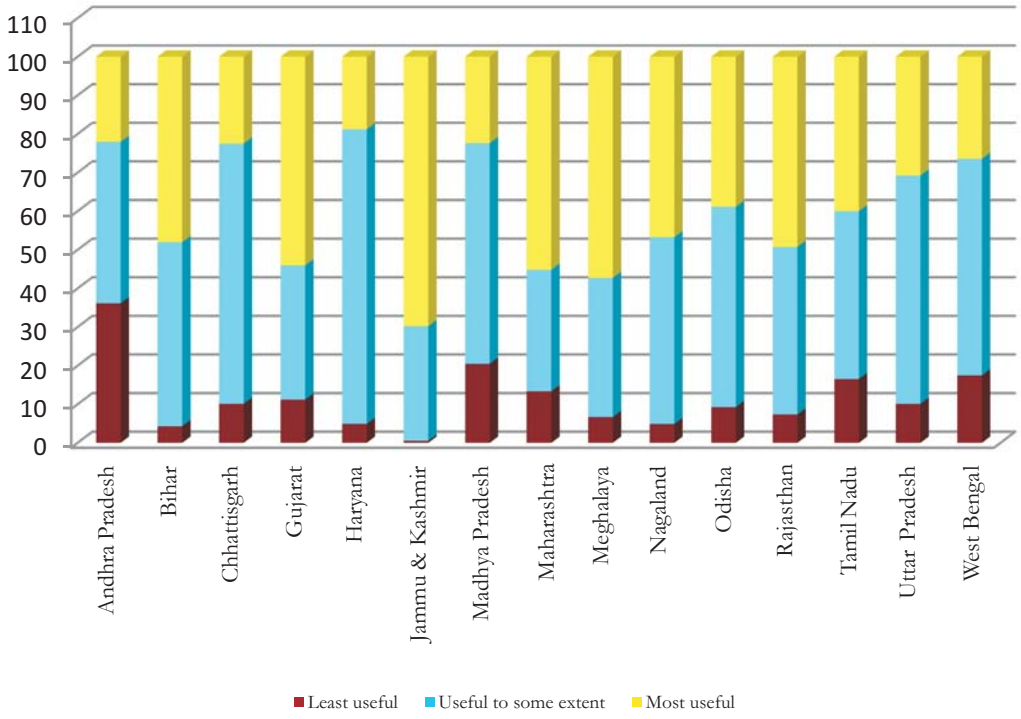


**Figure 4.1 :** Usefulness of Training to Primary School Teachers

Table 4.12
**Extent of Usefulness of Training to Upper Primary School Teachers**

| State | Rural | | | Urban | | | Total | | |
|---|---|---|---|---|---|---|---|---|---|
| | Least useful | Useful to some extent | Most useful | Least useful | Useful to some extent | Most useful | Least useful | Useful to some extent | Most useful |
| Andhra Pradesh | 17.20 | 69.89 | 12.90 | 20.00 | 16.67 | 63.33 | 17.89 | 56.91 | 25.20 |
| Bihar | 0.82 | 53.28 | 45.90 | 0 | 10.00 | 90.00 | 0.76 | 50.00 | 49.24 |
| Chhattisgarh | 9.88 | 64.03 | 26.09 | 9.09 | 75.00 | 15.91 | 9.82 | 64.91 | 25.27 |
| Gujarat | 4.35 | 35.75 | 59.90 | 0 | 0 | 0 | 4.35 | 35.75 | 59.90 |
| Haryana | 8.21 | 63.59 | 28.21 | 8.11 | 54.05 | 37.84 | 8.19 | 62.07 | 29.74 |
| Odisha | 7.19 | 43.17 | 49.64 | 9.09 | 77.27 | 13.64 | 7.45 | 47.83 | 44.72 |
| Rajasthan | 2.00 | 66.00 | 32.00 | 7.69 | 38.46 | 53.85 | 3.17 | 60.32 | 36.51 |
| West Bengal | 23.28 | 40.21 | 36.51 | 15.84 | 47.21 | 36.95 | 18.49 | 44.72 | 36.79 |

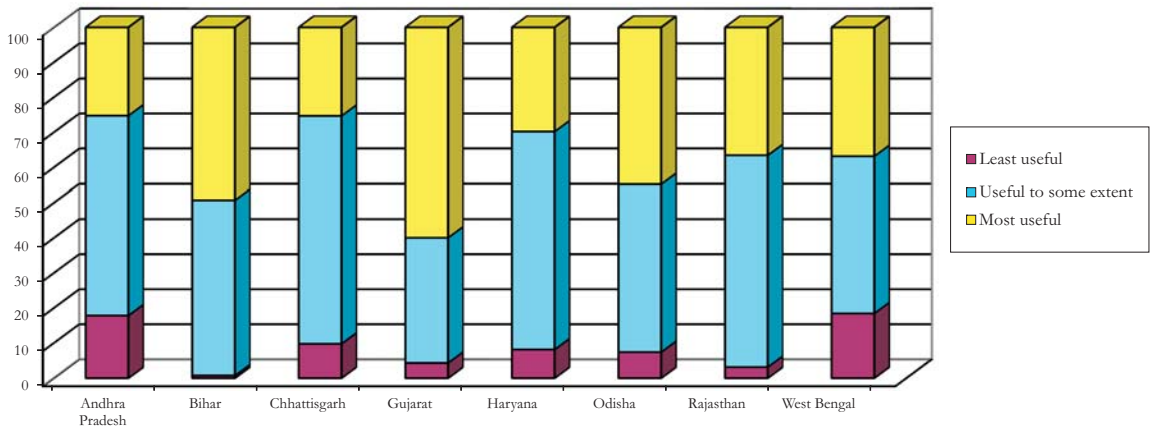


**Figure 4.2 :** Usefulness of Training to Upper Primary School Teachers

The learning was found to be most useful by less than half of the rural school teachers in all States except Gujarat where the percentage of such teachers was 60 per cent, followed by Odisha (50%). The figures were the lowest in Chhattisgarh and Haryana. Overall one in ten teachers found it least useful with the highest percentage in this category being 17 in Andhra Pradesh. In urban areas the trend was similar at the upper primary stage except in Bihar which had high percentage of 90 and Andhra Pradesh with 63 per cent. The predominant percentage in the least useful category limits chances of using learning during training in classroom transaction. This might also be an attitudinal problem that needs to be addressed by improving emotional intelligence in training and adequate follow-up in school.

### *Improvement of Different Aspects of Teaching*

In Table 4.13 and 4.14 the extent of usefulness of training for improving classroom transaction was reported by the rural and urban primary school teachers on a three point scale in respect of such behaviours as interactive process, explaining better, and responsiveness to children with learning difficulties, giving appropriate home assignment, testing students and using feedback for improving teaching.

Table 4.13(a)

**Primary School Teachers Reporting Improvement in Teaching**

| State | Rural | | | | | | Urban | | | | | | Total | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Interactive in the class | | | Explaining some topics in a better way | | | Interactive in the class | | | Explaining some topics in a better way | | | Interactive in the class | | | Explaining some topics in a better way | | |
| | Least useful | Useful to some extent | Most useful | Least useful | Useful to some extent | Most useful | Least useful | Useful to some extent | Most useful | Least useful | Useful to some extent | Most useful | Least useful | Useful to some extent | Most useful | Least useful | Useful to some extent | Most useful |
| Andhra Pradesh | 37.84 | 45.27 | 16.89 | 31.76 | 51.35 | 16.89 | 27.66 | 57.45 | 14.89 | 19.15 | 55.32 | 25.53 | 35.38 | 48.21 | 16.41 | 28.72 | 52.31 | 18.97 |
| Bihar | 0.82 | 24.28 | 74.90 | 1.23 | 31.69 | 67.08 | 0 | 30.77 | 69.23 | 0 | 46.15 | 53.85 | 0.78 | 24.61 | 74.61 | 1.17 | 32.42 | 66.41 |
| Chhattisgarh | 6.00 | 61.67 | 32.33 | 5.91 | 61.47 | 32.62 | 4.69 | 68.75 | 26.56 | 1.56 | 70.31 | 28.13 | 5.93 | 62.08 | 32.00 | 5.65 | 61.99 | 32.36 |
| Gujarat | 6.17 | 42.47 | 51.36 | 7.65 | 20.25 | 72.10 | 4.88 | 36.59 | 58.54 | 0 | 56.10 | 43.90 | 6.05 | 41.93 | 52.02 | 6.95 | 23.54 | 69.51 |
| Haryana | 3.00 | 66.50 | 30.50 | 3.75 | 67.00 | 29.25 | 4.26 | 70.21 | 25.53 | 2.13 | 65.96 | 31.91 | 3.13 | 66.89 | 29.98 | 3.58 | 66.89 | 29.53 |
| Jammu & Kashmir | 0.75 | 25.56 | 73.68 | 0.75 | 24.06 | 75.19 | 0 | 37.29 | 62.71 | 0 | 45.76 | 54.24 | 0.52 | 29.17 | 70.31 | 0.52 | 30.73 | 68.75 |
| Madhya Pradesh | 14.38 | 55.48 | 30.14 | 13.01 | 59.59 | 27.40 | 9.38 | 65.63 | 25.00 | 12.50 | 54.69 | 32.81 | 12.86 | 58.57 | 28.57 | 12.86 | 58.10 | 29.05 |
| Maharashtra | 7.02 | 49.12 | 43.86 | 8.77 | 52.63 | 38.60 | 1.69 | 33.05 | 65.25 | 3.39 | 52.54 | 44.07 | 4.31 | 40.95 | 54.74 | 6.03 | 52.59 | 41.38 |
| Meghalaya | 9.79 | 35.05 | 55.15 | 9.79 | 35.82 | 54.38 | 3.77 | 29.25 | 66.98 | 3.77 | 32.08 | 64.15 | 8.50 | 33.81 | 57.69 | 8.50 | 35.02 | 56.48 |
| Nagaland | 1.32 | 31.79 | 66.89 | 1.32 | 49.01 | 49.67 | 0 | 27.27 | 72.73 | 0 | 30.30 | 69.70 | 1.09 | 30.98 | 67.93 | 1.09 | 45.65 | 53.26 |
| Odisha | 0 | 47.74 | 52.26 | 3.23 | 42.58 | 54.19 | 22.95 | 59.02 | 18.03 | 1.64 | 60.66 | 37.70 | 6.48 | 50.93 | 42.59 | 2.78 | 47.69 | 49.54 |
| Rajasthan | 6.40 | 61.60 | 32.00 | 5.60 | 69.60 | 24.80 | 18.18 | 45.45 | 36.36 | 9.09 | 63.64 | 27.27 | 7.35 | 60.29 | 32.35 | 5.88 | 69.12 | 25.00 |
| Tamil Nadu | 35.35 | 44.19 | 20.47 | 11.63 | 69.77 | 18.60 | 8.75 | 75.00 | 16.25 | 15.63 | 70.63 | 13.75 | 24.00 | 57.33 | 18.67 | 13.33 | 70.13 | 16.53 |
| Uttar Pradesh | 8.75 | 54.50 | 36.75 | 8.25 | 54.00 | 37.75 | 12.50 | 75.00 | 12.50 | 12.50 | 56.25 | 31.25 | 8.89 | 55.29 | 35.82 | 8.41 | 54.09 | 37.50 |
| West Bengal | 20.83 | 31.70 | 47.47 | 22.21 | 38.44 | 39.36 | 10.09 | 62.28 | 27.63 | 8.33 | 65.79 | 25.88 | 18.05 | 39.61 | 42.34 | 18.62 | 45.52 | 35.87 |

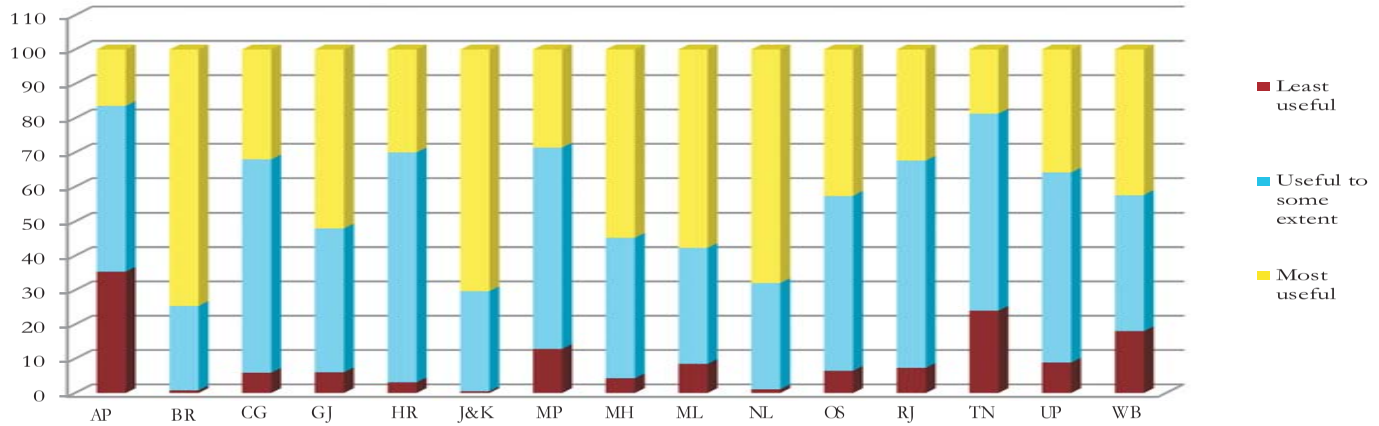


**Figure 4.3 :** Interactive in the Class (Primary)

Table 4.13(b)

**Primary School Teachers Reporting Improvement in Teaching**

| State | Rural | | | | | | Urban | | | | | | Total | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Paying attention to the children with learning difficulties in the class | | | Giving more appropriate assignment and homework to children | | | Paying attention to the children with learning difficulties in the class | | | Giving more appropriate assignment and homework to children | | | Paying attention to the children with learning difficulties in the class | | | Giving more appropriate assignment and homework to children | | |
| | Least useful | Useful to some extent | Most useful | Least useful | Useful to some extent | Most useful | Least useful | Useful to some extent | Most useful | Least useful | Useful to some extent | Most useful | Least useful | Useful to some extent | Most useful | Least useful | Useful to some extent | Most useful |
| Andhra Pradesh | 21.28 | 62.50 | 16.22 | 27.70 | 64.19 | 8.11 | 28.72 | 45.74 | 25.53 | 31.91 | 46.81 | 21.28 | 23.08 | 58.46 | 18.46 | 28.72 | 60.00 | 11.28 |
| Bihar | 1.23 | 33.33 | 65.43 | 59.67 | 20.58 | 19.75 | 0 | 15.38 | 84.62 | 30.77 | 46.15 | 23.08 | 1.17 | 32.42 | 66.41 | 58.20 | 21.88 | 19.92 |
| Chhattisgarh | 5.23 | 60.89 | 33.88 | 4.65 | 56.15 | 39.21 | 1.56 | 64.06 | 34.38 | 1.56 | 68.75 | 29.69 | 5.01 | 61.08 | 33.91 | 4.47 | 56.88 | 38.65 |
| Gujarat | 7.65 | 16.79 | 75.56 | 11.85 | 27.16 | 60.99 | 0 | 31.71 | 68.29 | 2.44 | 26.83 | 70.73 | 6.95 | 18.16 | 74.89 | 10.99 | 27.13 | 61.88 |
| Haryana | 3.00 | 60.50 | 36.50 | 6.25 | 67.75 | 26.00 | 0 | 51.06 | 48.94 | 2.13 | 76.60 | 21.28 | 2.68 | 59.51 | 37.81 | 5.82 | 68.68 | 25.50 |
| Jammu & Kashmir | 50.38 | 25.56 | 24.06 | 2.26 | 59.40 | 38.35 | 33.90 | 40.68 | 25.42 | 3.39 | 57.63 | 38.98 | 45.31 | 30.21 | 24.48 | 2.60 | 58.85 | 38.54 |
| Madhya Pradesh | 19.18 | 52.74 | 28.08 | 17.81 | 56.16 | 26.03 | 23.44 | 54.69 | 21.88 | 10.94 | 57.81 | 31.25 | 20.48 | 53.33 | 26.19 | 15.71 | 56.67 | 27.62 |
| Maharashtra | 12.28 | 49.12 | 38.60 | 14.04 | 55.26 | 30.70 | 1.69 | 45.76 | 52.54 | 3.39 | 50.85 | 45.76 | 6.90 | 47.41 | 45.69 | 8.62 | 53.02 | 38.36 |
| Meghalaya | 15.21 | 32.73 | 52.06 | 17.53 | 48.45 | 34.02 | 3.77 | 31.13 | 65.09 | 13.21 | 46.23 | 40.57 | 12.75 | 32.39 | 54.86 | 16.60 | 47.98 | 35.43 |
| Nagaland | 1.32 | 33.11 | 65.56 | 11.26 | 49.67 | 39.07 | 0 | 21.21 | 78.79 | 6.06 | 51.52 | 42.42 | 1.09 | 30.98 | 67.93 | 10.33 | 50.00 | 39.67 |
| Odisha | 0 | 47.74 | 52.26 | 0 | 52.90 | 47.10 | 0 | 68.85 | 31.15 | 1.64 | 55.74 | 42.62 | 0 | 53.70 | 46.30 | 0.46 | 53.70 | 45.83 |
| Rajasthan | 8.00 | 54.40 | 37.60 | 30.40 | 55.20 | 14.40 | 0 | 54.55 | 45.45 | 27.27 | 63.64 | 9.09 | 7.35 | 54.41 | 38.24 | 30.15 | 55.88 | 13.97 |
| Tamil Nadu | 35.35 | 44.19 | 20.47 | 11.63 | 69.77 | 18.60 | 10.00 | 73.75 | 16.25 | 8.75 | 75.00 | 16.25 | 24.53 | 56.80 | 18.67 | 10.40 | 72.00 | 17.60 |
| Uttar Pradesh | 7.50 | 34.25 | 58.25 | 8.00 | 49.75 | 42.25 | 12.50 | 62.50 | 25.00 | 12.50 | 56.25 | 31.25 | 7.69 | 35.34 | 56.97 | 8.17 | 50.00 | 41.83 |
| West Bengal | 24.81 | 37.83 | 37.37 | 32.16 | 39.20 | 28.64 | 13.60 | 50.88 | 35.53 | 18.86 | 64.47 | 16.67 | 21.91 | 41.20 | 36.89 | 28.72 | 45.74 | 25.54 |

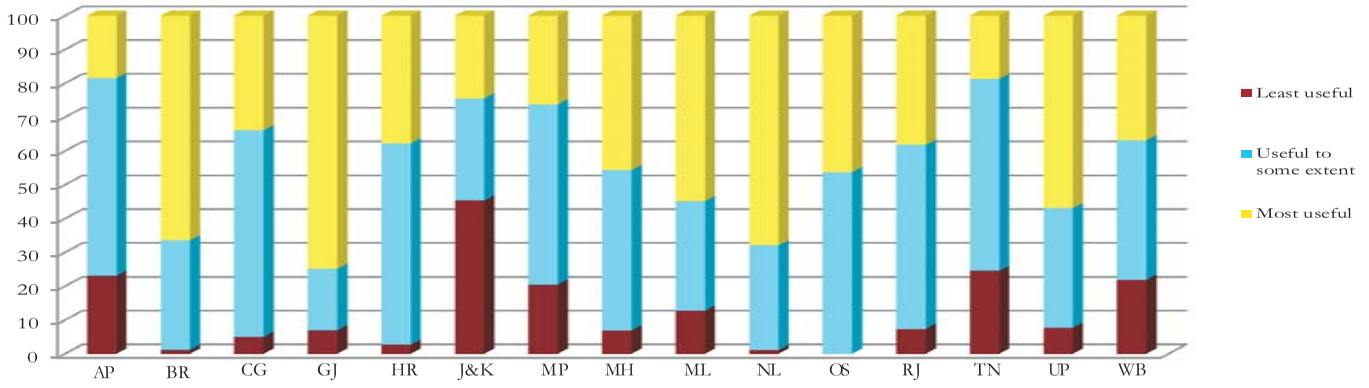


**Figure 4.4 :** Paying Attention to the Children with Learning Difficulties in the Class (Primary)

Table 4.13(c)

**Primary School Teachers Reporting Improvement in Teaching**

| State | Rural | | | Urban | | | Total | | |
|---|---|---|---|---|---|---|---|---|---|
| | Testing students and using results for improvement of teaching | | | Testing students and using results for improvement of teaching | | | Testing students and using results for improvement of teaching | | |
| | Least useful | Useful to some extent | Most useful | Least useful | Useful to some extent | Most useful | Least useful | Useful to some extent | Most useful |
| Andhra Pradesh | 21.96 | 59.12 | 18.92 | 28.72 | 42.55 | 28.72 | 23.59 | 55.13 | 21.28 |
| Bihar | 44.03 | 19.34 | 36.63 | 7.69 | 15.38 | 76.92 | 42.19 | 19.14 | 38.67 |
| Chhattisgarh | 4.94 | 58.37 | 36.69 | 4.69 | 62.50 | 32.81 | 4.92 | 58.61 | 36.46 |
| Gujarat | 6.42 | 23.21 | 70.37 | 0 | 31.71 | 68.29 | 5.83 | 23.99 | 70.18 |
| Haryana | 3.25 | 67.75 | 29.00 | 0 | 70.21 | 29.79 | 2.91 | 68.01 | 29.08 |
| Jammu & Kashmir | 2.26 | 72.93 | 24.81 | 1.69 | 57.63 | 40.68 | 2.08 | 68.23 | 29.69 |
| Madhya Pradesh | 23.29 | 54.11 | 22.60 | 14.06 | 57.81 | 28.13 | 20.48 | 55.24 | 24.29 |
| Maharashtra | 9.65 | 53.51 | 36.84 | 0.85 | 48.31 | 50.85 | 5.17 | 50.86 | 43.97 |
| Meghalaya | 12.37 | 33.25 | 54.38 | 2.83 | 36.79 | 60.38 | 10.32 | 34.01 | 55.67 |
| Nagaland | 5.30 | 45.03 | 49.67 | 0 | 30.30 | 69.70 | 4.35 | 42.39 | 53.26 |
| Odisha | 0.65 | 46.45 | 52.90 | 9.84 | 40.98 | 49.18 | 3.24 | 44.91 | 51.85 |
| Rajasthan | 11.20 | 69.60 | 19.20 | 0 | 63.64 | 36.36 | 10.29 | 69.12 | 20.59 |
| Tamil Nadu | 11.63 | 69.77 | 18.60 | 8.75 | 75.00 | 16.25 | 10.40 | 72.00 | 17.60 |
| Uttar Pradesh | 9.50 | 51.00 | 39.50 | 12.50 | 50.00 | 37.50 | 9.62 | 50.96 | 39.42 |
| West Bengal | 25.11 | 41.35 | 33.54 | 12.72 | 55.26 | 32.02 | 21.91 | 44.95 | 33.14 |

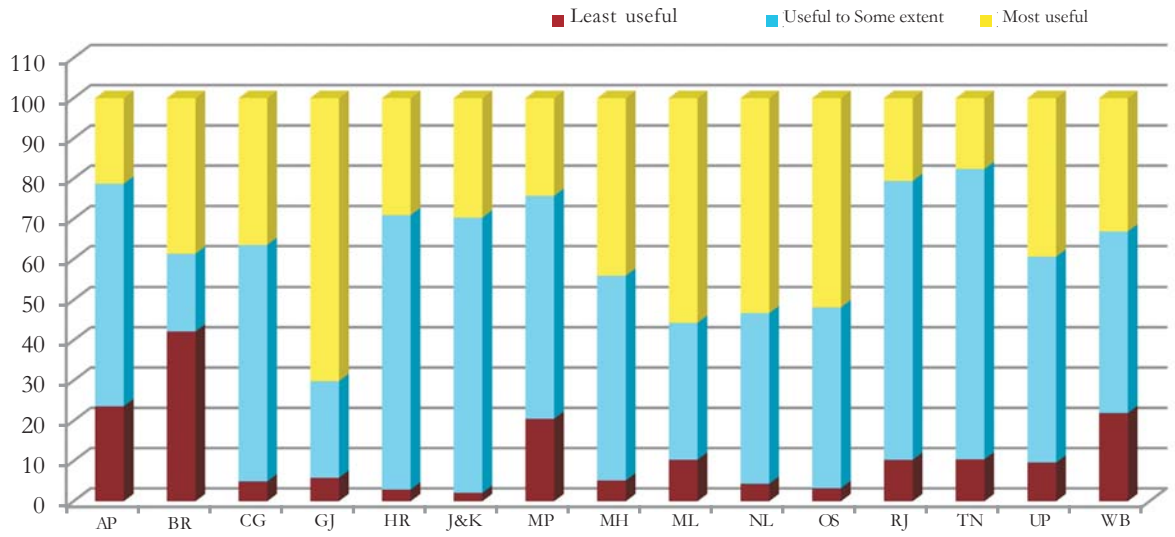


**Figure 4.5 :** Testing Students and Using Results for Improvement of Teaching (Primary)

Table 4.14(a)

**Upper Primary School Teachers Reporting Improvement of Teaching**

| State | Rural | | | | | | Urban | | | | | | Total | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Interactive in the class | | | Explaining some topics in a better way | | | Interactive in the class | | | Explaining some topics in a better way | | | Interactive in the class | | | Explaining some topics in a better way | | |
| | Least useful | Useful to some extent | Most useful | Least useful | Useful to some extent | Most useful | Least useful | Useful to some extent | Most useful | Least useful | Useful to some extent | Most useful | Least useful | Useful to some extent | Most useful | Least useful | Useful to some extent | Most useful |
| Andhra Pradesh | 17.20 | 69.89 | 12.90 | 19.35 | 37.63 | 43.01 | 20.00 | 16.67 | 63.33 | 63.33 | 20.00 | 16.67 | 17.89 | 56.91 | 25.20 | 30.08 | 33.33 | 36.59 |
| Bihar | 0.82 | 49.18 | 50.00 | 1.64 | 28.69 | 69.67 | - | 60.00 | 40.00 | - | - | 100.00 | 0.76 | 50.00 | 49.24 | 1.52 | 26.52 | 71.97 |
| Chhattisgarh | 5.34 | 59.09 | 35.57 | 3.95 | 65.22 | 30.83 | 9.09 | 75.00 | 15.91 | 4.55 | 77.27 | 18.18 | 5.64 | 60.36 | 34.00 | 4.00 | 66.18 | 29.82 |
| Gujarat | 2.42 | 32.85 | 64.73 | 5.80 | 38.65 | 55.56 | 0 | 0 | 0 | 0 | 0 | 0 | 2.42 | 32.85 | 64.73 | 5.80 | 38.65 | 55.56 |
| Haryana | 5.13 | 63.59 | 31.28 | 5.64 | 60.00 | 34.36 | 8.11 | 51.35 | 40.54 | 5.41 | 62.16 | 32.43 | 5.60 | 61.64 | 32.76 | 5.60 | 60.34 | 34.05 |
| Odisha | 2.16 | 39.57 | 58.27 | 0 | 30.94 | 69.06 | 0 | 81.82 | 18.18 | 0 | 72.73 | 27.27 | 1.86 | 45.34 | 52.80 | 0 | 36.65 | 63.35 |
| Rajasthan | 6.00 | 74.00 | 20.00 | 8.00 | 66.00 | 26.00 | 0 | 61.54 | 38.46 | 0 | 84.62 | 15.38 | 4.76 | 71.43 | 23.81 | 6.35 | 69.84 | 23.81 |
| West Bengal | 15.34 | 21.69 | 62.96 | 31.22 | 33.86 | 34.92 | 36.95 | 26.69 | 36.36 | 35.48 | 32.55 | 31.96 | 29.25 | 24.91 | 45.85 | 33.96 | 33.02 | 33.02 |

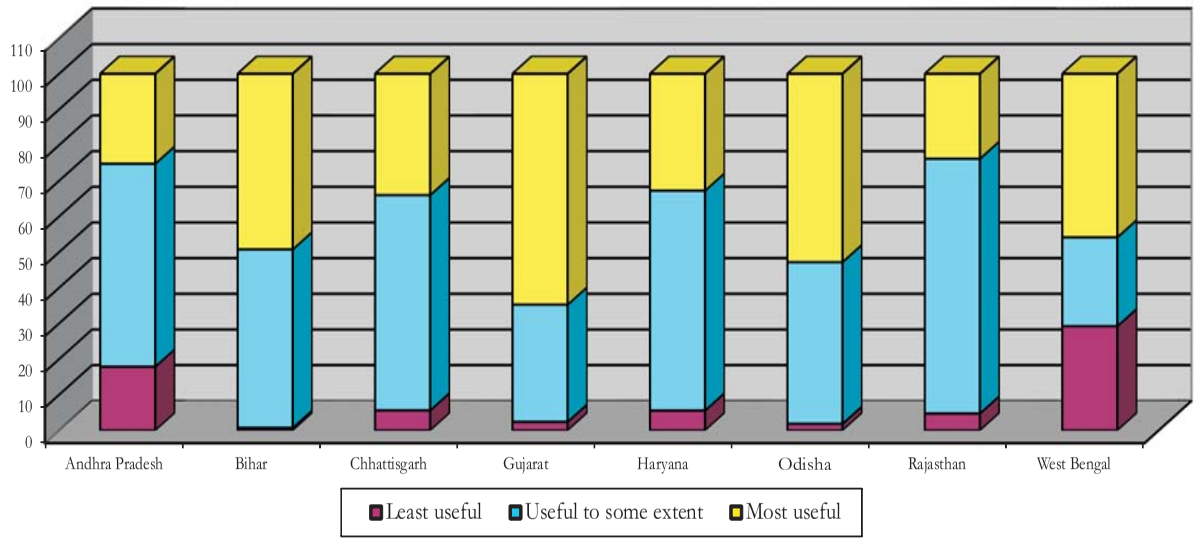


**Figure 4.6 :** Interactive in the Class (Upper Primary)

Table 4.14(b)

**Upper Primary School Teachers Reporting Improvement of Teaching**

| State | Rural | | | | | | Urban | | | | | | Total | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Paying attention to the children with learning difficulties in the class | | | Giving more appropriate assignment and homework to children | | | Paying attention to the children with learning difficulties in the class | | | Giving more appropriate assignment and homework to children | | | Paying attention to the children with learning difficulties in the class | | | Giving more appropriate assignment and homework to children | | |
| | Least useful | Useful to some extent | Most useful | Least useful | Useful to some extent | Most useful | Least useful | Useful to some extent | Most useful | Least useful | Useful to some extent | Most useful | Least useful | Useful to some extent | Most useful | Least useful | Useful to some extent | Most useful |
| Andhra Pradesh | 12.9 | 22.58 | 64.52 | 19.35 | 37.63 | 43.01 | 63.33 | 20 | 16.67 | 63.33 | 20 | 16.67 | 25.2 | 21.95 | 52.85 | 30.08 | 33.33 | 36.59 |
| Bihar | 2.46 | 40.16 | 57.38 | 18.85 | 30.33 | 50.82 | 0 | 100 | 0 | 0 | 100 | 0 | 2.27 | 44.7 | 53.03 | 17.42 | 35.61 | 46.97 |
| Chhattisgarh | 4.15 | 56.52 | 39.33 | 4.35 | 57.91 | 37.75 | 4.55 | 70.45 | 25 | 11.36 | 70.45 | 18.18 | 4.18 | 57.64 | 38.18 | 4.91 | 58.91 | 36.18 |
| Gujarat | 5.31 | 35.27 | 59.42 | 5.8 | 28.5 | 65.7 | 0 | 0 | 0 | 0 | 0 | 0 | 5.31 | 35.27 | 59.42 | 5.8 | 28.5 | 65.7 |
| Haryana | 6.67 | 67.18 | 26.15 | 8.21 | 61.03 | 30.77 | 8.11 | 59.46 | 32.43 | 16.22 | 48.65 | 35.14 | 6.9 | 65.95 | 27.16 | 9.48 | 59.05 | 31.47 |
| Odisha | 2.88 | 45.32 | 51.8 | 0.72 | 43.17 | 56.12 | 4.55 | 50 | 45.45 | 0 | 72.73 | 27.27 | 3.11 | 45.96 | 50.93 | 0.62 | 47.2 | 52.17 |
| Rajasthan | 6 | 64 | 30 | 22 | 60 | 18 | 0 | 76.92 | 23.08 | 0 | 92.31 | 7.69 | 4.76 | 66.67 | 28.57 | 17.46 | 66.67 | 15.87 |
| West Bengal | 30.69 | 26.46 | 42.86 | 56.61 | 27.51 | 15.87 | 42.52 | 28.74 | 28.74 | 45.75 | 31.09 | 23.17 | 38.3 | 27.92 | 33.77 | 49.62 | 29.81 | 20.57 |

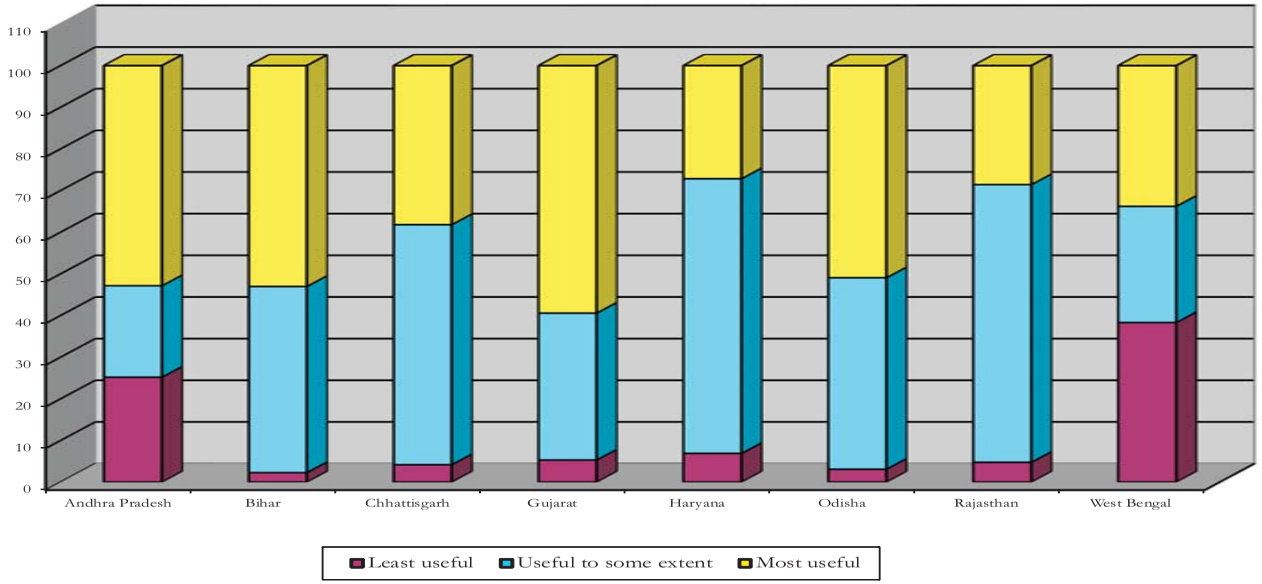


**Figure 4.7 :** Paying Attention to the Children with Learning Difficulties in the Class (Upper Primary)

Table 4.14(c)

**Upper Primary School Teachers Reporting Improvement of Teaching**

| State | Rural | | | Urban | | | Total | | |
|---|---|---|---|---|---|---|---|---|---|
| | Testing students and using results for improvement of teaching | | | Testing students and using results for improvement of teaching | | | Testing students and using results for improvement of teaching | | |
| | Least useful | Useful to some extent | Most useful | Least useful | Useful to some extent | Most useful | Least useful | Useful to some extent | Most useful |
| Andhra Pradesh | 17.20 | 12.90 | 69.89 | 20.00 | 63.33 | 16.67 | 17.89 | 25.20 | 56.91 |
| Bihar | 18.85 | 31.97 | 49.18 | 0 | 100.00 | 0 | 17.42 | 37.12 | 45.45 |
| Chhattisgarh | 4.35 | 58.10 | 37.55 | 4.55 | 77.27 | 18.18 | 4.36 | 59.64 | 36.00 |
| Gujarat | 1.45 | 39.13 | 59.42 | 0 | 0 | 0 | 1.45 | 39.13 | 59.42 |
| Haryana | 7.69 | 61.03 | 31.28 | 16.22 | 56.76 | 27.03 | 9.05 | 60.34 | 30.60 |
| Odisha | 2.16 | 38.85 | 58.99 | 0 | 72.73 | 27.27 | 1.86 | 43.48 | 54.66 |
| Rajasthan | 8.00 | 76.00 | 16.00 | 0 | 92.31 | 7.69 | 6.35 | 79.37 | 14.29 |
| West Bengal | 38.10 | 21.69 | 40.21 | 48.09 | 29.03 | 22.87 | 44.53 | 26.42 | 29.06 |

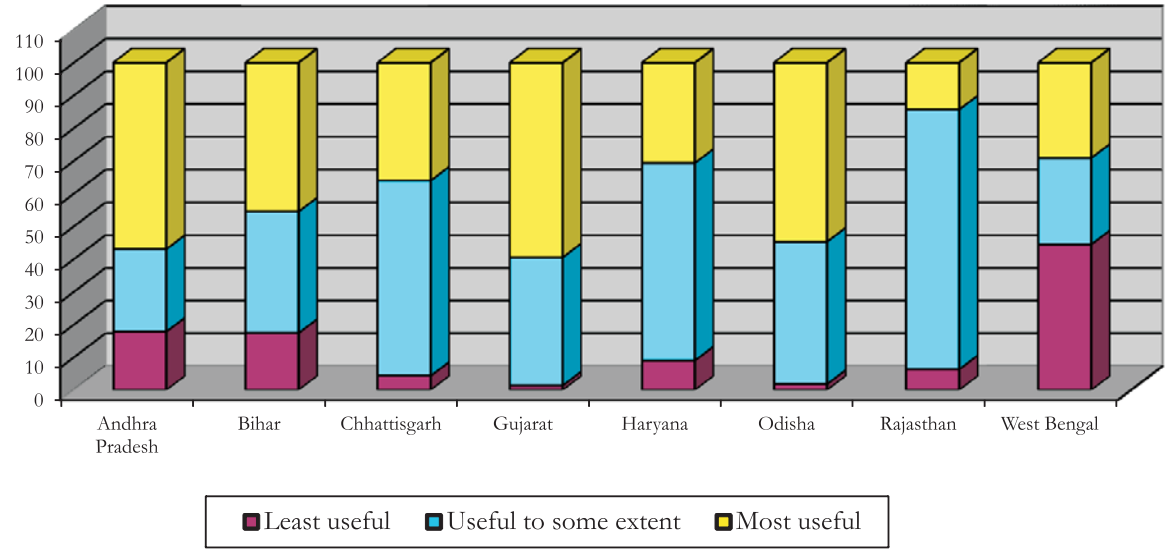


**Figure 4.8 :** Testing Students and using Results for Improvement of Teaching (Upper Primary)

Overall, about 40 percent rural primary school teachers reported training 'most useful' for improving interactive classroom transaction while about 12 per cent considered it 'least useful'. The states of Gujarat, Nagaland, Bihar, Odisha and Uttar Pradesh teachers reported more than half of them in this category. The situation is a little better in respect of urban school teachers but at the same time percentage reporting least useful was also higher in a couple of states. Almost similar situation was reported by upper primary teachers in classroom transaction. Similar profile emerged for explaining, paying attention to children with learning difficulties and testing students for using it as feedback for improving teaching. Giving home assignment however was reported by only about one-third of the teachers.

There is evidence that both primary and upper primary school teachers learnt the content of training as evidenced in significant paired *t*-test

on the pre and post test scores. This is also backed by teachers' perception about the content learning and enrichment mentioned above. Impact on teachers was also observed. The impact was however limited and varied among States. It is assumed that the aspects that were considered as 'most useful' are likely to be used in the classroom. Similarity of training transaction behaviours and the observed classroom transaction in the preceding section of this chapter supports this assumption. FGD reporting change in teaching and teacher behaviour also reinforces it. The significant 'rho' indicates correlation between training and classroom transaction variables; and Class V student achievement as per NCERT achievement survey 2010-11 further reinforces the change. The details about this analysis are provided in chapter 6. There is cause for cautious optimism at least in some of the states. Obviously, there is scope for increasing the impact of training on the classroom transaction. Multi-pronged attack is needed to enhance quality of training with improved design backed by a balanced demand and supply side of the training needs, diversified learning mode for developing skills and reflective dynamics of teaching behaviour, cooperative learning using constructivist approach, evaluation feedback mechanism and onsite support with follow-up that can enhance the impact on not only the teachers but the ultimate beneficiary called student. The SPD, SCERT and NCERT must review and refocus INSET.

## SECTION THREE : CLASSROOM TRANSACTION— EXPERIMENTAL AND CONTROL GROUP TEACHERS

The classes of experimental and control group teachers were observed. Both groups were compared on observed components of classroom transaction. In order to compare the experimental and control groups, chi-square was applied to test significance of difference between the two groups. Experimental group comprised of the teachers who had received INSET 2010-11 and the control group comprised of the teachers who did not receive this INSET. Significant chi-square values indicated independence of the two samples in respect of the observed item. Independence of the two samples was also indicative of the impact on the teachers. Contamination due to INSET received by the teachers in preceding years was a limitation that needs to be kept in mind by the readers. The data was available only for the experimental groups in Andhra Pradesh and Gujarat since teachers without INSET 2011 were not available in these states. The training transaction data has been examined in respect of the more desirable observed component skills from the point of view of the teacher effectiveness research. The results are as follows:

### Introducing the Lesson

Table 4.15 provides chi-square values in respect of the 13 sampled states since control group observations were not available for Andhra Pradesh and Gujarat. For Andhra Pradesh and Gujarat only experimental group data were examined.

The chi-square values were significant for the states of Chhattisgarh and Madhya Pradesh. The experimental and control groups varied in respect of classroom transaction relating to the 'introduction of lesson' in these States. It is indicative of the use of training transaction mode reported in the preceding subsection. Andhra Pradesh teachers used problem-solving to introduce the session more (60%) than any other State. In other States 'not significant' chi-square values are indicative of the similarity in the manner of introducing the lesson. The same trend was observed in the classroom transaction of upper primary school teachers. Problem posing as a means of introducing the lesson which comes closer to the curriculum transaction approach in NCF-2005 was one of the least used component behaviour by primary school teachers in most of the States. This needs to be included in the subsequent INSET programs. SPDs may take appropriate measures for inclusion in the training package.

Table 4.15
**Introduction of Lessons by the Teachers**

| State | | Stating the topic | Reviewing the previous lession | Posing a problem | Writing on blackboard | Total | $X^2$ |
|---|---|---|---|---|---|---|---|
| Andhra Pradesh | (Exp) | 13 (13.40) | 7 (7.22) | 60 (61.86) | 17 (17.53) | 97 | |
| | (Con) | NA | NA | NA | NA | NA | |
| Bihar | (Exp) | 16 (40) | 5 (12.5) | 12 (30) | 7 (17.5) | 40 | 6.29 |
| | (Con) | 8 (40) | 1(5) | 4 (20) | 7 (35) | 20 | |
| Chhattisgarh | (Exp) | 25 (54.35) | 5 (10.81) | 2 (4.35) | 14 (30.43) | 46 | 13.86** |
| | (Con) | 7 (50.00) | 2 (14.29) | 5 (35.71) | 0 | 14 | |
| Gujarat | (Exp) | 33 (37.08) | 20 (22.47) | 9 (10.11) | 27 (30.34) | 89 | |
| | (Con) | NA | NA | NA | NA | NA | |
| Haryana | (Exp) | 20 (38.46) | 11 (21.15) | 11 (21.15) | 10 (19.23) | 52 | 2.24 |
| | (Con) | 12 (50.0) | 6 (25.0) | 2 (8.3) | 4 (16.7) | 24 | |
| Jammu & Kashmir | (Exp) | 17 (29.31) | 9 (15.51) | 16 (27.59) | 16 (27.59) | 58 | 4.92 |
| | (Con) | 4 (16) | 3 (12) | 6 (24) | 12 (48) | 25 | |
| Madhya Pradesh | (Exp) | 30 (33.3) | 35 (38.8) | 14 (15.5) | 11 (12.2) | 90 | 13.35** |
| | (Con) | 18 (42.8) | 6 (14.2) | 4 (9.5) | 14 (33.3) | 42 | |
| Maharashtra | (Exp) | 10 (20.83) | 13 (27.08) | 12 (25) | 13 (27.08) | 48 | 0.85 |
| | (Con) | 6 (25) | 6 (25) | 4 (16.67) | 8 (33.33) | 24 | |
| Meghalaya | (Exp) | 35 (42.57) | 14 (16.86) | 15 (18.07) | 19 (22.89) | 83 | 4.33 |
| | (Con) | 40 (58.82) | 7 (10.29) | 3 (4.41) | 18 (26.47) | 68 | |
| Nagaland | (Exp) | 29 (40.3) | 11 (15.3) | 20 (27.8) | 12 (16.6) | 72 | 0.57 |
| | (Con) | 9 (39.2) | 4 (17.4) | 5 (21.7) | 5 (21.7) | 23 | |
| Odisha | (Exp) | 10 (8.47) | 24 (20.33) | 76 (64.4) | 8 (6.77) | 118 | 4.23 |
| | (Con) | 7 (18.9) | 8 (21.6) | 19 (51.3) | 3 (8.1) | 37 | |
| Rajasthan | (Exp) | 35 (64.8) | 13 (24.1) | 2 (3.7) | 4 (7.4) | 54 | 2.49 |
| | (Con) | 14 (51.9) | 7 (25.9) | 1 (3.7) | 5 (18.5) | 27 | |
| Tamil Nadu | (Exp) | 72 (86.75) | 3 (3.61) | 6 (7.23) | 2 (2.41) | 83 | 6.13 |
| | (Con) | 43 (100) | 0 | 0 | 0 | 43 | |
| Uttar Pradesh | (Exp) | 53 (48.6) | 9 (8.3) | 27 (24.8) | 20 (18.3) | 109 | 1.37 |
| | (Con) | 11 (45.8) | 3 (12.5) | 4 (16.7) | 6 (6.25) | 24 | |
| West Bengal | (Exp) | 41 (41.41) | 25 (25.25) | 7 (7.07) | 26 (26.26) | 99 | 0.48 |
| | (Con) | 37 (41.57) | 19 (21.34) | 7 (7.86) | 26 (29.21) | 89 | |

** Significant at 0.01 level

## Explanation and Presentation of New Concepts/Ideas

Table 4.16 provides frequencies and chi-square values for each of the sampled States except the States of Andhra Pradesh and Gujarat which provides data only for the experimental group.

The chi-square values were found to be significant in respect of presentation of new ideas using teacher talking and explaining with discussion in the States of Jammu and Kashmir, Madhya Pradesh and Tamil Nadu. In Gujarat, over 71.19 per cent of the experimental group of teachers used discussion with examples. The experimental and control groups varied. Chhattisgarh, Jammu and Kashmir, Madhya Pradesh and Tamil Nadu, however, varied in respect of explaining with examples and the use

Table 4.16
**Explanation and Presentation of Concept/Ideas**

| State | | Presentation of new concepts/idea | | | $X^2$ | Explanation of new concepts / idea | | | | $X^2$ |
|---|---|---|---|---|---|---|---|---|---|---|
| | | Only teacher talking | Discussion with explanation | Total | | With example | Without example | With demons-tration | Total | |
| Andhra Pradesh | (Exp) | 60 (61.86) | 37 (38.14) | 97 | | 60 (61.86) | 27 (27.84) | 10 (10.31) | 97 | |
| | (Con) | NA | | | | NA | | | | |
| Bihar | (Exp) | 17 (42.5) | 23 (57.5) | 40 | 1.57 | 29 (72.5) | 9 (22.5) | 2 (5) | 40 | 1.46 |
| | (Con) | 12 (60) | 8 (40) | 20 | | 11 (55) | 7 (35) | 2 (10) | 20 | |
| Chhattisgarh | (Exp) | 26 (56.52) | 20 (43.48) | 46 | 0.8 | 25 (54.35) | 07 (15.22) | 14 (30.43) | 46 | 12.12** |
| | (Con) | 09 (64.29) | 05 (35.71) | 14 | | 06 (42.86) | 08 (57.14) | 0 | 14 | |
| Gujarat | (Exp) | 25 (28.09) | 64 (71.19) | 89 | | 29 (32.58) | 26 (29.21) | 34 (38.20) | 89 | |
| | (Con) | | NA | | | | NA | | | |
| Haryana | (Exp) | 28 (53.85) | 24 (46.15) | 52 | 0.49 | 38 (73.08) | 12 (23.08) | 2 (4) | 52 | 1.09 |
| | (Con) | 15 (62.50) | 9 (37.50) | 24 | | 17 (70.83) | 7 (29.17) | 0 | 24 | |
| Jammu & Kashmir | (Exp) | 28 (48.28) | 30 (51.72) | 58 | 0.09 | 28 (48.28) | 20 (34.48) | 10 (17.24) | 58 | 7.61* |
| | (Con) | 13 (52) | 12 (48) | 25 | | 6 (24) | 17 (68) | 2 (8) | 25 | |
| Madhya Pradesh | (Exp) | 29 (32.3) | 61 (67.7) | 90 | 19.93** | 50 (55.5) | 23 (25.5) | 17 (18.8) | 90 | 32.29** |
| | (Con) | 31 (73.8) | 11 (26.1) | 42 | | 14 (33.3) | 25 (59.5) | 3 (7.1) | 42 | |
| Maharashtra | (Exp) | 16 (33.33) | 32 (66.67) | 48 | 1.05 | 31 (64.58) | 8 (16.67) | 9 (18.75) | 48 | 0.03 |
| | (Con) | 11 (45.83) | 13 (54.17) | 24 | | 15 (62.5) | 4 (16.67) | 5 (20.83) | 24 | |
| Meghalaya | (Exp) | 49 (59.04) | 34 (40.96) | 83 | 2.80 | 59 (71.08) | 17 (20.48) | 7 (8.43) | 83 | 1.37 |
| | (Con) | 49 (72.06) | 19 (27.94) | 68 | | 45 (66.17) | 19 (27.94) | 4 (5.88) | 68 | |
| Nagaland | (Exp) | 52 (72.2) | 20 (27.8) | 72 | 0.42 | 54 (75) | 5 (6.9) | 13 (18.1) | 72 | 3.03 |
| | (Con) | 17 (73.9) | 6 (26.1) | 23 | | 21 (91.4) | 1 (4.3) | 1 (4.3) | 23 | |
| Odisha | (Exp) | 46 (38.9) | 72 (61.01) | 118 | 1.73 | 66 (55.93) | 7 (5.93) | 45 (38.13) | 118 | 3.88 |
| | (Con) | 10 (27.02) | 27 (72.9) | 37 | | 23 (62.2) | 5 (13.5) | 9 (24.3) | 37 | |
| Rajasthan | (Exp) | 14 (25.9) | 40 (74.1) | 54 | 0.45 | 30 (55.6) | 13 (24.1) | 11 (20.4) | 54 | 0.03 |
| | (Con) | 9 (33.3) | 18 (66.7) | 27 | | 15 (55.6) | 6 (22.2) | 6 (22.2) | 27 | |
| Tamil Nadu | (Exp) | 14 (16.47) | 71 (83.53) | 85 | 32.48** | 71 (83.53) | 13 (14.11) | 1 (2.36) | 85 | 48.24** |
| | (Con) | 25 (69.44) | 11 (30.56) | 36 | | 8 (20.51) | 31 (79.45) | 0 | 39 | |
| Uttar Pradesh | (Exp) | 64 (58.70) | 45 (41.30) | 109 | 0.6 | 68 (62.40) | 25 (22.90) | 16 (14.70) | 109 | 0.41 |
| | (Con) | 12 (50) | 12 (50) | 24 | | 14 (58.3) | 7 (29.2) | 3 (12.5) | 24 | |
| West Bengal | (Exp) | 57 (57.57) | 42 (42.43) | 99 | 0 | 69 (69.69) | 25 (25.25) | 5 (5.05) | 99 | 2.24 |
| | (Con) | 51 (57.30) | 38 (42.69) | 89 | | 65 (73.03) | 23 (25.84) | 1 (1.12) | 89 | |

* Significant at 0.05 level

** Significant at 0.01 level

of demonstration. It was indicative of the use of the primary school teacher behaviours in classroom transaction in these States. Similar results were observed in the classroom transaction of upper primary teachers. Only the State of West Bengal was an addition for explaining concepts using examples and demonstration.

## The Purpose of Asking Questions

Table 4.17 provides data regarding the use of questions to test factual knowledge, understanding and application of knowledge, and questions for eliciting opinions or perception of students during the classroom transaction.

Table 4.17
**Type of Questions and Designation for Response**

| State | | To test factual knowledge | To test understanding | To test application of knowledge | To elicit students' opinions or perceptions | Total | $X^2$ |
|---|---|---|---|---|---|---|---|
| Andhra Pradesh | (Exp) | 25 (25.77) | 22 (22.68) | 40 (41.24) | 10 (10.31) | 97 | |
| | (Con) | | NA | | | | |
| Bihar | (Exp) | 8 (20) | 25 (62.5) | 5 (12.5) | 2 (5) | 40 | 11.36** |
| | (Con) | 12 (60) | 5 (25) | 1 (5) | 2 (10) | 20 | |
| Chhattisgarh | (Exp) | 23 (50) | 13 (28.26) | 10 (21.74) | 0 | 46 | 0.49 |
| | (Con) | 7 (50) | 5 (35.71) | 2 (14.29) | 0 | 14 | |
| Gujarat | (Exp) | 18 (20.22) | 44 (49.44) | 26 (29.21) | 1 (1.13) | 89 | |
| | (Con) | | NA | | | | |
| Haryana | (Exp) | 35 (67.31) | 16 (30.77) | 1 (1.92) | 0 | 52 | 3.21 |
| | (Con) | 12 (50) | 10 (41.67) | 1 (4.17) | 1 (4.17) | 24 | |
| Jammu & Kashmir | (Exp) | 20 (34.48) | 24 (41.38) | 8 (18.79) | 6 (10.35) | 58 | 1.51 |
| | (Con) | 7 (28) | 10 (40) | 3 (12) | 5 (20) | 25 | |
| Madhya Pradesh | (Exp) | 31 (34.4) | 42 (46.6) | 12 (13.3) | 5 (5.5) | 90 | 10.64** |
| | (Con) | 27 (64.2) | 10 (23.8) | 3 (7..1) | 2 (4.7) | 42 | |
| Maharashtra | (Exp) | 13 (27.66) | 11 (23.4) | 12 (25.53) | 11 (23.4) | 47 | 2.57 |
| | (Con) | 8 (34.78) | 5 (21.74) | 8 (34.78) | 2 (8.69) | 23 | |
| Meghalaya | (Exp) | 40 (48.19) | 35 (42.18) | 4 (4.8) | 4 (4.8) | 83 | 1.76 |
| | (Con) | 31 (45.58) | 27 (39.71) | 6 (8.82) | 4 (5.88) | 68 | |
| Nagaland | (Exp) | 25 (34.7) | 36 (50) | 1 (1.4) | 10 (13.9) | 72 | 1.05 |
| | (Con) | 7 (30.5) | 11 (47.8) | 0 | 5 (21.7) | 23 | |
| Odisha | (Exp) | 17 (14.4) | 53 (91) | 33 (27.9) | 15 (12.71) | 118 | 8.89* |
| | (Con) | 13 (35.1) | 14 (37.8) | 5 (13.5) | 5 (13.5) | 37 | |
| Rajasthan | (Exp) | 18 (33.3) | 20 (37.0) | 4 (7.4) | 12 (22.2) | 54 | 9.65* |
| | (Con) | 16 (59.3) | 2 (7.4) | 4 (14.8) | 5 (18.5) | 27 | |
| Tamil Nadu | (Exp) | 5 (7.35) | 60 (88.24) | 3 (4.41) | 0 | 68 | 3.19 |
| | (Con) | 0 | 39 (95.12) | 2 (4.88) | 0 | 41 | |
| Uttar Pradesh | (Exp) | 76 (69.70) | 8 (7.3) | 10 (9.2) | 15 (13.8) | 109 | 4.23 |
| | (Con) | 14 (58.30) | 5 (20.90) | 2 (8.30) | 3 (12.50) | 24 | |
| West Bengal | (Exp) | 40 (40.40) | 54 (54.54) | 2 (2.02) | 3 (3.03) | 99 | 0.54 |
| | (Con) | 38 (42.69) | 46 (57.68) | 3 (3.37) | 2 (2.24) | 89 | |

* Significant at 0.05 level
** Significant at 0.01 level

Chi-square values for experimental and control groups of primary school differed significantly relating to the item on the 'purpose of asking questions' and 'eliciting students opinions/ perceptions' in the States of Bihar, Madhya Pradesh, Odisha and Rajasthan. At the upper primary level, only Madhya Pradesh differed significantly. It implies that more States varied at the primary stage than at the upper primary stage. In the States of Andhra Pradesh and Gujarat about two-third of the teachers used 'understanding' and 'application' level questions that are information processing questions. This implies that more primary school teachers benefited from the INSET than upper primary school teachers. The significant variation was observed in a few States. In most of the States significant change was not observed. It implies that use of INSET learning in classroom transaction is observed in few States. This is what emerges so far.

## The Manner of Addressing Questions in the Classroom

Table 4.18 summarises data on the way questions were addressed by primary school teachers in the experimental and control groups during the classroom transaction along with chi-square values for different States.

Significant chi-square values indicated that the two groups of primary school teachers varied in respect of this item in the States of Madhya Pradesh, Tamil Nadu and Uttar Pradesh. This was indicative of taking the INSET learning to actual classroom transaction. In a way there was evidence of training transfer to classroom practice in these States. In other States similarity of classroom transaction in the experimental and control groups without reaching significance level in the positive direction further reinforces the finding relating to impact on students. At the

Table 4.18
**Manner of Addressing Questions in the Classroom**

| State | | To whole dass with many responding at the same time | To a specific individual | To anyone who would volunteer to answer | Total | $X^2$ |
|---|---|---|---|---|---|---|
| Andhra Pradesh | (Exp) | 10 (10.31) | 82 (84.54) | 5 (5.15) | 97 | |
| | (Con) | | NA | | | |
| Bihar | (Exp) | 17 (42.5) | 15 (37.5) | 8 (20) | 40 | 1.69 |
| | (Con) | 13 (65) | 6 (30) | 1 (5) | 20 | |
| Chhattisgarh | (Exp) | 26 (56.52) | 11 (23.90) | 9 (19.57) | 46 | 2.43 |
| | (Con) | 10 (71.43) | 3 (21.43) | 1 (7.14) | 14 | |
| Gujarat | (Exp) | 53 (59.55) | 5 (5.62) | 31 (34.83) | 89 | |
| | (Con) | | NA | | | |
| Haryana | (Exp) | 42 (80.77) | 9 (17.31) | 1 (2) | 52 | 1.54 |
| | (Con) | 17 (70.83) | 7 (29.17) | 0 | 24 | |
| Jammu & Kashmir | (Exp) | 26 (44.83) | 25 (43.10) | 7 (12.07) | 58 | 0.43 |
| | (Con) | 10 (40) | 11 (44) | 4 (16) | 25 | |
| Madhya Pradesh | (Exp) | 34 (37.7) | 40 (44.4) | 16 (17.7) | 90 | 12.56** |
| | (Con) | 28 (66.6) | 6 (14.2) | 8 (19) | 42 | |
| Maharashtra | (Exp) | 30 (62.5) | 7 (14.58) | 11 (22.92) | 48 | 1.94 |
| | (Con) | 17 (73.91) | 2 (8.69) | 4 (17.39) | 23 | |
| Meghalaya | (Exp) | 58 (69.88) | 7 (8.43) | 18 (21.68) | 83 | 2.41 |
| | (Con) | 44 (64.72) | 10 (14.69) | 14 (20.59) | 68 | |
| Nagaland | (Exp) | 41 (56.9) | 13 (18.1) | 18 (25) | 72 | 3.19 |
| | (Con) | 16 (69.6) | 5 (21.7) | 2 (8.7) | 23 | |
| Odisha | (Exp) | 41 (34.7) | 28 (23.7) | 49 (41.5) | 118 | 3.23 |
| | (Con) | 12 (32.4) | 14 (37.8) | 11 (29.7) | 37 | |
| Rajasthan | (Exp) | 36 (66.7) | 14 (25.9) | 4 (7.4) | 54 | 3.46 |
| | (Con) | 19 (70.4) | 3 (11.1) | 5 (18.5) | 27 | |
| Tamil Nadu | (Exp) | 9 (10.71) | 50 (59.52) | 25 (29.76) | 84 | 30.77** |
| | (Con) | 22 (56.41) | 8 (20.51) | 9 (23.08) | 39 | |
| Uttar Pradesh | (Exp) | 45 (41.3) | 27 (24.8) | 37 (33.9) | 109 | 8.77* |
| | (Con) | 10 (41.7) | 12 (50) | 2 (8.3) | 24 | |
| West Bengal | (Exp) | 45 (45.45) | 41 (41.41) | 13 (13.13) | 99 | 0.62 |
| | (Con) | 40 (44.94) | 39 (43.82) | 10 (11.23) | 89 | |

* Significant at 0.05 level
** Significant at 0.01 level

upper primary stage the experimental and control groups varied only in the States of Haryana and Madhya Pradesh. The trend of significant results was similar to what was in the preceding item on the purpose of questioning. The highest percentage of teachers addressed questions to the class as a whole and all students responded at the same time. Chorus type of response might be due to the use of drill and practice or the problem of indiscipline in the classroom transaction. Addressing individual student to respond was predominant in the State of Andhra Pradesh (84%) followed by Tamil Nadu (59%). Similar trend was observed in upper primary school teachers' classroom transaction.

## Students Participation in Classroom Discussion

Table 4.19 provides State-wise data on the issue relating to primary school teachers in experimental and control groups. The data pertain to two dimensions, participation behaviours and the extent of their use in the classroom transaction.

The experimental and control groups of primary school teachers differed as evidenced by the significant chi-square values for asking questions to seek clarification, seeking more information on the topic under discussion, in the States of Chhattisgarh, Madhya Pradesh and Tamil Nadu. Madhya Pradesh and Tamil Nadu teachers also differed significantly on making comments on the basis of raising issues. Madhya Pradesh, Haryana, Jammu and Kashmir and Nagaland also differed on making comments on the basis of their experience and not on raising issues. Chhattisgarh too differed significantly on raising issues. These differences were on the extent of use of these behaviours on three points, 'never,' sometimes,' and 'quite often.' Tamil Nadu continued to differ significantly on all aspects of this item. Chhattisgarh and Madhya Pradesh differed on all aspects except raising issues. Jammu and Kashmir was an addition to raising issues. Odisha was an addition at the upper primary level. Fewer States differed on participation of students by raising issues which is at higher level of the tool for discussion. This needs to be stressed in training transaction. A trend towards students participation in discussion was observed but it was confined to a few States. SPDs in other States need to increase its use in the forthcoming training transaction.

*Raising issues for discussion*

Table 4.19(a)
**Participation of Students in Discussion**

| State | | Asking question to seek clarification | | | | |
|---|---|---|---|---|---|---|
| | | Never | Sometimes | Often | Total | $X^2$ |
| Andhra Pradesh | (Exp) | 10 (10.31) | 25 (25.77) | 62 (63.92) | 97 | |
| | (Con) | - | NA | - | - | |
| Bihar | (Exp) | 11 (27.5) | 18 (45) | 11 (27.5) | 40 | 1.23 |
| | (Con) | 8 (40) | 11 (55) | 1 (5) | 20 | |
| Chhattisgarh | (Exp) | 6 (13.04) | 36 (78.26) | 4 (8.69) | 46 | 7.03* |
| | (Con) | 6 (42.86) | 6 (42.86) | 2 (14.29) | 14 | |
| Gujarat | (Exp) | 21 (23.6) | 29 (32.58) | 39 (43.82) | 89 | |
| | (Con) | - | NA | - | - | |
| Haryana | (Exp) | 9 (17.65) | 36 (70.59) | 6 (12) | 51 | 2.46 |
| | (Con) | 7 (29.17) | 14 (58.33) | 3 (13) | 24 | |
| Jammu & Kashmir | (Exp) | 18 (31.04) | 33 (56.89) | 7 (12.07) | 58 | 2.94 |
| | (Con) | 3 (12) | 16 (64) | 6 (24) | 25 | |
| Madhya Pradesh | (Exp) | 15 (16.6) | 50 (55.5) | 25 (27.7) | 90 | 18.15** |
| | (Con) | 22 (52.33) | 14 (33.3) | 6 (14.2) | 42 | |
| Maharashtra | (Exp) | 2 (4.16) | 30 (62.5) | 16 (33.33) | 48 | 0 |
| | (Con) | 1 (4.16) | 15 (62.5) | 8 (33.33) | 24 | |
| Meghalaya | (Exp) | 72 (86.75) | 10 (10.05) | 1 (1.20) | 83 | 0.89 |
| | (Con) | 63 (92.65) | 4 (5.88) | 1 (1.47) | 68 | |
| Nagaland | (Exp) | 67 (93.1) | 5 (6.9) | 0 | 72 | 46.38** |
| | (Con) | 6 (26.09) | 12 (52.17) | 5 (21.74) | 23 | |
| Odisha | (Exp) | 14 (11.86) | 69 (58.47) | 35 (29.66) | 118 | 6.62* |
| | (Con) | 10 (27.02) | 14 (37.8) | 13 (35.1) | 37 | |
| Rajasthan | (Exp) | 10 (18.5) | 22 (40.7) | 22 (40.7) | 54 | 1.24 |
| | (Con) | 2 (7.4) | 11 (40.7) | 14 (51.9) | 27 | |
| Tamil Nadu | (Exp) | 1 (1.19) | 12 (14.29) | 71 (84.52) | 84 | 22.18** |
| | (Con) | 9 (23.08) | 10 (25.64) | 20 (51.28) | 39 | |
| Uttar Pradesh | (Exp) | 47 (43.1) | 43 (39.4) | 19 (17.4) | 109 | 4.11 |
| | (Con) | 13 (54.2) | 10 (41.7) | 1 (4.2) | 24 | |
| West Bengal | (Exp) | 15 (15.15) | 58 (58.58) | 26 (26.27) | 99 | 1.43 |
| | (Con) | 11 (12.35) | 54 (60.67) | 24 (26.96) | 89 | |

* Significant at 0.05 level
** Significant at 0.01 level

Table 4.19(b)
**Participation of Students in Discussion**

| State | | Seeking more information on the topic under discussion | | | | |
|---|---|---|---|---|---|---|
| | | Never | Sometimes | Often | Total | $X^2$ |
| Andhra Pradesh | (Exp) | 12 (12.37) | 27 (27.84) | 58 (59.79) | 97 | |
| | (Con) | | NA | | | |
| Bihar | (Exp) | 21 (52.5) | 17 (42.5) | 2 (5) | 40 | 2.32 |
| | (Con) | 14 (70) | 5 (25) | 1 (5) | 20 | |
| Chhattisgarh | (Exp) | 9 (19.57) | 37 (80.43) | 0 | 46 | 11.34** |
| | (Con) | 1 (7.14) | 10 (71.43) | 3 (21.43) | 14 | |
| Gujarat | (Exp) | 25 (28.09) | 36 (40.45) | 28 (31.46) | 89 | |
| | (Con) | | NA | | | |
| Haryana | (Exp) | 35 (68.63) | 16 (31.37) | 0 | 51 | 4.13 |
| | (Con) | 13 (54.17) | 10 (41.67) | 1 (4) | 24 | |
| Jammu & Kashmir | (Exp) | 12 (20.68) | 36 (62.07) | 10 (17.25) | 58 | 0.45 |
| | (Con) | 6 (24) | 14 (56) | 5 (20) | 25 | |
| Madhya Pradesh | (Exp) | 22 (24.4) | 53 (58.8) | 15 (16.6) | 90 | 12.34** |
| | (Con) | 20 (47.6) | 12 (28.5) | 10 (23.8) | 42 | |
| Maharashtra | (Exp) | 9 (19.15) | 26 (55.32) | 12 (25.53) | 47 | 0.7 |
| | (Con) | 5 (20.83) | 15 (62.5) | 4 (16.67) | 24 | |
| Meghalaya | (Exp) | 80 (96.39) | 3 (3.61) | 0 | 83 | 0.24 |
| | (Con) | 66 (97.06) | 2 (2.94) | 0 | 68 | |
| Nagaland | (Exp) | 72 (100) | 0 | 0 | 72 | 68.86** |
| | (Con) | 5 (21.74) | 15 (65.22) | 3 (13.04) | 23 | |
| Odisha | (Exp) | 15 (12.7) | 73 (61.8) | 30 (25.4) | 118 | 2.37 |
| | (Con) | 6 (16.21) | 26 (70.27) | 5 (13.5) | 37 | |
| Rajasthan | (Exp) | 14 (25.9) | 32 (59.3) | 8 (14.8) | 54 | 0.21 |
| | (Con) | 4 (14.8) | 16 (59.3) | 7 (25.9) | 27 | |
| Tamil Nadu | (Exp) | 3 (4.0) | 9 (12.0) | 63 (84.0) | 75 | 75.16** |
| | (Con) | 31 (83.78) | 0 | 6 (16.22) | 37 | |
| Uttar Pradesh | (Exp) | 51 (46.8) | 46 (42.2) | 12 (11.0) | 109 | 3.87 |
| | (Con) | 17 (70.8) | 7 (29.2) | 0 | 24 | |
| West Bengal | (Exp) | 32 (32.32) | 63 (63.64) | 4 (4.04) | 99 | 0.32 |
| | (Con) | 28 (31.46) | 58 (65.16) | 3 (3.37) | 89 | |

* Significant at 0.05 level
** Significant at 0.01 level

Table 4.19(c)
**Participation of Students in Discussion**

| State | | Making comments on the basis of their experience | | | | |
|---|---|---|---|---|---|---|
| | | Never | Sometimes | Often | Total | $X^2$ |
| Andhra Pradesh | (Exp) | 10 (10.3) | 27 (28.84) | 60 (61.86) | 97 | |
| | (Con) | | NA | | | |
| Bihar | (Exp) | 22 (55) | 14 (35) | 4 (10) | 40 | 0.93 |
| | (Con) | 13 (65) | 5 (25) | 2 (10) | 20 | |
| Chhattisgarh | (Exp) | 11 (23.92) | 34 (73.91) | 01 (2.17) | 46 | 1.23 |
| | (Con) | 1 (7.14) | 11 (78.57) | 2 (14.29) | 14 | |
| Gujarat | (Exp) | 7 (7.87) | 51 (57.3) | 31 (34.8) | 89 | |
| | (Con) | | NA | | | |
| Haryana | (Exp) | 44 (86.27) | 7 (13.73) | 0 | 51 | 6.73* |
| | (Con) | 14 (58.33) | 9 (37.50) | 1 (4.17) | 24 | |
| Jammu & Kashmir | (Exp) | 29 (50) | 24 (41.38) | 5 (8.62) | 58 | 7.96* |
| | (Con) | 9 (36) | 8 (32) | 8 (32) | 25 | |
| Madhya Pradesh | (Exp) | 31 (34.4) | 52 (57.7) | 7 (7.7) | 90 | 7.04* |
| | (Con) | 24 (57.1) | 14 (33.3) | 4 (9.5) | 42 | |
| Maharashtra | (Exp) | 27 (57.4) | 15 (31.9) | 5 (10.6) | 47 | 0.93 |
| | (Con) | 15 (67.5) | 8 (33.3) | 1 (4.17) | 24 | |
| Meghalaya | (Exp) | 63 (75.90) | 19 (22.89) | 1 (1.20) | 83 | 4.87 |
| | (Con) | 65 (95.59) | 2 (2.94) | 1 (1.47) | 68 | |
| Nagaland | (Exp) | 71 (98.6) | 1 (1.4) | 0 | 72 | 4.56* |
| | (Con) | 21 (91.3) | 2 (8.7) | 0 | 23 | |
| Odisha | (Exp) | 88 (74.5) | 26 (22.03) | 4 (3.38) | 118 | 1.21 |
| | (Con) | 28 (25.6) | 6 (16.21) | 3 (8.10) | 37 | |
| Rajasthan | (Exp) | 14 (25.9) | 37 (68.5) | 3 (5.6) | 54 | 1.87 |
| | (Con) | 3 (11.1) | 19 (70.4) | 5 (18.5) | 27 | |
| Tamil Nadu | (Exp) | 10 (11.90) | 71 (84.52) | 3 (3.57) | 84 | 26.34** |
| | (Con) | 21 (53.85) | 18 (46.15) | 0 | 39 | |
| Uttar Pradesh | (Exp) | 66 (60.6) | 33 (30.3) | 10 (9.2) | 109 | 2.11 |
| | (Con) | 17 (70.8) | 7 (29.2) | 0 | 24 | |
| West Bengal | (Exp) | 51 (51.51) | 46 (46.46) | 2 (2.02) | 99 | 0.83 |
| | (Con) | 43 (48.31) | 44 (49.43) | 2 (2.24) | 89 | |

* Significant at 0.05 level
** Significant at 0.01 level

Table 4.19(d)
**Participation of Students in Discussion**

| State | | Raising issues related to the topic under discussion | | | | |
|---|---|---|---|---|---|---|
| | | Never | Sometimes | Often | Total | $X^2$ |
| Andhra Pradesh | (Exp) | 17 (17.52) | 19 (19.59) | 61 (62.88) | 97 | |
| | (Con) | | NA | | | |
| Bihar | (Exp) | 30 (75) | 6 (15) | 4 (10) | 40 | 2.11 |
| | (Con) | 12 (60) | 7 (35) | 1 (5) | 20 | |
| Chhattisgarh | (Exp) | 23 (50) | 23 (50) | 00 | 46 | 6.35* |
| | (Con) | 3 (21.43) | 10 (71.43) | 1 (7.14) | 14 | |
| Gujarat | (Exp) | 0 | 89 (100) | 0 | 89 | |
| | (Con) | | NA | | | |
| Haryana | (Exp) | 47 (92.16) | 4 (7.84) | 0 | 51 | 0.23 |
| | (Con) | 22 (91.67) | 2 (8.33) | 0 | 24 | |
| Jammu & Kashmir | (Exp) | 38 (65.52) | 15 (25.86) | 5 (8.62) | 58 | 4.26 |
| | (Con) | 10 (40) | 12 (48) | 3 (12) | 25 | |
| Madhya Pradesh | (Exp) | 38 (42.2) | 44 (48.8) | 8 (8.8) | 90 | 4.95 |
| | (Con) | 25 (59.5) | 12 (28.5) | 5 (11.9) | 42 | |
| Maharashtra | (Exp) | 30 (63.8) | 14 (29.8) | 3 (6.4) | 47 | 1.48 |
| | (Con) | 19 (79.2) | 4 (16.7) | 1 (4.2) | 24 | |
| Meghalaya | (Exp) | 77 (92.77) | 5 (6.02) | 1 (1.20) | 83 | 2.41 |
| | (Con) | 67 (98.53) | 1 (1.47) | 0 | 68 | |
| Nagaland | (Exp) | 72 (100) | 0 | 0 | 72 | 0 |
| | (Con) | 23 (100) | 0 | 0 | 23 | |
| Odisha | (Exp) | 60 (50.8) | 37 (31.35) | 21 (17.80) | 118 | 1.23 |
| | (Con) | 22 (59.45) | 14 (37.8) | 1 (2.7) | 37 | |
| Rajasthan | (Exp) | 16 (29.6) | 32 (59.3) | 6 (11.1) | 54 | 2.14 |
| | (Con) | 10 (37) | 12 (44.4) | 5 (18.5) | 27 | |
| Tamil Nadu | (Exp) | 3 (3.26) | 73 (79.35) | 16 (17.39) | 92 | 19.4** |
| | (Con) | 21 (53.85) | 18 (46.15) | 0 | 39 | |
| Uttar Pradesh | (Exp) | 69 (63.3) | 29 (26.6) | 11 (10.1) | 109 | 1.73 |
| | (Con) | 16 (66.7) | 6 (25) | 2 (8.3) | 24 | |
| West Bengal | (Exp) | 54 (54.54) | 43 (43.43) | 2 (2.02) | 99 | 0.62 |
| | (Con) | 44 (49.43) | 43 (48.31) | 2 (2.24) | 89 | |

* Significant at 0.05 level
** Significant at 0.01 level

## The Manner of Teachers Responding to Students

The data regarding the ways teachers respond to students during classroom transaction in the experimental and control groups in different States are given in table 4.20. Teachers behaviours were categorised as 'providing the desired answer or clarification,' 'reprimanding students for interrupting,' 'asking someone else to respond,' and 'postponing the answer to the next day.'

Table 4.20(a)
**Manner of Teachers Responding to Students**

| State | | Providing the desired answer or clarification | | | | |
|---|---|---|---|---|---|---|
| | | Never | Sometimes | Often | Total | $X^2$ |
| Andhra Pradesh | (Exp) | | NA | | | |
| | (Con) | | NA | | | |
| Bihar | (Exp) | 4 (10) | 17 (42.5) | 19 (47.5) | 40 | 8.69* |
| | (Con) | 5 (25) | 13 (65) | 2 (10) | 20 | |
| Chhattisgarh | (Exp) | 3 (6.52) | 29 ( 63.04) | 14 (30.43) | 46 | 11.84** |
| | (Con) | 7 (50) | 5 (35.71) | 2 (14.29) | 14 | |
| Gujarat | (Exp) | 9 (10.11) | 36 (40.45) | 44 (44.44) | 89 | |
| | (Con) | | NA | | | |
| Haryana | (Exp) | 1 (1.92) | 29 (55.77) | 22 (42) | 52 | 1.34 |
| | (Con) | 0 | 9 (42.86) | 12 (57) | 21 | |
| Jammu & Kashmir | (Exp) | 12 (20.69) | 27 (46.55) | 19 (32.76) | 58 | 0.89 |
| | (Con) | 6 (24) | 11 (44) | 8 (32) | 25 | |
| Madhya Pradesh | (Exp) | 27 (30) | 34 (37.78) | 29 (32.22) | 90 | 2.23 |
| | (Con) | 18 (42.86) | 13 (30.95) | 11 (26.19) | 42 | |
| Maharashtra | (Exp) | 0 | 36 (75) | 12 (25) | 48 | 5.24 |
| | (Con) | 2 (8.33) | 13 (59.2) | 9 (37.5) | 24 | |
| Meghalaya | (Exp) | 34 (40.96) | 17 (20.48) | 32 (38.55) | 83 | 7.13* |
| | (Con) | 39 (57.35) | 17 (25) | 12 (17.65) | 68 | |
| Nagaland | (Exp) | 66 (91.7) | 4 (5.6) | 2 (2.8) | 72 | 0.43 |
| | (Con) | 21 (91.4) | 1 (4.3) | 1 (4.3) | 23 | |
| Odisha | (Exp) | 4 (3.38) | 32 (27.1) | 82 (69.4) | 118 | 0.92 |
| | (Con) | 3 (8.1) | 8 (21.6) | 26 (70.27) | 37 | |
| Rajasthan | (Exp) | 1 (1.9) | 17 (31.5) | 36 (66.7) | 54 | 0.84 |
| | (Con) | 1 (3.7) | 8 (29.6) | 18 (66.7) | 27 | |
| Tamil Nadu | (Exp) | 16 (19.04) | 17 (20.23) | 51 (60.71) | 84 | 49.64** |
| | (Con) | 0 | 34 (87.17) | 5 (12.82) | 39 | |
| Uttar Pradesh | (Exp) | 15 (13.8) | 35 (32.1) | 59 (54.1) | 109 | 8.42* |
| | (Con) | 9 (37.5) | 7 (29.2) | 8 (33.3) | 24 | |
| West Bengal | (Exp) | 14 (14.14) | 48 (48.48) | 37 (37.37) | 99 | 1.46 |
| | (Con) | 11 (12.35) | 42 (47.19) | 36 (40.44) | 89 | |

* Significant at 0.05 level
** Significant at 0.01 level

Table 4.20(b)
**Manner of Teachers Responding to Students**

| State | | Reprimanding students for interrupting the lesson | | | | |
|---|---|---|---|---|---|---|
| | | Never | Sometimes | Often | Total | $X^2$ |
| Andhra Pradesh | (Exp) | 15 (15.46) | 75 (77.32) | 7 (7.22) | 97 | |
| | (Con) | | NA | | | |
| Bihar | (Exp) | 28 (70) | 9 (22.5) | 3 (7.5) | 40 | 2.1 |
| | (Con) | 14 (70) | 6 (30) | 0 | 20 | |
| Chhattisgarh | (Exp) | 7 (15.23) | 39 (84.77) | 0 | 46 | 3.26 |
| | (Con) | 3 (21.43) | 10 (71.43) | 1 (7.14) | 14 | |
| Gujarat | (Exp) | 55 (61.80) | 32 (35.96) | 2 (2.24) | 89 | |
| | (Con) | | NA | | | |
| Haryana | (Exp) | 26 (50) | 20 (38.46) | 6 (12) | 52 | 2.13 |
| | (Con) | 8 (38.10) | 12 (57.14) | 1 (5) | 21 | |
| Jammu & Kashmir | (Exp) | 52 (89.66) | 6 (10.34) | - | 58 | 11.41** |
| | (Con) | 16 (64) | 5 (20) | 4 (16) | 25 | |
| Madhya Pradesh | (Exp) | 67 (74.44) | 20 (22.22) | 3 (3.33) | 90 | 14.23** |
| | (Con) | 19 (45.23) | 21 (50) | 2 (4.76) | 42 | |
| Maharashtra | (Exp) | 15 (31.3) | 26 (54.2) | 7 (14.50) | 48 | 3.76 |
| | (Con) | 5 (20.8) | 15 (62.5) | 4 (17) | 24 | |
| Meghalaya | (Exp) | 79 (95.18) | 4 (4.82) | 0 | 83 | 0.33 |
| | (Con) | 66 (97.06) | 2 (2.94) | 0 | 68 | |
| Nagaland | (Exp) | 72 (100) | 0 | 0 | 72 | 0 |
| | (Con) | 23 (100) | 0 | 0 | 23 | |
| Odisha | (Exp) | 75 (63.5) | 38 (32.2) | 5 (4.2) | 118 | 1.84 |
| | (Con) | 16 (43.24) | 20 (54.05) | 1 (2.7) | 37 | |
| Rajasthan | (Exp) | 13 (24.1) | 34 (63) | 7 (13) | 54 | 3.41 |
| | (Con) | 2 (7.4) | 20 (74.1) | 5 (18.5) | 27 | |
| Tamil Nadu | (Exp) | 18 (21.42) | 57 (67.85) | 9 (10.71) | 84 | 3.11 |
| | (Con) | 10 (21.73) | 26 (56.52) | 10 (21.73) | 46 | |
| Uttar Pradesh | (Exp) | 84 (77.1) | 25 (22.9) | 0 | 109 | 5.23 |
| | (Con) | 16 (66.7) | 7 (29.2) | 1 (4.2) | 24 | |
| West Bengal | (Exp) | 31 (31.31) | 61 (61.61) | 7 (7.07) | 99 | 2.35 |
| | (Con) | 26 (29.21) | 60 (67.41) | 3 (3.37) | 89 | |

* Significant at 0.05 level
** Significant at 0.01 level

Chhattisgarh, Meghalaya, Tamil Nadu and Uttar Pradesh primary school teachers belonging to experimental and control groups differed significantly regarding teacher behaviour involving answers or clarification in response to the students' questions. Tamil Nadu significantly differed in respect of all the four aspects of the item on teachers response, that is, teachers of experimental group often provided answers or clarification, never asked someone else to respond

Table 4.20(c)
**Manner of Teachers Responding to Students**

| State | | Asking someone else to respond | | | | |
|---|---|---|---|---|---|---|
| | | Never | Sometimes | Often | Total | $X^2$ |
| Andhra Pradesh | (Exp) | 5 (5.15) | 75 (77.32) | 17 (17.52) | 97 | |
| | (Con) | | NA | | | |
| Bihar | (Exp) | 20 (50) | 14 (35) | 6 (15) | 40 | 0.38 |
| | (Con) | 10 (50) | 8 (40) | 2 (10) | 20 | |
| Chhattisgarh | (Exp) | 15 (32.61) | 26 (56.52) | 5 (10.87) | 46 | 3.16 |
| | (Con) | 8 (57.14) | 6 (42.86) | 0 | 14 | |
| Gujarat | (Exp) | 24 (26.97) | 53 (59.55) | 12 (13.48) | 89 | |
| | (Con) | | NA | | | |
| Haryana | (Exp) | 24 (46.15) | 28 (34.62) | 0 | 52 | 1.98 |
| | (Con) | 6 (28.57) | 15 (71.43) | 0 | 21 | |
| Jammu & Kashmir | (Exp) | 20 (34.48) | 28 (48.28) | 10 (17.24) | 58 | 3.12 |
| | (Con) | 6 (24) | 13 (52) | 6 (24) | 25 | |
| Madhya Pradesh | (Exp) | 25 (27.78) | 23 (25.56) | 42 (46.6) | 90 | 17.49** |
| | (Con) | 21 (50) | 17 (40.48) | 4 (9.52) | 42 | |
| Maharashtra | (Exp) | 30 (62.5) | 17 (35.4) | 1 (2.08) | 48 | 1.67 |
| | (Con) | 17 (70.8) | 7 (29.2) | 0 | 24 | |
| Meghalaya | (Exp) | 70 (84.34) | 13 (15.66) | 0 | 83 | 4.56 |
| | (Con) | 58 (85.29) | 6 (8.82) | 4 (5.88) | 68 | |
| Nagaland | (Exp) | 72 (100) | 0 | 0 | 72 | 0 |
| | (Con) | 23 (100) | 0 | 0 | 23 | |
| Odisha | (Exp) | 16 (13.5) | 91 (77.11) | 11 (9.3) | 118 | 5.14 |
| | (Con) | 9 (24.32) | 20 (54.05) | 8 (21.6) | 37 | |
| Rajasthan | (Exp) | 14 (25.9) | 28 (51.9) | 12 (22.2) | 54 | 0.68 |
| | (Con) | 7 (25.9) | 15 (55.6) | 5 (18.5) | 27 | |
| Tamil Nadu | (Exp) | 75 (89.29) | 8 (9.52) | 1 (1.19) | 84 | 38.42** |
| | (Con) | 5 (12.82) | 13 (33.33) | 21 (58.85) | 39 | |
| Uttar Pradesh | (Exp) | 53 (48.6) | 44 (40.4) | 12 (11) | 109 | 3.21 |
| | (Con) | 11 (45.8) | 11 (45.8) | 2 (8.3) | 24 | |
| West Bengal | (Exp) | 56 (56.56) | 34 (34.34) | 9 (9.09) | 99 | 0.84 |
| | (Con) | 52 (58.42) | 28 (31.46) | 9 (10.11) | 89 | |

* Significant at 0.05 level
** Significant at 0.01 level

and never postponed the answer to the next day. Madhya Pradesh teachers differed in the matter of asking someone else to respond as well as postponing the answer to the next day. Odisha joined Madhya Pradesh and Tamil Nadu regarding postponing the answer to the next day as the control group teachers often avoided some one else to respond and postponing the answer to some other day. Jammu and Kashmir differed on reprimanding the students for interrupting in the

Table 4.20(d)
**Manner of Teachers Responding to Students**

| State | | Postponing the answer to the next day | | | | |
|---|---|---|---|---|---|---|
| | | Never | Sometimes | Often | Total | $X^2$ |
| Andhra Pradesh | (Exp) | 90 (92.78) | 2 (2.06) | 5 (5.15) | 97 | |
| | (Con) | - | NA | - | - | |
| Bihar | (Exp) | 36 (90) | 4 (10) | 0 | 40 | 2.63 |
| | (Con) | 16 (80) | 3 (15) | 1 (5) | 20 | |
| Chhattisgarh | (Exp) | 20 (43.48) | 25 (54.35) | 1 (2.17) | 46 | 2.87 |
| | (Con) | 9 (64.29) | 5 (35.71) | 0 | 14 | |
| Gujarat | (Exp) | 70 (78.65) | 16 (17.98) | 3 (3.37) | 89 | |
| | (Con) | - | NA | - | - | |
| Haryana | (Exp) | 52 (100) | 0 | 0 | 52 | 0 |
| | (Con) | 21 (100) | 0 | 0 | 21 | |
| Jammu & Kashmir | (Exp) | 58 (100) | 0 | 0 | 58 | 0 |
| | (Con) | 25 (100) | 0 | 0 | 25 | |
| Madhya Pradesh | (Exp) | 68 (76.40) | 13 (14.61) | 9 (8.89) | 90 | 10.15** |
| | (Con) | 20 (47.6) | 14 (34.83) | 8 (17.9) | 42 | |
| Maharashtra | (Exp) | 48 (100) | 0 | 0 | 48 | 0 |
| | (Con) | 24 (100) | 0 | 0 | 24 | |
| Meghalaya | (Exp) | 80 (96.39) | 3 (3.61) | 0 | 83 | 0.23 |
| | (Con) | 66 (97.06) | 2 (2.94) | 0 | 68 | |
| Nagaland | (Exp) | 72 (100) | 0 | 0 | 72 | 0 |
| | (Con) | 23 (100) | 0 | 0 | 23 | |
| Odisha | (Exp) | 94 (79.6) | 24 (20.3) | 0 | 118 | 12.34** |
| | (Con) | 36 (97.29) | 0 | 1 (2.7) | 37 | |
| Rajasthan | (Exp) | 31 (57.4) | 21 (38.9) | 2 (3.7) | 54 | 0.84 |
| | (Con) | 15 (55.6) | 11 (40.7) | 1 (3.7) | 27 | |
| Tamil Nadu | (Exp) | 74 (88.09) | 9 (10.71) | 1 (1.19) | 84 | 8.26* |
| | (Con) | 26 (65) | 1 (2.5) | 13 (32.5) | 40 | |
| Uttar Pradesh | (Exp) | 99 (90.8) | 7 (6.4) | 3 (2.8) | 109 | 4.27 |
| | (Con) | 19 (79.2) | 5 (20.8) | 0 | 24 | |
| West Bengal | (Exp) | 86 (86.86) | 12 (12.12) | 1 (1.01) | 99 | 1.02 |
| | (Con) | 76 (85.39) | 12 (13.48) | 1 (1.12) | 89 | |

* Significant at 0.05 level
** Significant at 0.01 level

positive direction. In Andhra Pradesh and Gujarat more than half of the teachers used the preferred behaviour relating to these component skills. In these States the experimental group is found to be impacted by the INSET. But the issue remains that most of the States did not show the difference made by the INSET. The upper primary school teachers, however, do not show significant difference except in the States of Madhya Pradesh and Tamil Nadu.

## The Extent of Use of Praising Students for Participation in Discussion

Table 4.21 summarises chi-square analysis on the extent of use of praise for encouraging student participation in discussion in the classroom by primary teachers in the experimental and control groups in different States.

The two samples differ significantly on this parameter in the States of Madhya Pradesh, Meghalaya and Tamil Nadu, that is, the teachers

Table 4.21
**Extent of Use of Praising Students for Participation in Discussion**

| State | | Praising of students for their participation in discussion | | | | |
|---|---|---|---|---|---|---|
| | | Never | Sometimes | Often | Total | $X^2$ |
| Andhra Pradesh | (Exp) | 0 | 85 (87.63) | 12 (12.37) | 97 | |
| | (Con) | | NA | | | |
| Bihar | (Exp) | 7 (17.5) | 23 (57.5) | 10 (25) | 40 | 3.69 |
| | (Con) | 8 (40) | 9 (45) | 3 (15) | 20 | |
| Chhattisgarh | (Exp) | 19 (41.30) | 17 (36.96) | 10 (21.74) | 46 | 3.78 |
| | (Con) | 4 (28.57) | 10 (71.43) | 0 | 14 | |
| Gujarat | (Exp) | 14 (15.73) | 12 (13.48) | 63 (70.79) | 89 | |
| | (Con) | | NA | | | |
| Haryana | (Exp) | 2 (3.85) | 33 (63.46) | 17 (33) | 52 | 1.76 |
| | (Con) | 3 (12.50) | 13 (54.17) | 8 (33) | 24 | |
| Jammu & Kashmir | (Exp) | 3 (5.17) | 25 (43.10) | 30 (51.73) | 58 | 2.87 |
| | (Con) | 3 (12) | 16 (64) | 6 (24) | 25 | |
| Madhya Pradesh | (Exp) | 15 (16.6) | 62 (68.6) | 13 (14.4) | 90 | 14.39** |
| | (Con) | 20 (47.6) | 17 (40.4) | 5 (11.9) | 42 | |
| Maharashtra | (Exp) | 6 (12.5) | 31 (64.6) | 11 (22.9) | 48 | 3.16 |
| | (Con) | 1 (4.17) | 16 (66.7) | 7 (29.2) | 24 | |
| Meghalaya | (Exp) | 25 (30.12) | 43 (51.81) | 15 (18.07) | 83 | 7.46* |
| | (Con) | 35 (51.47) | 24 (35.29) | 9 (13.23) | 68 | |
| Nagaland | (Exp) | 8 (11.2) | 32 (44.4) | 32 (44.4) | 72 | 3.87 |
| | (Con) | 6 (26.1) | 7 (30.4) | 10 (43.5) | 23 | |
| Odisha | (Exp) | 8 (6.7) | 58 (49.1) | 52 (44.06) | 118 | 1.61 |
| | (Con) | 5 (13.5) | 17 (45.9) | 15 (40.5) | 37 | |
| Rajasthan | (Exp) | 4 (7.4) | 45 (83.3) | 5 (9.3) | 54 | 3.74 |
| | (Con) | 0 | 22 (81.5) | 5 (18.5) | 27 | |
| Tamil Nadu | (Exp) | 7 (8.33) | 1 (1.19) | 76 (90.48) | 84 | 10.12** |
| | (Con) | 0 | 35 (89.74) | 4 (10.26) | 39 | |
| Uttar Pradesh | (Exp) | 21 (19.3) | 57 (52.3) | 31 (28.4) | 109 | 3.15 |
| | (Con) | 9 (37.5) | 10 (41.7) | 5 (20.8) | 24 | |
| West Bengal | (Exp) | 16 (16.16) | 55 (55.55) | 28 (28.28) | 99 | 0.38 |
| | (Con) | 12 (13.48) | 50 (56.17) | 27 (30.33) | 89 | |

* Significant at 0.05 level
** Significant at 0.01 level

of control groups in these States often praised the students for their participation in discussion. Over 80 per cent teachers in the experimental groups in Andhra Pradesh and Gujarat used praise in order to stimulate students to encourage participation in discussion. At the upper primary stage the teachers in the two groups differ in the States of Bihar, Jammu and Kashmir, Madhya Pradesh and Tamil Nadu. This indicates the impact of training transaction on the classroom transaction in those States so far as the use of praise as a means of encouraging students to participate in discussion is concerned.

### The Manner of Teacher's Social Treatment of the Students

How students are treated by the teacher is considered an important dimension of classroom transaction. In the present study, it has been categorised as 'in an authoritarian manner,' 'respectfully,' 'in an indifferent manner,' and 'on equal footing.' Each of these categories was coded for how often it was used. Table 4.22 provides percentage of teachers using these categories in classroom transaction.

Significant chi-square values indicated that the teachers in the States of Madhya Pradesh and Tamil Nadu varied in respect of treating students in an authoritarian and in an indifferent manner in positive direction, that is the control group teachers in these States are less authoritarian and less indifferent. Primary school teachers varied in treating students respectfully in the States of Madhya Pradesh, Meghalaya, Tamil Nadu and Uttar Pradesh as the control group teachers in these States treated students more respectfully and on equal footing respectively. In respect of another related observation 'on equal footing' more control group teachers in the States of Odisha, Tamil Nadu and Uttar Pradesh treated students on equal footing. The twin behaviours in the States of Tamil Nadu and Uttar Pradesh made the impact more robust than in other States. This is also reinforced by the predominant use of the preferred alternative in the experimental group of teachers in Gujarat. In the four states mentioned above significant chi-square values are indicative of the impact of training on classroom transaction. Almost similar results were noticed in the classroom transaction of upper primary school teachers.

### Teaching Aids and Technology Support

Effective teaching necessitates continuous use of teaching aids like Blackboard, maps, charts, globe, pictures, models, flashcards, science and mathematics kits.; and technology aids such as OHP, Film/Videos and computer. Table 4.23 provides chi-square values calculated in respect of their use by the teachers of the experimental and control groups.

It was observed that blackboard and cluster of other aids were used by the teachers in most of the classrooms. Technology aids were available in a few states. In most of the primary schools these were not available. Even in training centers such aids were either not available or these were non-functional. Chi-square values in respect of the use of blackboard in classrooms in the state of Jammu and Kashmir, Madhya Pradesh and Uttar Pradesh are significant which implies that the use of blackboard by the teachers of experimental group is significantly higher than its use by the control group teachers. The use of other learning aids in the states of Jammu and Kashmir, Madhya Pradesh, Rajasthan and Tamil Nadu by the experimental group teachers is greater than their use by the control group teachers. This is indicative of the impact of INSET. This is also supported by experimental group of teachers in Andhra Pradesh. Teachers in the experimental and control groups in Tamil Nadu varied in the use of OHP, films/videos and computer indicating greater use of these aids by the teachers of the experimental group. The use of technology aids was negligible in upper primary schools. The situation regarding the use of other aids at this stage was similar to primary stage.

Table 4.22(a)
**Manner of Teacher's Social Treatment of the Students**

| State | | In an authoritarian manner | | | | |
|---|---|---|---|---|---|---|
| | | Never | Sometimes | Often | Total | $X^2$ |
| Andhra Pradesh | (Exp) | 10( 10.31) | 82 (84.54) | 5 (5.15) | 97 | |
| | (Con) | | NA | | | |
| Bihar | (Exp) | 17 (42.5) | 22 (55) | 1 (2.5) | 40 | 3.84 |
| | (Con) | 5 (25) | 12 (60) | 3 (15) | 20 | |
| Chhattisgarh | (Exp) | 6 (13.04) | 21 (45.65) | 19 (41.30) | 46 | 1.87 |
| | (Con) | 2 (14.29) | 8 (57.14) | 4 (28.57) | 14 | |
| Gujarat | (Exp) | 61 (68.54) | 8 (8.99) | 20 (22.47) | 89 | |
| | (Con) | | NA | | | |
| Haryana | (Exp) | 23 (44.23) | 20 (38.46) | 9 (17) | 52 | 2.87 |
| | (Con) | 7 (29.17) | 13 (54.16) | 4 (16.67) | 24 | |
| Jammu & Kashmir | (Exp) | 52 (89.66) | 5 (8.62) | 1 (1.72) | 58 | 2.87 |
| | (Con) | 17 (68) | 5 (20) | 3 (12) | 25 | |
| Madhya Pradesh | (Exp) | 11 (12.36) | 43 (48.31) | 35 (39.3) | 89 | 14.57** |
| | (Con) | 2 (2.25) | 66 (74.16) | 21 (23.6) | 89 | |
| Maharashtra | (Exp) | 17 (35.4) | 17 (35.4) | 14 (29.2) | 48 | 0.71 |
| | (Con) | 8 (33.3) | 8 (33.3) | 8 (33.3) | 24 | |
| Meghalaya | (Exp) | 27 (32.53) | 46 (55.42) | 10 (12.05) | 83 | 1.75 |
| | (Con) | 29 (42.64) | 29 (42.64) | 10 (14.70) | 68 | |
| Nagaland | (Exp) | 29 (40.3) | 36 (50) | 7 (9.7) | 72 | 2.76 |
| | (Con) | 8 (34.8) | 10 (43.5) | 5 (21.7) | 23 | |
| Odisha | (Exp) | 80 (67.7) | 29 (24.7) | 9 (7.6) | 118 | 3.01 |
| | (Con) | 21 (56.7) | 10 (27.02) | 6 (16.2) | 37 | |
| Rajasthan | (Exp) | 9 (16.7) | 28 (51.9) | 17 (31.5) | 54 | 2.11 |
| | (Con) | 5 (18.5) | 13 (48.1) | 9 (33.3) | 27 | |
| Tamil Nadu | (Exp) | 59 (70.24) | 25 (29.76) | 0 | 84 | 35.22** |
| | (Con) | 5 (12.82) | 34 (87.18) | 0 | 39 | |
| Uttar Pradesh | (Exp) | 63 (57.8) | 27 (24.8) | 19 (17.4) | 109 | 4.15 |
| | (Con) | 15 (62.5) | 8 (33.3) | 1 (4.2) | 24 | |
| West Bengal | (Exp) | 32 (32.32) | 56 (56.56) | 11 (11.11) | 99 | 3.72 |
| | (Con) | 25 (28.08) | 55 (61.79) | 9 (10.11) | 89 | |

** Significant at 0.01 level

Table 4.22(b)

**Manner of Teacher's Social Treatment of the Students**

| State | | Respectfully | | | | |
|---|---|---|---|---|---|---|
| | | Never | Sometimes | Often | Total | $X^2$ |
| Andhra Pradesh | (Exp) | 80 (82.47) | 5 (5.15) | 12 (12.37) | 97 | |
| | (Con) | | NA | | | |
| Bihar | (Exp) | 8 (20) | 19 (47.5) | 13 (32.5) | 40 | 2.17 |
| | (Con) | 7 (35) | 8 (40) | 5 (25) | 20 | |
| Chhattisgarh | (Exp) | 5 (10.87) | 26 (56.52) | 15 (32.61) | 46 | 2.84 |
| | (Con) | 1 (7.14) | 10 (71.43) | 3 (21.43) | 14 | |
| Gujarat | (Exp) | 7 (7.87) | 33 (37.08) | 49 (55.05) | 89 | |
| | (Con) | | NA | | | |
| Haryana | (Exp) | 5 (9.62) | 25 (48.08) | 22 (42) | 52 | 3.46 |
| | (Con) | 2 (8.33) | 6 (25) | 16 (67) | 24 | |
| Jammu & Kashmir | (Exp) | 1 (1.72) | 27 (46.55) | 30 (51.73) | 58 | 2.45 |
| | (Con) | 5 (20) | 13 (52) | 7 ( 28) | 25 | |
| Madhya Pradesh | (Exp) | 11 (12.36) | 26 (29.21) | 52 (58.43) | 89 | 2.45 |
| | (Con) | 5 (5.62) | 8 (8.99) | 76 (85.39) | 89 | |
| Maharashtra | (Exp) | 2 (4.17) | 22 (45.8) | 24 (50) | 48 | 1.04 |
| | (Con) | 3 (12.5) | 10 (41.7) | 11 (46) | 24 | |
| Meghalaya | (Exp) | 11 (13.25) | 52 (62.65) | 20 (24.09) | 83 | 13.47** |
| | (Con) | 13 (19.12) | 23 (33.82) | 32 (47.06) | 68 | |
| Nagaland | (Exp) | 18 (25) | 39 (54.2) | 15 (20.8) | 72 | 2.14 |
| | (Con) | 3 (13.1) | 15 (65.2) | 5 (21.7) | 23 | |
| Odisha | (Exp) | 28 (23.7) | 58 (49.1) | 32 (27.1) | 118 | 10.27** |
| | (Con) | 11 (29.7) | 8 (21.6) | 18 (48.6) | 37 | |
| Rajasthan | (Exp) | 2 (3.7) | 21 (38.9) | 31 (57.4) | 54 | 1.79 |
| | (Con) | 1 (3.7) | 8 (29.6) | 18 (66.7) | 27 | |
| Tamil Nadu | (Exp) | 0 | 66 (78.57) | 18 (21.43) | 84 | 57.12** |
| | (Con) | 21 (53.85) | 18 (46.15) | 0 | 39 | |
| Uttar Pradesh | (Exp) | 5 (4.6) | 49 (45) | 55 (50.5) | 109 | 8.97* |
| | (Con) | 5 (20.8) | 4 (16.7) | 15 (62.5) | 24 | |
| West Bengal | (Exp) | 15 (15.15) | 41 (41.41) | 43 (43.43) | 99 | 0.94 |
| | (Con) | 13 (14.60) | 33 (37.07) | 43 (48.31) | 89 | |

* Significant at 0.05 level

** Significant at 0.01 level

Table 4.22(c)
**Manner of Teacher's Social Treatment of the Students**

| State | | In an indifferent manner | | | | |
|---|---|---|---|---|---|---|
| | | Never | Sometimes | Often | Total | $X^2$ |
| Andhra Pradesh | (Exp) | 80 (82.47) | 12 (12.37) | 5 (5.15) | 97 | |
| | (Con) | | NA | | | |
| Bihar | (Exp) | 30 (75) | 9 (22.5) | 1 (2.5) | 40 | 2.87 |
| | (Con) | 13 (65) | 6 (30) | 1 (5) | 20 | |
| Chhattisgarh | (Exp) | 29 (63.04) | 17 (39.96) | 0 | 46 | 13.73** |
| | (Con) | 2 (14.29) | 10 (71.42) | 2 (14.29) | 14 | |
| Gujarat | (Exp) | 21 (23.60) | 37 (41.57) | 31 (34.83) | 89 | |
| | (Con) | | NA | | | |
| Haryana | (Exp) | 39 (75) | 13 (25) | 0 | 52 | 1.29 |
| | (Con) | 21 (87.50) | 3 (12.50) | 0 | 24 | |
| Jammu & Kashmir | (Exp) | 38 (65.52) | 17 (29.31) | 3 (5.17) | 58 | 2.89 |
| | (Con) | 12 (48) | 7 (28) | 6 (24) | 25 | |
| Madhya Pradesh | (Exp) | 21 (23.60) | 43 (48.31) | 25 (28.09) | 89 | 7.8* |
| | (Con) | 38 (42.70) | 29 (32.58) | 22 (24.72) | 89 | |
| Maharashtra | (Exp) | 40 (83.3) | 8 (16.7) | 0 | 48 | 0.71 |
| | (Con) | 21 (87.5) | 3 (12.5) | 0 | 24 | |
| Meghalaya | (Exp) | 73 (87.95) | 9 (10.84) | 1 (1.20) | 83 | 2.58 |
| | (Con) | 59 (86.76) | 5 (7.35) | 4 (5.88) | 68 | |
| Nagaland | (Exp) | 72 (100) | 0 | 0 | 72 | 0 |
| | (Con) | 23 (100) | 0 | 0 | 23 | |
| Odisha | (Exp) | 70 (59.3) | 36 (30.5) | 12 (10.1) | 118 | 3.14 |
| | (Con) | 26 (70.2) | 10 (27.02) | 1 (2.7) | 37 | |
| Rajasthan | (Exp) | 20 (37) | 21 (38.9) | 13 (24.1) | 54 | 4.14 |
| | (Con) | 10 (37) | 12 (44.4) | 5 (18.5) | 27 | |
| Tamil Nadu | (Exp) | 50 (59.52) | 33 (39.29) | 1 (1.19) | 84 | 37.16** |
| | (Con) | 5 (12.82) | 21 (53.85) | 13 (33.33) | 39 | |
| Uttar Pradesh | (Exp) | 88 (80.7) | 16 (14.7) | 5 (4.6) | 109 | 3.71 |
| | (Con) | 17 (70.8) | 7 (29.2) | 0 | 24 | |
| West Bengal | (Exp) | 79 (79.79) | 19 (19.19) | 1 (1.01) | 99 | 0.84 |
| | (Con) | 70 (78.65) | 18 (20.22) | 1 (1.12) | 89 | |

* Significant at 0.05 level
** Significant at 0.01 level

Table 4.22(d)
**Manner of Teacher's Social Treatment of the Students**

| State | | On equal footing | | | | |
|---|---|---|---|---|---|---|
| | | Never | Sometimes | Often | Total | $X^2$ |
| Andhra Pradesh | (Exp) | - | NA | - | - | - |
| | (Con) | - | NA | - | - | |
| Bihar | (Exp) | 12 (30) | 13 (32.5) | 15 (37.5) | 40 | 3.11 |
| | (Con) | 9 (45) | 7 (35) | 4 (20) | 20 | |
| Chhattisgarh | (Exp) | 23 (50) | 21 (45.65) | 2 (4.35) | 46 | 4.85 |
| | (Con) | 3 (21.43) | 11 (78.57) | 0 | 14 | |
| Gujarat | (Exp) | 17 (19.10) | 17 (19.10) | 55 (61.80) | 89 | - |
| | (Con) | - | NA | - | - | |
| Haryana | (Exp) | 10 (19.23) | 7 (13.46) | 35 (67) | 52 | 1.84 |
| | (Con) | 6 (25) | 4 (16.67) | 14 (58) | 24 | |
| Jammu & Kashmir | (Exp) | 5 (8.62) | 28 (48.28) | 25 (43.10) | 58 | 4.16 |
| | (Con) | 5 (20) | 12 (48) | 8 (32) | 25 | |
| Madhya Pradesh | (Exp) | 15 (16.85) | 31 (34.83) | 43 (48.31) | 89 | 2.24 |
| | (Con) | 16 (17.98) | 22 (24.72) | 51 (57.30) | 89 | |
| Maharashtra | (Exp) | 35 (72.9) | 12 (25) | 1 (2.1) | 48 | 1.21 |
| | (Con) | 20 (83.3) | 3 (12.5) | 1 (4.2) | 24 | |
| Meghalaya | (Exp) | 48 (57.83) | 30 (36.14) | 5 (6.02) | 83 | 5.89 |
| | (Con) | 40 (58.82) | 16 (23.52) | 12 (17.64) | 68 | |
| Nagaland | (Exp) | 48 (66.7) | 13 (18) | 11 (15.3) | 72 | 2.94 |
| | (Con) | 18 (78.3) | 4 (17.4) | 1 (4.3) | 23 | |
| Odisha | (Exp) | 23 (19.4) | 23 (19.4) | 72 (61.01) | 118 | 13.87** |
| | (Con) | 16 (43.2) | 11 (29.7) | 10 (27.02) | 37 | |
| Rajasthan | (Exp) | 15 (27.8) | 24 (44.4) | 15 (27.8) | 54 | 2.16 |
| | (Con) | 9 (33.3) | 10 (37) | 8 (29.6) | 27 | |
| Tamil Nadu | (Exp) | 19 (22.62) | 41 (48.81) | 24 (28.57) | 84 | 49.27** |
| | (Con) | 28 (80) | 5 (14.29) | 2 (5.71) | 35 | |
| Uttar Pradesh | (Exp) | 24 (22) | 46 (42.2) | 39 (35.8) | 109 | 13.04** |
| | (Con) | 12 (50) | 11 (45.8) | 1 (4.2) | 24 | |
| West Bengal | (Exp) | 43 (43.43) | 52 (52.52) | 4 (4.04) | 99 | 1.76 |
| | (Con) | 34 (38.20) | 53 (59.55) | 2 (2.24) | 89 | |

* Significant at 0.05 level
** Significant at 0.01 level

Table 4.23(a)
**Teaching Aids and Technology Support**

| State | | Blackboard | | | | |
|---|---|---|---|---|---|---|
| | | Never | Sometimes | Often | Total | $X^2$ |
| Andhra Pradesh | (Exp) | 5 (5.15) | 80 (82.47) | 12 (12.37) | 97 | - |
| | (Con) | - | - | NA | - | |
| Bihar | (Exp) | 1 (2.5) | 14 (35) | 25 (62.5) | 40 | 4.08 |
| | (Con) | 3 (15) | 8 (40) | 9 (45) | 20 | |
| Chhattisgarh | (Exp) | 2 (4.35) | 12 (26.09) | 32 (69.56) | 46 | 4.26 |
| | (Con) | 2 (14.29) | 0 | 12 (85.71) | 14 | |
| Gujarat | (Exp) | 6 (6.74) | 24 (26.97) | 59 (66.29) | 89 | - |
| | (Con) | - | NA | - | - | |
| Haryana | (Exp) | 2 (3.85) | 16 (30.77) | 34 (65) | 52 | 2.14 |
| | (Con) | 2 (8.33) | 4 (16.67) | 18 (75) | 24 | |
| Jammu & Kashmir | (Exp) | 0 | 6 (10.34) | 52 (89.66) | 58 | 29.18** |
| | (Con) | 0 | 17 (68) | 8 (32) | 25 | |
| Madhya Pradesh | (Exp) | 7 (7.7) | 36 (40) | 47 (52.2) | 90 | 33.92** |
| | (Con) | 21 (50) | 16 (38) | 5 (12) | 42 | |
| Maharashtra | (Exp) | 7 (14.6) | 18 (37.5) | 23 (47.9) | 48 | 2.24 |
| | (Con) | 3 (12.5) | 12 (50) | 9 (37.5) | 24 | |
| Meghalaya | (Exp) | 15 (18.07) | 23 (27.71) | 45 (54.21) | 83 | 1.96 |
| | (Con) | 12 (17.64) | 12 (17.64) | 44 (64.71) | 68 | |
| Nagaland | (Exp) | 9 (12.5) | 21 (29.2) | 42 (58.3) | 72 | 1.47 |
| | (Con) | 4 (17.4) | 4 (17.4) | 15 (65.2) | 23 | |
| Odisha | (Exp) | 23 (19.4) | 25 (21.8) | 70 (59.3) | 118 | 6.12* |
| | (Con) | 1 (2.7) | 10 (27.02) | 26 (70.2) | 37 | |
| Rajasthan | (Exp) | 3 (5.6) | 8 (14.8) | 43 (79.6) | 54 | 2.47 |
| | (Con) | 0 | 2 (7.4) | 25 (92.6) | 27 | |
| Tamil Nadu | (Exp) | 0 | 1 (1.19) | 83 (98.89) | 84 | 1.47 |
| | (Con) | 0 | 1 (2.63) | 37 (97.37) | 38 | |
| Uttar Pradesh | (Exp) | 9 (8.3) | 38 (34.9) | 62 (56.9) | 109 | 8.47* |
| | (Con) | 15 (62.5) | 9 (37.5) | 0 | 24 | |
| West Bengal | (Exp) | 18 (18.18) | 48 (48.48) | 33 (33.34) | 99 | 0.49 |
| | (Con) | 16 (17.97) | 45 (50.56) | 28 (31.46) | 89 | |

* Significant at 0.05 level
** Significant at 0.01 level

Table 4.23(b)
**Teaching Aids and Technology Support**

| State | | Overhead Projector | | | | |
|---|---|---|---|---|---|---|
| | | Never | Sometimes | Often | Total | $X^2$ |
| Andhra Pradesh | (Exp) | 90 (92.87) | 5 (5.15) | 2 (2.06) | 97 | - |
| | (Con) | - | NA | - | - | |
| Bihar | (Exp) | 40 (100) | 0 | 0 | 40 | 2.36 |
| | (Con) | 19 (95) | 1 (5) | 0 | 20 | |
| Chhattisgarh | (Exp) | 30 (65.22) | 4 (8.69) | 12 (26.09) | 46 | 3.78 |
| | (Con) | 12 (85.71) | 0 | 2 (14.29) | 14 | |
| Gujarat | (Exp) | 72 (80.90) | 14 (15.73) | 3 (3.37) | 89 | - |
| | (Con) | - | NA | - | - | |
| Haryana | (Exp) | 52 (100) | 0 | 0 | 52 | 0 |
| | (Con) | 24 (100) | 0 | 0 | 24 | |
| Jammu & Kashmir | (Exp) | 52 (89.66) | 6 (10.34) | 0 | 58 | 2.87 |
| | (Con) | 25 (100) | 0 | 0 | 25 | |
| Madhya Pradesh | (Exp) | 86 (95.5) | 6 (6.6) | 0 | 92 | 1.07 |
| | (Con) | 41 (97.6) | 1 (2.3) | 0 | 42 | |
| Maharashtra | (Exp) | 48 (48) | 0 | 0 | 48 | 0 |
| | (Con) | 24 (100) | 0 | 0 | 24 | |
| Meghalaya | (Exp) | 82 (98.79) | 1 (1.20) | 0 | 83 | 0.48 |
| | (Con) | 68 (100) | 0 | 0 | 68 | |
| Nagaland | (Exp) | 72 (100) | 0 | 0 | 72 | 0 |
| | (Con) | 23 (100) | 0 | 0 | 23 | |
| Odisha | (Exp) | 115 (97.4) | 2 (1.6) | 1 (0.8) | 118 | 2.87 |
| | (Con) | 37 (100) | 0 | 0 | 37 | |
| Rajasthan | (Exp) | 53 (98.1) | 0 | 1 (1.9) | 54 | 1.96 |
| | (Con) | 26 (96.3) | 1 (3.7) | 0 | 27 | |
| Tamil Nadu | (Exp) | 29 (34.52) | 55 (65.48) | 0 | 84 | 46.92** |
| | (Con) | 39 (100) | 0 | 0 | 39 | |
| Uttar Pradesh | (Exp) | 108 (99.1) | 0 | 1 (0.9) | 109 | 0.67 |
| | (Con) | 24 (100) | 0 | 0 | 24 | |
| West Bengal | (Exp) | 99 (100) | 0 | 0 | 99 | 0 |
| | (Con) | 89 (100) | 0 | 0 | 89 | |

** Significant at 0.01 level

Table 4.23(c)
**Teaching Aids and Technology Support**

| State | | Films/Videos | | | | |
|---|---|---|---|---|---|---|
| | | Never | Sometimes | Often | Total | $X^2$ |
| Andhra Pradesh | (Exp) | 92 (94.85) | 5 (5.15) | 0 | 97 | |
| | (Con) | | NA | | | |
| Bihar | (Exp) | 40 (100) | 0 | 0 | 40 | 0 |
| | (Con) | 20 (100) | 0 | 0 | 20 | |
| Chhattisgarh | (Exp) | 30 (65.22) | 11 (23.90) | 5 (10.87) | 46 | 3.14 |
| | (Con) | 5 (35.71) | 8 (57.14) | 1 (7.14) | 14 | |
| Gujarat | (Exp) | 73 (82.02) | 16 (17.98) | 0 | 89 | |
| | (Con) | | NA | | | |
| Haryana | (Exp) | 52 (100) | 0 | 0 | 52 | 0 |
| | (Con) | 24 (100) | 0 | 0 | 24 | |
| Jammu & Kashmir | (Exp) | 52 (89.66) | 6 (10.34) | 0 | 58 | 3.16 |
| | (Con) | 25 (100) | 0 | 0 | 25 | |
| Madhya Pradesh | (Exp) | 88 (97.7) | 2 (2.2) | 0 | 90 | 0.97 |
| | (Con) | 42 (100) | 0 | 0 | 42 | |
| Maharashtra | (Exp) | 47 (97.9) | 0 | 1 (2.08) | 48 | 0.71 |
| | (Con) | 24 (100) | 0 | 0 | 24 | |
| Meghalaya | (Exp) | 83 (100) | 0 | 0 | 83 | 0 |
| | (Con) | 68 (100) | 0 | 0 | 68 | |
| Nagaland | (Exp) | 72 (100) | 0 | 0 | 72 | 0 |
| | (Con) | 23 (100) | 0 | 0 | 23 | |
| Odisha | (Exp) | 118 (100) | 0 | 0 | 118 | 0 |
| | (Con) | 37 (100) | 0 | 0 | 37 | |
| Rajasthan | (Exp) | 54 (100) | 0 | 0 | 54 | 0 |
| | (Con) | 27 (100) | 0 | 0 | 27 | |
| Tamil Nadu | (Exp) | 84 (100) | 0 | 0 | 84 | 0 |
| | (Con) | 39 (100) | 0 | 0 | 39 | |
| Uttar Pradesh | (Exp) | 109 (100) | 0 | 0 | 109 | 0 |
| | (Con) | 24 (100) | 0 | 0 | 24 | |
| West Bengal | (Exp) | 99 (100) | 0 | 0 | 99 | 0 |
| | (Con) | 89 (100) | 0 | 0 | 89 | |

Table 4.23(d)
**Teaching Aids and Technology Support**

| State | | Computer | | | | |
|---|---|---|---|---|---|---|
| | | Never | Sometimes | Often | Total | $X^2$ |
| Andhra Pradesh | (Exp) | 97 (100) | 0 | 0 | 97 | |
| | (Con) | | NA | | | |
| Bihar | (Exp) | 40 (100) | 0 | 0 | 40 | 0 |
| | (Con) | 20 (100) | 0 | 0 | 20 | |
| Chhattisgarh | (Exp) | 41 (89.11) | 5 (10.87) | 0 | 46 | 3.76 |
| | (Con) | 8 (57.14) | 5 (35.71) | 1 (7.14) | 14 | |
| Gujarat | (Exp) | 60 (67.42) | 27 (30.34) | 2 (2.24) | 89 | |
| | (Con) | | NA | | | |
| Haryana | (Exp) | 52 (100) | 0 | 0 | 52 | 0 |
| | (Con) | 24 (100) | 0 | 0 | 24 | |
| Jammu & Kashmir | (Exp) | 58 (100) | 0 | 0 | 58 | 0 |
| | (Con) | 25 (100) | 0 | 0 | 25 | |
| Madhya Pradesh | (Exp) | 71 (78.8) | 19 (21.1) | 0 | 90 | 10.42** |
| | (Con) | 42 (100) | 0 | 0 | 42 | |
| Maharashtra | (Exp) | 47 (97.9) | 0 | 1 (2.01) | 48 | 0.71 |
| | (Con) | 24 (100) | 0 | 0 | 24 | |
| Meghalaya | (Exp) | 83 (100) | 0 | 0 | 83 | 0 |
| | (Con) | 68 (100) | 0 | 0 | 68 | |
| Nagaland | (Exp) | 72 (100) | 0 | 0 | 72 | 0 |
| | (Con) | 23 (100) | 0 | 0 | 23 | |
| Odisha | (Exp) | 115 (97.4) | 1 (0.8) | 2 (1.6) | 118 | 0.93 |
| | (Con) | 37 | 0 | 0 | 37 | |
| Rajasthan | (Exp) | 53 (98.1) | 1 (1.9) | 0 | 54 | 0.57 |
| | (Con) | 27 (100) | 0 | 0 | 27 | |
| Tamil Nadu | (Exp) | 19 (22.62) | 65 (77.38) | 0 | 84 | 25.93** |
| | (Con) | 28 (71.79) | 11 (28.21) | 0 | 39 | |
| Uttar Pradesh | (Exp) | 108 (99.1) | 1 (0.9) | 0 | 109 | 0.32 |
| | (Con) | 24 (100) | 0 | 0 | 24 | |
| West Bengal | (Exp) | 99 (100) | 0 | 0 | 99 | 0 |
| | (Con) | 89 (100) | 0 | 0 | 89 | |

** Significant at 0.01 level

Table 4.23(e)
**Teaching Aids and Technology Support**

| State | | Other Learning Aids | | | | |
|---|---|---|---|---|---|---|
| | | Never | Sometimes | Often | Total | $X^2$ |
| Andhra Pradesh | (Exp) | 0 | 92 (94.85) | 5 (5.15) | 97 | |
| | (Con) | | NA | | | |
| Bihar | (Exp) | 33 (82.5) | 4 (10) | 3 (7.5) | 40 | 3.59 |
| | (Con) | 15 (75) | 5 (25) | 0 | 20 | |
| Chhattisgarh | (Exp) | 27 (98.69) | 17 (36.96) | 2 (4.35) | 46 | 4.25 |
| | (Con) | 11 (78.57) | 3 (21.43) | 0 | 14 | |
| Gujarat | (Exp) | 35 (39.33) | 35 (39.33) | 19 (21.34) | 89 | |
| | (Con) | | NA | | | |
| Haryana | (Exp) | 42 (100) | 0 | 0 | 42 | 0 |
| | (Con) | 20 (100) | 0 | 0 | 20 | |
| Jammu & Kashmir | (Exp) | 6 (10.34) | 6 (10.34) | 46 (79.32) | 58 | 35.07** |
| | (Con) | 17 (68) | 5 (20) | 3 (12) | 25 | |
| Madhya Pradesh | (Exp) | 28 (31.1) | 32 (35.5) | 30 (33.3) | 90 | 16.82** |
| | (Con) | 29 (69) | 8 (19) | 5 (11.9) | 42 | |
| Maharashtra | (Exp) | 27 (75) | 3 (8.33) | 6 (16.7) | 36 | 1.02 |
| | (Con) | 14 (77.8) | 2 (11.1) | 2 (11.1) | 18 | |
| Meghalaya | (Exp) | 30 (36.14) | 13 (15.66) | 40 (48.19) | 83 | 2.11 |
| | (Con) | 32 (47.05) | 7 (10.29) | 29 (42.65) | 68 | |
| Nagaland | (Exp) | 28 (38.9) | 14 (19.4) | 30 (41.7) | 72 | 5.28 |
| | (Con) | 1 (9) | 5 (45.5) | 5 (45.5) | 11 | |
| Odisha | (Exp) | 28 (70) | 52 (44.04) | 38 (32.2) | 118 | 5.38 |
| | (Con) | 17 (45.9) | 7 (18.9) | 13 (35.13) | 37 | |
| Rajasthan | (Exp) | 26 (48.1) | 12 (22.2) | 16 (29.6) | 54 | 8.79* |
| | (Con) | 22 (81.5) | 1 (3.7) | 4 (14.8) | 27 | |
| Tamil Nadu | (Exp) | 60 (71.43) | 16 (19.05) | 8 (9.52) | 84 | 13.83** |
| | (Con) | 39 (100) | 0 | 0 | 39 | |
| Uttar Pradesh | (Exp) | 78 (71.6) | 17 (15.6) | 14 (12.8) | 109 | 4.96 |
| | (Con) | 21 (87.5) | 0 | 3 (12.5) | 24 | |
| West Bengal | (Exp) | 75 (83.33) | 14 (15.55) | 1 (1.11) | 90 | 0.91 |
| | (Con) | 70 (87.50) | 9 (11.25) | 1 (1.25) | 80 | |

* Significant at 0.05 level
** Significant at 0.01 level

## Organisation of Activities During Classroom Transaction

Table 4.24 provides information regarding organisation of different types of activities during classroom transaction of the primary school teachers in the experimental and control groups. The activities identified for observation were role play, games, group work, conducting experiments and field observation.

The Table reveals that the use of field observation as a teaching-learning activity was conspicuous by its absence in most of the States and conducting experiments or an activity was also minimal. Group work and games were observed more in classroom transaction in most of the States. Role play was also used to a reasonable extent. The experimental and control group primary school teachers varied in the States of Haryana, Jammu and Kashmir only, which may be due to emphasis on group work and games in most of the INSET programmes. Group work was the most used activity in the experimental group teachers' classroom transaction. Similar trend was observed in the case of upper primary school teachers in the two groups.

*Active Co-operative Learning*

## Attentiveness of Students in the Classroom

Estimation categories in respect of students attentiveness in the classroom used for observation were 'a few,' 'some of them,' 'most of them,' 'all of them,' and 'lesson was disrupted by students.' Table 4.25 profiles primary school students of teachers belonging to the experimental and control groups in different States. The underlying assumption of the comparison is that the difference in the extent of students' attentiveness between the two groups of teachers may be attributed to the impact of training.

The experimental and control group primary teachers' classroom transaction behaviour varied in the States of Jammu and Kashmir, Madhya Pradesh and Tamil Nadu as evidenced by significant chi-square values. This implies that in these States, most of the students in the classes of the experimental group teachers were found to be attentive. In the States of Andhra Pradesh and Gujarat in the classes of experimental group teachers the percentage of attentive students was over 80 per cent This may be taken as an indicator of the impact of INSET. At the upper primary stage the two groups significantly differed on attentiveness only in the State of Madhya Pradesh.

## Location Arrangement for Holding Classes

Where was the observed class held? Whether the observed class was located 'in the classroom,' 'partly in the classroom and partly outside,' or 'outside the classroom.' Location has been viewed from the standpoint of positive outcomes with a variety of activities like exploration of the environment, etc. However, it is imperative to take into account that the intractable compulsion of holding open air classes was due to non-availability of space—the physical classroom (Table 4.26).

Table 4.24
**Activities during Classroom Organisation**

| State | | Role Play | Game | Group work | Conducting experiment | Field study observation | Other | Total | $X^2$ |
|---|---|---|---|---|---|---|---|---|---|
| Andhra Pradesh | (Exp) | 0 | 0 | 90 (92.78) | 5 (5.15) | 2 (2.06) | 0 | 97 | |
| | (Con) | | | | NA | | | | |
| Bihar | (Exp) | 11 (27.5) | 1 (2.5) | 12 (30) | 6 (15) | 2 (5) | 0 | 32 | 3.22 |
| | (Con) | 1 (11.1) | 0 | 5 (55.56) | 3 (33.33) | 0 | 0 | 9 | |
| Chhattisgarh | (Exp) | 15 (32.61) | 10 (21.74) | 16 (34.78) | 2 (4.35) | 3 (6.52) | 0 | 46 | 4.86 |
| | (Con) | 3 (21.43) | 1 (7.14) | 10 (71.43) | 0 | 0 | 0 | 14 | |
| Gujarat | (Exp) | | | NA | | | | | |
| | (Con) | | | NA | | | | | |
| Haryana | (Exp) | 1 (1.90) | 0 | 18 (34.6) | 3 (5.80) | 1 (1.90) | 29 (55.80) | 52 | 10.52** |
| | (Con) | 4 (16.67) | 0 | 3 ( 12.50) | 4 (16.67) | 0 | 13 (54.16) | 24 | |
| Jammu & Kashmir | (Exp) | 5 (8.62) | 5 (8.62) | 38 (65.52) | 10 (17.24) | 0 | 0 | 58 | 8.62* |
| | (Con) | 0 | 8 (32) | 14 (56) | 3 (12) | 0 | 0 | 25 | |
| Madhya Pradesh | (Exp) | | | NA | | | | | |
| | (Con) | | | NA | | | | | |
| Maharashtra | (Exp) | 12 (46.2) | 1 (3.85) | 5 (19.2) | 8 (30.75) | 0 | 0 | 26 | |
| | (Con) | 5 (83.6) | 0 | 1 (16.7) | 0 | 0 | 0 | 6 | |
| Meghalaya | (Exp) | 0 | 0 | 2 (2.40) | 0 | 0 | 81 (97.59) | 83 | 3.42 |
| | (Con) | 0 | 0 | 3 (4.41) | 0 | 0 | 65 (95.58) | 68 | |
| Nagaland | (Exp) | 5 (11.6) | 4 (9.3) | 28 (65.1) | 2 (4.7) | 4 (9.3) | 0 | 43 | 2.11 |
| | (Con) | 0 | 1 (20) | 3 (60) | 1 (20) | 0 | 0 | 5 | |
| Odisha | (Exp) | 8 (6.7) | 18 (15.2) | 73 (61.8) | 19 (16.1) | 0 | 0 | 118 | 7.23* |
| | (Con) | 6 (16.2) | 4 (10.8) | 27 (72.9) | 0 | 0 | 0 | 37 | |
| Rajasthan | (Exp) | 4 (7.4) | 13 (24.1) | 35 (64.8) | 1 (1.9) | 1 (1.9) | 0 | 54 | 3.87 |
| | (Con) | 4 (14.8) | 7 (25.9) | 14 (51.9) | 2 (7.4) | 0 | 0 | 27 | |
| Tamil Nadu | (Exp) | 0 | 0 | 80 (95.24) | 2 (2.38) | 2 (2.38) | 0 | 84 | 2.32 |
| | (Con) | 0 | 0 | 39 (100) | 0 | 0 | 0 | 39 | |
| Uttar Pradesh | (Exp) | 6 (5.5) | 8 (7.3) | 20 (18.3) | 3 (2.8) | 1 (0.9) | 71 (65.1) | 109 | 6.27 |
| | (Con) | 0 | 2 (8.3) | 9 (37.5) | 1 (4.2) | 0 | 12 (50) | 24 | |
| West Bengal | (Exp) | 19 (47.5) | 0 | 13 (32.5) | 1 (2.5) | 7 (17.5) | 0 | 40 | 1.08 |
| | (Con) | 15 (48.83) | 1 (3.22) | 7 (22.58) | 1 (3.22) | 7 (22.58) | 0 | 31 | |

* Significant at 0.05 level
** Significant at 0.01 level

Table 4.25
**Extent of Attentiveness of Students**

| State | | A few | Some of them | Most of them | All of them | Lesson was disrupted by students | Total | $X^2$ |
|---|---|---|---|---|---|---|---|---|
| Andhra Pradesh | (Exp) | 6 (6.19) | 12 (12.37) | 57 (58.76) | 20 (20.62) | 2 (2.06) | 97 | |
| | (Con) | | | NA | | | | |
| Bihar | (Exp) | 3 (7.5) | 16 (40) | 20 (50) | 1 (2.5) | 0 | 40 | 3.08 |
| | (Con) | 3 (15) | 10 (50) | 7 (35) | 0 | 0 | 20 | |
| Chhattisgarh | (Exp) | 4 (8.69) | 13 (28.26) | 25 (54.35) | 4 (8.69) | 0 | 46 | 2.14 |
| | (Con) | 2 (14.29) | 4 (28.57) | 8 (57.14) | 0 | 0 | 14 | |
| Gujarat | (Exp) | 9 (10.11) | 27 (30.33) | 34 (38.20) | 12 (13.48) | 7 (7.87) | 89 | |
| | (Con) | | | NA | | | | |
| Haryana | (Exp) | 1 (1.9) | 4 (7.7) | 29 (55.8) | 18 (34.6) | 0 | 52 | 4.21 |
| | (Con) | 0 | 3 (12.5) | 12 (50) | 9 (37.5) | 0 | 24 | |
| Jammu & Kashmir | (Exp) | 0 | 0 | 52 (89.66) | 6 | 0 | 58 | 18.03** |
| | (Con) | 0 | 7 (28) | 17 (68) | 1 (4) | 0 | 25 | |
| Madhya Pradesh | (Exp) | 12 (13.33) | 29 (32.22) | 32 (35.55) | 1 (1.11) | 16 (17.78) | 90 | 9.77* |
| | (Con) | 4 (9.52) | 21 (50) | 12 (28.57) | 0 | 5 (11.90) | 42 | |
| Maharashtra | (Exp) | 2 (4.26) | 12 (25.5) | 10 (21.3) | 23 (48.94) | 1 (2.13) | 48 | 2.04 |
| | (Con) | 3 (12.5) | 5 (20.8) | 3 (12.5) | 13 (54.17) | 0 | 24 | |
| Meghalaya | (Exp) | 2 (24.1) | 21 (25.30) | 38 (45.78) | 22 (26.51) | 0 | 83 | 2.71 |
| | (Con) | 1 (1.47) | 10 (14.70) | 37 (54.14) | 19 (27.94) | 1 (1.47) | 68 | |
| Nagaland | (Exp) | 1 (104) | 9 (12.5) | 41 (56.9) | 21 (29.2) | 0 | 72 | 4.28 |
| | (Con) | 0 | 6 (26.1) | 9 (39.1) | 8 (34.8) | 0 | 23 | |
| Odisha | (Exp) | 2 (1.69) | 8 (6.7) | 58 (49.15) | 50 (42.3) | 0 | 118 | 3.07 |
| | (Con) | 1 (2.7) | 5 (13.5) | 18 (48.6) | 13 (35.1) | 0 | 37 | |
| Rajasthan | (Exp) | 2 (3.7) | 10 (18.5) | 36 (66.7) | 6 (11.8) | 0 | 54 | 0.92 |
| | (Con) | 1 (3.7) | 6 (22.2) | 16 (59.3) | 4 (14.8) | 0 | 27 | |
| Tamil Nadu | (Exp) | 0 | 1 (1.19) | 66 (78.57) | 17 (2.24) | 0 | 84 | 92.48** |
| | (Con) | 0 | 32 (86.49) | 5 (13.51) | 0 | 0 | 37 | |
| Uttar Pradesh | (Exp) | 6 (5.5) | 14 (12.8) | 65 (59.6) | 22 (20.2) | 2 (1.8) | 109 | 3.21 |
| | (Con) | 1 (4.2) | 1 (4.2) | 17 (70.8) | 5 (20.8) | 0 | 24 | |
| West Bengal | (Exp) | 10 (10.1) | 26 (26.26) | 26 (26.26) | 37 (37.37) | 0 | 99 | 0.92 |
| | (Con) | 10 (11.23) | 23 (25.84) | 22 (24.71) | 34 (38.20) | 0 | 89 | |

* Significant at 0.05 level
** Significant at 0.01 level

Table 4.26
**Arrangement for Holding Classes**

| State | | In the classroom | Partly in the classroom and outside classroom | Outside the classroom | Total | $X^2$ |
|---|---|---|---|---|---|---|
| Andhra Pradesh | (Exp) | 85 (87.63) | 12 (12.37) | 0 | 97 | - |
| | (Con) | - | NA | - | - | |
| Bihar | (Exp) | 35 (87.5) | 4 (10) | 1 (2.5) | 40 | 2.41 |
| | (Con) | 18 (90) | 1 (5) | 1 (5) | 20 | |
| Chhattisgarh | (Exp) | 34 (73.91) | 7 (15.22) | 5 (10.87) | 46 | 7.97* |
| | (Con) | 5 (35.71) | 7 (50) | 2 (14.29) | 14 | |
| Gujarat | (Exp) | - | NA | - | - | - |
| | (Con) | - | NA | - | - | |
| Haryana | (Exp) | 50 (96.15) | 0 | 2 (3.85) | 52 | 1.87 |
| | (Con) | 23 (95.83) | 1 (4.17) | 0 | 24 | |
| Jammu & Kashmir | (Exp) | 58 (100) | 0 | 0 | 58 | 0 |
| | (Con) | 25 (100) | 0 | 0 | 25 | |
| Madhya Pradesh | (Exp) | 58 (64.4) | 25 (27.8) | 7 (7.7) | 90 | 3.11 |
| | (Con) | 31 (73.8) | 8 (19.1) | 3 (5.9) | 42 | |
| Maharashtra | (Exp) | 43 (89.58) | 4 (8.33) | 1 (2.08) | 48 | 2.87 |
| | (Con) | 23 (95.83) | 0 | 1 (4.16) | 24 | |
| Meghalaya | (Exp) | 80 (96.38) | 3 (3.61) | 0 | 83 | 2.54 |
| | (Con) | 68 (100) | 0 | 0 | 68 | |
| Nagaland | (Exp) | 63 (87.5) | 9 (12.5) | 0 | 72 | 3.16 |
| | (Con) | 22 (95.7) | 1 (4.3) | 0 | 23 | |
| Odisha | (Exp) | 115 (97.4) | 3 (2.5) | 0 | 118 | 2.04 |
| | (Con) | 37 (100) | 0 | 0 | 37 | |
| Rajasthan | (Exp) | 46 (85.2) | 7 (13) | 1 (1.9) | 54 | 0.97 |
| | (Con) | 23 (85.2) | 4 (14.8) | 0 | 27 | |
| Tamil Nadu | (Exp) | 84 (100) | 0 | 0 | 84 | 0 |
| | (Con) | 39 (100) | 0 | 0 | 39 | |
| Uttar Pradesh | (Exp) | 98 (89.9) | 11 (10.1) | 0 | 109 | 0.39 |
| | (Con) | 21 (87.5) | 3 (12.5) | 0 | 24 | |
| West Bengal | (Exp) | 92 (92.92) | 6 (6.06) | 1 (1.01) | 99 | 038 |
| | (Con) | 85 (95.5) | 3 (3.37) | 1 (1.12) | 89 | |

* Significant at 0.05 level

Mostly observed classes were taken in the classroom. In hilly States classes cannot be undertaken outside due to hostile weather, for example in Jammu and Kashmir, Nagaland and Meghalaya. On this parameter the experimental and control groups differed significantly in the State of Chhattisgarh only when most of the teachers of experimental group hold their classes inside the classroom. The practice of organising field study/observation might not have been covered enough in the INSET.

## Use of Textbook During Classroom Transaction

The manner of using the textbook was categorised as 'to explain the content of the lesson,' 'to ask the students to read it individually or in group to increase understanding,' 'to read at the end to consolidate learning,' and 'to give home assignment to consolidate learning.' Table 4.27 provides data pertaining to the manner of textbook use by teachers of experimental and control groups along with chi-square values.

With regard to the use of textbooks during classroom transaction the experimental and control group primary teachers differed significantly in the States of Odisha and Tamil Nadu only. In the State of Odisha teachers of control group mostly used textbooks as a tool for explaining the content of the lesson, while in the State of Tamil Nadu teachers of experimental group mostly used it to give home assignments aimed at consolidation of learning. In most of the States both groups were similar in the use of textbooks. In Andhra Pradesh

Table 4.27
**Purpose of using Textbooks in Classrooms**

| State | | To explain content of the lesson | To ask students to read individually/in groups to increase understanding | To read at the end to consolidate learning | to give home assignment to consolidate learning | Total | $X^2$ |
|---|---|---|---|---|---|---|---|
| Andhra Pradesh | (Exp) | 15 (15.46) | 60 (61.86) | 12 (12.37) | 10 (10.31) | 97 | - |
| | (Con) | - | NA | - | - | - | |
| Bihar | (Exp) | 22 (55) | 7 (17.5) | 3 (7.5) | 8 (20) | 40 | 4.77 |
| | (Con) | 15 (75) | 4 (20) | 1 (5) | 0 | 20 | |
| Chhattisgarh | (Exp) | 24 (52.17) | 6 (13.04) | 5 (10.87) | 11 (23.90) | 46 | 3.87 |
| | (Con) | 9 (64.29) | 3 (21.43) | 2 (14.29) | 0 | 14 | |
| Gujarat | (Exp) | 41 (46.07) | 21 (23.60) | 19 (21.35) | 8 (8.98) | 89 | - |
| | (Con) | - | NA | - | - | - | |
| Haryana | (Exp) | 42 (87.50) | 6 (12.50) | 0 | 0 | 48 | 3.37 |
| | (Con) | 16 (69.57) | 7 (30.43) | 0 | 0 | 23 | |
| Jammu & Kashmir | (Exp) | 10 (17.24) | 38 (65.52) | 6 (10.34) | 4 (6.70) | 58 | 2.76 |
| | (Con) | 3 (12) | 12 (48) | 1 (4) | 9 (36) | 25 | |
| Madhya Pradesh | (Exp) | 31 (34.4) | 35 (38.7) | 7 (7.8) | 17 (18.8) | 90 | 5.52 |
| | (Con) | 22 (52.3) | 13 (30.9) | 4 (9.5) | 3 (7.1) | 42 | |
| Maharashtra | (Exp) | 27 (56.25) | 8 (16.67) | 7 (14.58) | 6 (12.50) | 48 | 2.91 |
| | (Con) | 14 (58.33) | 4 (16.67) | 1 (4.16) | 5 (20.83) | 24 | |
| Meghalaya | (Exp) | 66 (79.52) | 1 (1.20) | 15 (18.07) | 1 (1.20) | 83 | 1.76 |
| | (Con) | 57 (83.82) | 3 (4.41) | 7 (10.29) | 1 (1.47) | 68 | |
| Nagaland | (Exp) | 60 (83.3) | 5 (6.9) | 4 (5.6) | 3 (4.2) | 72 | 2.52 |
| | (Con) | 20 (87) | 2 (8.7) | 1 (4.3) | 0 | 23 | |
| Odisha | (Exp) | 40 (33.8) | 8 (6.7) | 7 (5.9) | 63 (53.3) | 118 | 10.71* |
| | (Con) | 23 (68.16) | 2 (5.4) | 0 | 12 (32.4) | 37 | |
| Rajasthan | (Exp) | 32 (59.3) | 15 (27.8) | 5 (9.3) | 2 (3.7) | 54 | 1.48 |
| | (Con) | 15 (55.6) | 9 (33.3) | 1 (3.7) | 2 (7.4) | 27 | |
| Tamil Nadu | (Exp) | 12 (14.28) | 2 (2.38) | 69 (82.14) | 1 (1.19) | 84 | 38.25** |
| | (Con) | 34 (87.18) | 0 | 5 (12.82) | 0 | 39 | |
| Uttar Pradesh | (Exp) | 57 (52.30) | 27 (24.80) | 5 (4.60) | 20 (18.3) | 109 | 2.71 |
| | (Con) | 14 (58.40) | 5 (20.80) | 3 (12.50) | 2 (8.30) | 24 | |
| West Bengal | (Exp) | 75 (75.75) | 17 (17.17) | 1 (1.01) | 6 (6.06) | 99 | 0.28 |
| | (Con) | 65 (73.03) | 16 (17.97) | 1 (1.12) | 7 (7.86) | 89 | |

* Significant at 0.05 level ** Significant at 0.01 level

over 60 per cent teachers of the experimental group used textbooks for developing understanding. This may be attributed to the impact of training transaction on teachers. Textbook teaching is mostly conditioned so far as the use of textbook is concerned. To change this culture is a tough job to accomplish. The SPD need to provide this input in the forthcoming INSET and continue it for at least a couple of years with adequate follow-on CRC monthly meetings.

## Mode of Evaluation of Students

Students' evaluation forms an integral art of classroom transaction for which teachers use a variety of modes. In the present study, the mode of student evaluation during classroom transaction was categorised as 'using oral questioning,' 'by giving assignments,' through written test,' and evaluation not done.' Table 4.28 provides the distribution of teachers of the experimental and control groups on the use of this parameter along with corresponding chi-square values.

Table 4.28
**Mode of Students' Evaluation**

| State | | Done through oral questioning | Done by giving assignments | Done through writtent test | Not done | Total | $X^2$ |
|---|---|---|---|---|---|---|---|
| Andhra Pradesh | (Exp) | 12 (12.37) | 5 (5.15) | 80 (82.47) | 0 | 97 | |
| | (Con) | | NA | | | | |
| Bihar | (Exp) | 24 (60) | 11 (27.5) | 3 (7.5) | 2 (5) | 40 | 3.92 |
| | (Con) | 13 (65) | 1 (5) | 1 (5) | 5 (25) | 20 | |
| Chhattisgarh | (Exp) | 21 (45.65) | 16 (34.78) | 4 (8.69) | 5 (10.87) | 46 | 3.02 |
| | (Con) | 4 (28.57) | 8 (57.14) | 2 (14.29) | 0 | 14 | |
| Gujarat | (Exp) | 47 (52.81) | 29 (32.58) | 13 (14.61) | 0 | 89 | |
| | (Con) | | NA | | | | |
| Haryana | (Exp) | 36 (69.23) | 8 (15.38) | 4 (7.69) | 4 (7.69) | 52 | 3.08 |
| | (Con) | 12 (50) | 2 (8.33) | 7 (29.17) | 3 (12.50) | 24 | |
| Jammu & Kashmir | (Exp) | 28 (48.28) | 20 (34.48) | 10 (17.24) | 0 | 58 | 2.11 |
| | (Con) | 9 (36) | 8 (32) | 3 (12) | 5 (20) | 25 | |
| Madhya Pradesh | (Exp) | 23 (25.5) | 31 (34.4) | 22 (24.4) | 14 (15.6) | 90 | 6.94 |
| | (Con) | 14 (33.3) | 8 (19) | 7 (16.6) | 13 (31) | 42 | |
| Maharashtra | (Exp) | 25 (53.19) | 15 (31.91) | 2 (4.26) | 5 (10.64) | 47 | 1.89 |
| | (Con) | 16 (72.73) | 5 (22.73) | 1 (4.54) | 0 | 22 | |
| Meghalaya | (Exp) | 44 (53.01) | 19 (22.89) | 0 | 20 (24.09) | 83 | 5.64 |
| | (Con) | 34 (50) | 11 (16.67) | 4 (5.58) | 19 (27.94) | 68 | |
| Nagaland | (Exp) | 43 (59.7) | 12 (16.7) | 8 (11.1) | 9 (12.5) | 72 | 2.84 |
| | (Con) | 15 (65.2) | 1 (4.3) | 4 (17.4) | 3 (13.1) | 23 | |
| Odisha | (Exp) | 27 (22.8) | 42 (35.5) | 46 (38.9) | 3 (2.54) | 118 | 1.24 |
| | (Con) | 10 (27.02) | 10 (27.02) | 14 (37.8) | 3 (8.1) | 37 | |
| Rajasthan | (Exp) | 30 (55.6) | 20 (37) | 4 (7.4) | 0 | 54 | 3.46 |
| | (Con) | 12 (44.4) | 14 (51.9) | 1 (3.7) | 0 | 27 | |
| Tamil Nadu | (Exp) | 9 (10.59) | 1 (1.18) | 75 (88.24) | 0 | 85 | 50.89** |
| | (Con) | 11 (30.56) | 0 | 11 (30.56) | 14 (38.89) | 36 | |
| Uttar Pradesh | (Exp) | 67 (61.5) | 10 (9.2) | 8 (7.3) | 24 (22) | 109 | 2.04 |
| | (Con) | 16 (66.7) | 3 (12.5) | 3 (12.5) | 2 (8.3) | 24 | |
| West Bengal | (Exp) | 44 (44.44) | 6 (6.06) | 20 (20.20) | 29 (29.29) | 99 | 0.49 |
| | (Con) | 41 (46.06) | 7 (7.86) | 13 (14.60) | 28 (31.46) | 89 | |

* *Significant at 0.05 level* ** *Significant at 0.01 level*

Experimental and control groups of primary and upper primary school teachers do not differ significantly in any of the sampled state except Madhya Pradesh and that too at the upper primary stage. Stereotyping of classroom transaction in respect of this parameter was noticed. SPD needs to focus adequately on the Continuous and Comprehensive Evaluation (CCE). Special INSET initiative might be the appropriate response to this challenge.

## Concluding the Lesson

Teacher's use different strategies for concluding it abruptly, by summarising the main points, giving assignment and highlighting some points for further reflection. Table 4.29 specifies the number of

Table 4.29
**Strategies for Concluding the Lesson**

| State | | Abruptly | Summarising the main points | Giving assignments | Highlighting some points for reflection | Total | $X^2$ |
|---|---|---|---|---|---|---|---|
| Andhra Pradesh | (Exp) | 0 | 5 (5.15) | 92 (94.85) | 0 | 97 | - |
| | (Con) | - | - | NA | - | - | |
| Bihar | (Exp) | 7 (17.5) | 13 (32.5) | 14 (35) | 6 (15) | 40 | 4.21 |
| | (Con) | 8 (40) | 6 (30) | 5 (25) | 1 (5) | 20 | |
| Chhattisgarh | (Exp) | 16 (34.78) | 11 (23.91) | 13 (28.26) | 6 (13.04) | 46 | 4.05 |
| | (Con) | 8 (57.14) | 4 (28.57) | 2 (14.29) | 0 | 14 | |
| Gujarat | (Exp) | 13 (14.60) | 17 (19.10) | 35 (39.33) | 24 (26.97) | 89 | - |
| | (Con) | - | - | NA | - | - | |
| Haryana | (Exp) | 4 (7.84) | 16 (31.37) | 23 (45.10) | 8 (15.69) | 51 | 2.89 |
| | (Con) | 2 (8.69) | 5 (21.74) | 14 (60.87) | 2 (8.69) | 23 | |
| Jammu & Kashmir | (Exp) | 0 | 38 (65.5) | 15 (25.86) | 5 (8.62) | 58 | 12.54** |
| | (Con) | 3 (12) | 16 (64) | 6 (24) | 0 | 25 | |
| Madhya Pradesh | (Exp) | 20 (22.2) | 34 (37.7) | 24 (26.6) | 12 (13.3) | 90 | 11.23* |
| | (Con) | 21 (50) | 10 (23.8) | 9 (21.4) | 2 (4.7) | 42 | |
| Maharashtra | (Exp) | 5 (10.64) | 23 (48.94) | 12 (25.53) | 7 (14.89) | 47 | 2.74 |
| | (Con) | 4 (16.67) | 14 (58.33) | 5 (20.83) | 1 (4.17) | 24 | |
| Meghalaya | (Exp) | 35 (42.17) | 16 (19.27) | 23 (27.71) | 9 (10.84) | 83 | 1.89 |
| | (Con) | 37 (54.41) | 11 (16.67) | 14 (20.58) | 6 (8.82) | 68 | |
| Nagaland | (Exp) | 12 (16.7) | 30 (41.7) | 25 (34.7) | 5 (6.9) | 72 | 1.79 |
| | (Con) | 5 (21.7) | 7 (30.4) | 8 (34.8) | 3 (13.1) | 23 | |
| Odisha | (Exp) | 12 (10.1) | 19 (16.1) | 62 (52.5) | 25 (21.18) | 118 | 1.96 |
| | (Con) | 4 (10.8) | 9 (24.3) | 19 (51.35) | 5 (13.5) | 37 | |
| Rajasthan | (Exp) | 18 (33.3) | 20 (37) | 13 (24.1) | 3 (5.6) | 54 | |
| | (Con) | 7 (25.9) | 11 (40.7) | 6 (22.2) | 3 (11.1) | 27 | |
| Tamil Nadu | (Exp) | 6 (7.14) | 75 (89.29) | 3 (3.57) | 0 | 84 | 77.89** |
| | (Con) | 34 (87.18) | 5 (12.82) | 0 | 0 | 39 | |
| Uttar Pradesh | (Exp) | 12 (11) | 36 (33) | 44 (40.4) | 17 (15.6) | 109 | 1.94 |
| | (Con) | 2 (8.3) | 7 (29.2) | 13 (54.2) | 2 (8.3) | 24 | |
| West Bengal | (Exp) | 34 (34.34) | 37 (37.37) | 7 (7.07) | 21 (21.21) | 99 | 1.25 |
| | (Con) | 31 (34.83) | 36 (40.44) | 3 (3.37) | 19 (21.34) | 89 | |

* Significant at 0.05 level
** Significant at 0.01 level

primary school teachers in the experimental and control groups using different strategies.

The experimental and control groups differed significantly in the use of different strategies for concluding a lesson only in the States of Jammu and Kashmir, Madhya Pradesh and Tamil Nadu. Predominant use of abruptly ending the lesson in both groups in many states was a cause of concern. It indicated lack of time management, ambitious lesson planning or short duration of the period in schools. SPD needs to look at this parameter for planning forthcoming INSET. With proper concluding the lesson consolidation of learning is not possible.

## Time Spent on Different Transaction Modalities

The categories of the transaction modalities considered in the present study were 'teacher talking,' 'interaction with teachers,' 'group work,' and 'any other activity.' Percentage time spent included 'zero,' 1-25 per cent,' '26-50 per cent,' '51-75 per cent,' and 'more than 75 per cent.' Table 4.30 provides data relating to the use of

Table 4.30(a)

**Number of Teachers According to the Time Spent (in %) on Different Activities**

| State | | Teacher talking | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | | Zero | 1-25% | 26-50% | 51-75% | >75% | Total | $X^2$ |
| Andhra Pradesh | (Exp) | 0 | 80 (82.47) | 12 (12.37) | 5 (5.15) | 0 | 97 | |
| | (Con) | | | | NA | | | |
| Bihar | (Exp) | 0 | 2 (5) | 13 (32.5) | 15 (37.5) | 10 (25) | 40 | 4.71 |
| | (Con) | 0 | 0 | 4 (20) | 9 (45) | 7 (35) | 20 | |
| Chhattisgarh | (Exp) | 0 | 1 (2.17) | 19 (41.30) | 23 (50) | 3 (6.52) | 46 | 2.65 |
| | (Con) | 0 | 0 | 9 (64.29) | 4 (28.57) | 1 (14) | 14 | |
| Gujarat | (Exp) | | | | NA | | | |
| | (Con) | | | | NA | | | |
| Haryana | (Exp) | 0 | 1 (1.92) | 17 (32.69) | 32 (61.54) | 2 (3.84) | 52 | 11.23* |
| | (Con) | 0 | 0 | 6 (25) | 11 (45.83) | 7 (29.17) | 24 | |
| Jammu & Kashmir | (Exp) | 0 | 0 | 38 (65.52) | 15 (25.86) | 5 (8.62) | 58 | 3.48 |
| | (Con) | 0 | 4 (16) | 17 (68) | 4 (16) | 0 | 25 | |
| Madhya Pradesh | (Exp) | 1 (1.1) | 14 (15.6) | 27 (30) | 25 (27.8) | 23 (25.6) | 90 | 5.33 |
| | (Con) | 0 | 5 (11.9) | 9 (21.4) | 20 (47.6) | 8 (19.1) | 42 | |
| Maharashtra | (Exp) | 0 | 0 | 13 (27.1) | 26 (59.17) | 9 (12.8) | 48 | 2.04 |
| | (Con) | 0 | 1 (4.17) | 4 (16.7) | 13 (54.17) | 6 (25) | 24 | |
| Meghalaya | (Exp) | 1 (1.20) | 2 (2.40) | 16 (19.27) | 18 (21.68) | 46 (55.42) | 83 | 1.47 |
| | (Con) | 0 | 5 (7.35) | 10 (14.71) | 18 (26.47) | 35 (51.47) | 68 | |
| Nagaland | (Exp) | 0 | 4 (5.5) | 29 (40.3) | 18 (25) | 21 (29.2) | 72 | 4.75 |
| | (Con) | 0 | 1 (4.3) | 6 (26.1) | 8 (34.8) | 8 (34.8) | 23 | |
| Odisha | (Exp) | 0 | 30 (25.4) | 73 (61.8) | 13 (11.01) | 2 (1.69) | 118 | 23.29** |
| | (Con) | 0 | 15 (40.5) | 14 (37.8) | 2 (5.4) | 6 (16.22) | 37 | |
| Rajasthan | (Exp) | 1 (1.9) | 10 (18.5) | 12 (22.2) | 13 (24.1) | 18 (33.3) | 54 | 5.11 |
| | (Con) | 0 | 2 (7.4) | 8 (29.6) | 10 (37) | 7 (25.9) | 27 | |
| Tamil Nadu | (Exp) | 0 | 66 (81.48) | 15 (18.52) | 0 | 0 | 81 | 91.47** |
| | (Con) | 0 | 5 (12.82) | 2 (5.13) | 32 (82.05) | 0 | 39 | |
| Uttar Pradesh | (Exp) | 6 (5.5) | 31 (28.4) | 30 (27.5) | 25 (22.9) | 17 (15.6) | 109 | 2.87 |
| | (Con) | 0 | 5 (20.8) | 13 (54.2) | 5 (20.8) | 1 (4.2) | 24 | |
| West Bengal | (Exp) | 0 | 0 | 17 (17.34) | 31 (31.63) | 50 (51.02) | 98 | 0.51 |
| | (Con) | 0 | 0 | 9 (10.22) | 31 (35.22) | 48 (54.54) | 88 | |

* Significant at 0.05 level

** Significant at 0.01 level

Table 4.30(b)

**Number of Teachers According to the Time Spent (in %) on Different Activities**

| State | | Interaction with students | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | | Zero | 1-25% | 26-50% | 51-75% | >75% | Total | $X^2$ |
| Andhra Pradesh | (Exp) | 0 | 9 (9.28) | 8 (8.25) | 80 (82.47) | 0 | 97 | |
| | (Con) | | | NA | | | | |
| Bihar | (Exp) | 1 (2.5) | 23 (57.5) | 15 (37.5) | 1 (2.5) | 0 | 40 | 3.11 |
| | (Con) | 1 (5) | 10 (50) | 9 (45) | 0 | 0 | 20 | |
| Chhattisgarh | (Exp) | 0 | 18 (39.13) | 27 (58.69) | 1 (2.17) | 0 | 46 | 2.25 |
| | (Con) | 0 | 7 (50) | 7 (50) | 0 | 0 | 14 | |
| Gujarat | (Exp) | | | NA | | | | |
| | (Con) | | | NA | | | | |
| Haryana | (Exp) | 0 | 28 (53.85) | 24 (46.15) | 0 | 0 | 52 | 3.25 |
| | (Con) | 0 | 16 (66.67) | 8 (32.33) | 0 | 0 | 24 | |
| Jammu & Kashmir | (Exp) | 0 | 0 | 38 (65.52) | 20 (34.48) | 0 | 58 | 1.79 |
| | (Con) | 0 | 7 (28) | 13 (52) | 5 (20) | 0 | 25 | |
| Madhya Pradesh | (Exp) | 6 (6.7) | 42 (46.6) | 27 (30) | 11 (12.2) | 4 (4.4) | 90 | 15.87** |
| | (Con) | 12 (26) | 20 (47.6) | 9 (21.4) | 1 (2.3) | 0 | 42 | |
| Maharashtra | (Exp) | 0 | 19 (39.58) | 29 (60.42) | 0 | 0 | 48 | 0.74 |
| | (Con) | 0 | 12 (50) | 12 (50) | 0 | 0 | 24 | |
| Meghalaya | (Exp) | 8 (9.63) | 54 (65.06) | 20 (24.09) | 1 (1.20) | 0 | 83 | 3.85 |
| | (Con) | 18 (26.47) | 35 (51.47) | 12 (17.65) | 2 (2.94) | 1 (1.47) | 68 | |
| Nagaland | (Exp) | 0 | 37 (53.7) | 30 (43.5) | 1 (1.4) | 1 (1.4) | 69 | 2.87 |
| | (Con) | 0 | 12 (54.5) | 10 (45.5) | 0 | 0 | 22 | |
| Odisha | (Exp) | 0 | 56 (47.4) | 58 (49.15) | 4 (3.38) | 0 | 118 | 3.13 |
| | (Con) | 0 | 15 (40.5) | 22 (59.45) | 0 | 0 | 37 | |
| Rajasthan | (Exp) | 1 (1.9) | 34 (63) | 15 (27.8) | 4 (7.4) | 0 | 54 | 1.79 |
| | (Con) | 0 | 21 (77.8) | 5 (18.5) | 1 (3.7) | 0 | 27 | |
| Tamil Nadu | (Exp) | 0 | 7 (8.86) | 72 (91.14) | 0 | 0 | 79 | 61.91** |
| | (Con) | 0 | 29 (82.87) | 6 (17.15) | 0 | 0 | 35 | |
| Uttar Pradesh | (Exp) | 9 (8.3) | 44 (40.4) | 41 (37.6) | 9 (8.3) | 6 (5.5) | 109 | 4.87 |
| | (Con) | 0 | 10 (41.7) | 12 (50) | 2 (8.3) | 0 | 24 | |
| West Bengal | (Exp) | 0 | 81 (84.37) | 15 (15.62) | 0 | 0 | 96 | 0.42 |
| | (Con) | 0 | 76 (89.41) | 9 (10..8) | 0 | 0 | 85 | |

* *Significant at 0.05 level*

** *Significant at 0.01 level*

Table 4.30(c)

**Number of Teachers According to the Time Spent (in %) on Different Activities**

| State | | Group Work | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | | Zero | 1-25% | 26-50% | 51-75% | >75% | Total | $X^2$ |
| Andhra Pradesh | (Exp) | - | - | NA | - | - | - | - |
| | (Con) | - | - | NA | - | - | - | |
| Bihar | (Exp) | 21 (52.5) | 15 (37.5) | 4 (10) | 0 | 0 | 40 | 4.29 |
| | (Con) | 16 (80) | 3 (15) | 1 (5) | 0 | 0 | 20 | |
| Chhattisgarh | (Exp) | 15 (32.61) | 27 (58.69) | 4 (8.69) | 0 | 0 | 46 | 7.26 |
| | (Con) | 5 (35.71) | 4 (28.57) | 5 (35.71) | 0 | 0 | 14 | |
| Gujarat | (Exp) | - | - | NA | - | - | - | - |
| | (Con) | - | - | NA | - | - | - | |
| Haryana | (Exp) | 26 (50) | 25 (48.08) | 1 (1.92) | 0 | 0 | 52 | 2.87 |
| | (Con) | 15 (62.5) | 9 (37.5) | 0 | 0 | 0 | 24 | |
| Jammu & Kashmir | (Exp) | 0 | 10 (17.24) | 38 (65.52) | 10 (17.24) | 0 | 58 | 19.43** |
| | (Con) | 3 (12) | 12 (48) | 10 (40) | 0 | 0 | 25 | |
| Madhya Pradesh | (Exp) | 36 (40) | 38 (42.2) | 13 (14.4) | 2 (2.2) | 1 (1.1) | 90 | 5.72 |
| | (Con) | 23 (54.7) | 11 (26.1) | 6 (14.2) | 0 | 2 (4.7) | 42 | |
| Maharashtra | (Exp) | 21 (43.8) | 24 (50) | 3 (6.25) | 0 | 0 | 48 | 1.87 |
| | (Con) | 15 (62.5) | 7 (29.2) | 2 (8.33) | 0 | 0 | 24 | |
| Meghalaya | (Exp) | 81 (97.59) | 0 | 0 | 1 (1.20) | 1 | 83 | 1.62 |
| | (Con) | 67 (98.53) | 1 (1.47) | 0 | 0 | 0 | 68 | |
| Nagaland | (Exp) | 0 | 16 (88.9) | 1 (5.5) | 1 (5.5) | 0 | 18 | 0.25 |
| | (Con) | 0 | 3 (100) | 0 | 0 | 0 | 3 | |
| Odisha | (Exp) | 0 | 97 (82.2) | 16 (13.5) | 5 (4.2) | 0 | 118 | 2.76 |
| | (Con) | 0 | 26 (70.27) | 10 (27.02) | 1 (2.7) | 0 | 37 | |
| Rajasthan | (Exp) | 2 (3.7) | 43 (79.6) | 7 (13) | 1 (1.9) | 1 (1.9) | 54 | 0.45 |
| | (Con) | 1 (3.7) | 22 (8.15) | 4 (14.8) | 0 | 0 | 27 | |
| Tamil Nadu | (Exp) | 0 | 10 (11.90) | 73 (86.90) | 1 (1.19) | 0 | 84 | 46.22** |
| | (Con) | 0 | 28 (71.79) | 10 (25.64) | 1 (2.56) | 0 | 39 | |
| Uttar Pradesh | (Exp) | 39 (35.80) | 42 (38.50) | 25 (22.90) | 2 (1.80) | 1 (0.90) | 109 | 1.02 |
| | (Con) | 9 (37.50) | 7 (29.20) | 8 (33.30) | 0 | 0 | 24 | |
| West Bengal | (Exp) | 0 | 30 (85.71) | 5 (14.28) | 0 | 0 | 35 | 0.02 |
| | (Con) | 0 | 22 (84.61) | 4 (15.38) | 0 | 0 | 26 | |

** Significant at 0.01 level

Table 4.30(d)

**Number of Teachers According to the Time Spent (in %) on Different Activities**

| State | | Other Activities | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | | Zero | 1-25% | 26-50% | 51-75% | >75% | Total | $X^2$ |
| Andhra Pradesh | (Exp) | - | - | NA | - | - | - | - |
| | (Con) | - | - | NA | - | - | - | |
| Bihar | (Exp) | 25 (62.5) | 15 (37.5) | 0 | 0 | 0 | 40 | 2.87 |
| | (Con) | 16 (80) | 4 (20) | 0 | 0 | 0 | 20 | |
| Chhattisgarh | (Exp) | 27 (58.69) | 17 (36.96) | 2 (4.35) | 0 | 0 | 46 | |
| | (Con) | 0 | 0 | 0 | 0 | 0 | 0 | |
| Gujarat | (Exp) | - | - | NA | - | - | - | - |
| | (Con) | - | - | NA | - | - | - | |
| Haryana | (Exp) | 42 (80.77) | 10 (19.23) | 0 | 0 | 0 | 52 | 0.58 |
| | (Con) | 18 (75) | 6 (25) | 0 | 0 | 0 | 24 | |
| Jammu & Kashmir | (Exp) | 0 | 18 (31.04) | 28 (48.28) | 12 (20.68) | 0 | 58 | 6.44 |
| | (Con) | 8 (32) | 17 (68) | 0 | 0 | 0 | 25 | |
| Madhya Pradesh | (Exp) | 72 (80) | 14 (15.5) | 3 (3.3) | 1 (1.1) | 0 | 90 | 15.63** |
| | (Con) | 22 (52.4) | 9 (21.4) | 7 (16.7) | 4 (9.5) | 0 | 42 | |
| Maharashtra | (Exp) | | | NA | | | | |
| | (Con) | | | NA | | | | |
| Meghalaya | (Exp) | 60 (72.29) | 12 (14.46) | 9 (10.84) | 1 (1.20) | 1 (1.20) | 83 | 2.11 |
| | (Con) | 46 (67.65) | 8 (11.76) | 11 (16.18) | 0 | 3 (4.41) | 68 | |
| Nagaland | (Exp) | 0 | 25 (61) | 15 (36.6) | 0 | 1 (2.4) | 41 | 5.04 |
| | (Con) | 0 | 7 (77.8) | 0 | 1 (11.1) | 1 (11.1) | 9 | |
| Odisha | (Exp) | 0 | 117 (99.1) | 1 (0.84) | 0 | 0 | 118 | 0.31 |
| | (Con) | 0 | 37 (100) | 0 | 0 | 0 | 37 | |
| Rajasthan | (Exp) | 47 (87) | 7 (13) | 0 | 0 | 0 | 54 | 1.23 |
| | (Con) | 22 (81.5) | 3 (11.1) | 2 (7.4) | 0 | 0 | 27 | |
| Tamil Nadu | (Exp) | - | - | NA | - | - | - | - |
| | (Con) | - | - | NA | - | - | - | |
| Uttar Pradesh | (Exp) | 97 (89) | 10 (9.20) | 0 | 2 (1.80) | 0 | 109 | 3.04 |
| | (Con) | 24 (100) | 0 | 0 | 0 | 0 | 24 | |
| West Bengal | (Exp) | 0 | 27 (93.10) | 2 (6.89) | 0 | 0 | 29 | 0.01 |
| | (Con) | 0 | 19 (95) | 1 (5) | 0 | 0 | 20 | |

** Significant at 0.01 level

different transaction modalities and time spent on them by the primary school teachers in the experimental and control groups along with chi-square values in respect of the difference between the two groups.

It is evident from the Table that the two groups differed significantly on 'teacher talking' in the States of Haryana, Odisha and Tamil Nadu as revealed by significance of chi-square values. Teacher talking more than half the time is not considered desirable. This is at the cost of interaction between teacher and students. On interaction parameter the experimental and control groups differed in the States of Madhya Pradesh and Tamil Nadu. Interaction was used by over 80 per cent teachers in Andhra Pradesh by the experimental teachers. Surprisingly group work was not being used sufficiently in most of the States. Teachers in the experimental and control groups varied in the States of Chhattisgarh, Jammu and Kashmir, and Tamil Nadu as significant values of chi-square revealed. Other activities were not specified.

Overall, impact of training transaction was visible in the States of Madhya Pradesh and Tamil Nadu. In the States of Andhra Pradesh and Gujarat, it can be inferred from the use of perfect component skills in the experimental group of teachers. The impact is visible in a few States only. In other States the INSET strategy needs a review to enhance impact. It requires collective wisdom of the institutions and agencies to gear INSET in the years to come.

## SECTION FOUR : TRANSFER OF TRAINING IMPACT OF INSET ON CLASSROOM TRANSACTION

This section provides percentage of observed behaviours of the Resource Persons during training transaction sessions and of the trained teachers during classroom transaction in sampled schools. The percentages of behaviours are in terms of sessions in the case of training transaction since some RPs transacted more than one session. The data presented in Tables have been explained in terms of desirability of the observed category in view of teachers' effectiveness, research and practices. The items of the observation schedule cover different aspects of training as well as of classroom teaching. The two sets of observations in respect of the training transaction by RPs and classroom teaching by the trained teachers have been put together to ascertain the closeness of the category of behaviour demonstrated by the RPs and teachers in training and teaching situations respectively. The closeness between the demonstrated behaviour of the RPs and of the

*Problem solving through group work*

teachers shall be indicative of the impact of the former on the latter in respect of different categories of teaching behaviour.

## Introducing the Lesson

Table 4.31 provides the percentage of observed values of the four categories of modalities used by the RPs/teachers for introducing the session/ lesson. Out of the four alternatives, posing a problem is more desirable since this comes closer to the constructivist approach of the NCF-2005. This is followed by reviewing the previous lesson which is desirable from the point of view of linking learning. The other two categories are often used in a routine manner.

The teaching and training situations are more or less similar especially from the perspective of modalities used for the introduction of a theme or lesson. The four categories included in the observation schedule used in the present study are often used both by RPs and teachers. Table 4.31 reveals that the use of the preferred modality of problem-solving in training and classroom transaction was lower than the use of other categories. The percentage of its use increased in classroom situation in Bihar, Maharashtra and Odisha but decreased in Tamil Nadu. In Tamil Nadu the decrease might be due to the ABL project's set procedures. It is to be examined in combination with other items. In the remaining

Table 4.31
**Introduction of the Theme/Lesson by Resource Persons/Teachers**

| State | | Stating the topic | Reviewing the previous lession | Posing a problem | Writing on blackboard |
|---|---|---|---|---|---|
| Bihar | (TT) | 41.67 | 11.11 | 22.22 | 25.00 |
| | (CT) | 40 | 12.5 | 30 | 17.5 |
| Gujarat | (TT) | 30.43 | 28.26 | 23.91 | 17.39 |
| | (CT) | 37.08 | 22.47 | 10.11 | 30.43 |
| Haryana | (TT) | 43.18 | 14.77 | 28.41 | 13.64 |
| | (CT) | 38.46 | 21.15 | 21.15 | 19.23 |
| Maharashtra | (TT) | 10 | 60 | 18 | 12 |
| | (CT) | 20.83 | 27.08 | 25 | 27.08 |
| Meghalaya | (TT) | 41.93 | 15.05 | 17.20 | 25.81 |
| | (CT) | 42.57 | 16.86 | 18.07 | 22.89 |
| Nagaland | (TT) | 32.95 | 14.77 | 26.14 | 26.14 |
| | (CT) | 40.3 | 15.3 | 27.8 | 16.6 |
| Odisha | (TT) | 3.45 | 44.83 | 44.83 | 6.89 |
| | (CT) | 8.47 | 20.33 | 64.4 | 6.77 |
| Rajasthan | (TT) | 42.86 | 19.05 | 4.76 | 33.33 |
| | (CT) | 64.8 | 24.1 | 3.7 | 7.4 |
| Tamil Nadu | (TT) | 8.33 | 0 | 50 | 41.67 |
| | (CT) | 86.75 | 3.61 | 7.23 | 2.41 |
| West Bengal | (TT) | 45.76 | 27.12 | 6.78 | 20.34 |
| | (CT) | 41.41 | 25.25 | 7.07 | 26.26 |

TT: Training Transaction
CT: Classroom Transaction

States the use of this modality is by and large equal in the two situations.

## Presenting and Explaining New Concepts/Ideas

Table 4.32 deals with data on the transacting presentation and explanation of new concepts/ ideas. The category of the transacted behaviours covers RP/teacher talking and explanation of the concepts with and without verbal examples and demonstration also covered.

Table 4.32 reveals that discussion with explanation increased during classroom teaching over training transaction in the States of Tamil Nadu, Rajasthan and Meghalaya. In Gujarat it was the high of 84 per cent with marginal decline of 71 per cent. This increase was accompanied by reduction of teacher/RPs talking in these states. The trend of reduced talking and increased of discussion with explanation is indicative of the impact of the training. The modelling effect of training might have been instrumental in this similarity of transaction in the two situations which is an indication of transfer of training.

The use of demonstration as a modality of explanation was low in both the situation except in Gujarat where it was more in classroom situations than in the training transaction. In Odisha, its use was similar while it decreased in other states. In Tamil Nadu its use was missing in both situations. This finding should be considered along with explaining with examples. Its use increased in Odisha and West Bengal but in other states it was the same or declined

Table 4.32
**Presentation and Explanation of New Concepts/ Ideas by Resource Persons/Teachers**

| State | | Presention of new concept/ideas | | Explanation of concepts | | |
|---|---|---|---|---|---|---|
| | | only resource person /teacher talking | discussion with explanation | With examples | without examples | With demonstration |
| Bihar | (TT) | 25 | 75 | 66.67 | 8.33 | 25 |
| | (CT) | 42.5 | 57.50 | 72.5 | 22.5 | 5 |
| Gujarat | (TT) | 15.22 | 84.78 | 69.57 | 13.04 | 17.39 |
| | (CT) | 28.09 | 71.9 | 32.58 | 29.21 | 38.20 |
| Haryana | (TT) | 38.64 | 61.36 | 76.14 | 23.86 | 0 |
| | (CT) | 53.85 | 46.15 | 73.08 | 23.08 | 4 |
| Maharashtra | (TT) | 36 | 64 | 70 | 22 | 8 |
| | (CT) | 33.33 | 66.67 | 64.58 | 16.67 | 18.75 |
| Meghalaya | (TT) | 72.04 | 27.96 | 78.49 | 7.53 | 13.98 |
| | (CT) | 59.04 | 40.96 | 71.08 | 20.48 | 8.43 |
| Nagaland | (TT) | 46.59 | 53.41 | 71.59 | 2.27 | 23.14 |
| | (CT) | 72.2 | 27.8 | 75 | 6.9 | 18.1 |
| Odisha | (TT) | 0 | 100 | 55.17 | 6.90 | 37.93 |
| | (CT) | 38.9 | 61.01 | 55.93 | 5.93 | 38.13 |
| Rajasthan | (TT) | 42.86 | 57.14 | 47.62 | 23.81 | 28.57 |
| | (CT) | 25.9 | 74.1 | 55.6 | 24.1 | 20.4 |
| Tamil Nadu | (TT) | 41.67 | 58.33 | 91.67 | 8.33 | 0 |
| | (CT) | 16.47 | 83.53 | 83.53 | 15 | 1 |
| West Bengal | (TT) | 50.85 | 49.15 | 37.93 | 32.76 | 29.31 |
| | (CT) | 57.57 | 42.42 | 69.69 | 25.25 | 5.05 |

TT: Training Transaction
CT: Classroom Transaction

marginally. This indicates similarity in the use in both situations and is indicative of the linkages between the two situations.

## Purpose of Asking Questions and Designation for Response

Questions asked by the RPs and teachers for testing learning of factual knowledge, understanding and application of learning to new situations as well as for eliciting learners' opinions or perceptions about ideas, events or phenomena have been analysed. The understanding and application level questions reflect the way the knowledge acquired at the factual level is put to use in different situations. Table 4.33 provides percentage of RPs and teachers asking questions for different purposes.

Questions asked for testing students' ability for application of learning to new situations were few in both situations. In Gujarat and Odisha one third questions asked in both the situations were application type. Questions for testing understanding were very prominent in Tamil Nadu and these were more asked in classroom situations than in training situations. The incidence of such questions in classroom transaction was higher than in training transaction in the states of Gujarat, Bihar, Meghalaya, Nagaland, Odisha and Rajasthan which may be due to the emphasis on such questions during training. The Table also

Table 4.33
**Purpose of Asking Questions and Designation for Response**

| State | | Questions asked to | | | | Questions addressed to | | |
|---|---|---|---|---|---|---|---|---|
| | | Test factual knowledge | Test under-standing | Test application of knowledge to new situations | Elicit opinions or perceptions of teachers/ students | The whole class may with many responding at the same time | A specific individual expecting only him/her to answer | Anyone who would volunteer to answer |
| Bihar | (TT) | 25 | 30.55 | 27.78 | 16.67 | 58.33 | 19.44 | 22.22 |
| | (CT) | 20.00 | 62.5 | 12.5 | 5 | 42.5 | 37.5 | 20 |
| Gujarat | (TT) | 27.17 | 30.43 | 38.04 | 4.35 | 19.57 | 32.61 | 47.83 |
| | (CT) | 20.22 | 49.44 | 29.21 | 1.13 | 59.55 | 5.62 | 34.83 |
| Haryana | (TT) | 35.23 | 30.68 | 4.55 | 29.55 | 52.27 | 17.04 | 30.68 |
| | (CT) | 67.31 | 30.77 | 1.92 | 0 | 80.77 | 17.31 | 2 |
| Maharashtra | (TT) | 36 | 22 | 28 | 14 | 60 | 22 | 36 |
| | (CT) | 27.66 | 23.4 | 25.53 | 23.4 | 62.5 | 14.58 | 22.92 |
| Meghalaya | (TT) | 23.66 | 26.88 | 8.60 | 40.86 | 26.88 | 5.38 | 67.74 |
| | (CT) | 48.19 | 40.96 | 2.4 | 2.4 | 67.47 | 6.02 | 20.48 |
| Nagaland | (TT) | 14.77 | 37.5 | 12.5 | 35.23 | 35.23 | 5.68 | 59.09 |
| | (CT) | 34.7 | 50 | 1.4 | 13.9 | 56.9 | 18.1 | 25 |
| Odisha | (TT) | 6.9 | 34.48 | 37.93 | 20.69 | 55.17 | 13.79 | 31.03 |
| | (CT) | 14.4 | 91 | 27.9 | 12.71 | 34.7 | 23.7 | 41.5 |
| Rajasthan | (TT) | 4.76 | 0 | 4.76 | 90.48 | 85.71 | 4.76 | 9.52 |
| | (CT) | 33.3 | 37 | 7.4 | 22.2 | 66.7 | 25.9 | 7.4 |
| Tamil Nadu | (TT) | 33.33 | 25 | 41.67 | 0 | 50 | 25 | 25 |
| | (CT) | 7.53 | 88.24 | 4.41 | 0 | 10.71 | 59.52 | 29.76 |
| West Bengal | (TT) | 28.81 | 45.76 | 15.25 | 10.16 | 30.51 | 47.46 | 22.03 |
| | (CT) | 40.4 | 54.54 | 2.02 | 3.03 | 45.45 | 41.41 | 13.13 |

TT: Training Transaction
CT: Classroom Transaction

includes information regarding the target learner(s) to whom the questions were addressed. Asking individual volunteers to respond was limited in teaching situations except in Tamil Nadu, West Bengal and Bihar and in training situations in Gujarat and West Bengal. Its restrictive use in both situations indicates that the training did not focus on this skill of asking questions. The predominant mode was asking questions to the class as a whole which indicated drill and practice questioning and answering or indiscipline in teaching and training. Except in Tamil Nadu this aspect remained weak. Designating students to answer needs to be developed keeping in view the distribution of questions spread over the whole class and asking from the non volunteers for attention management and involvement of shy students/teachers. Maybe, the skill of structuring and use of different levels of questions in the classroom was learnt by the teachers during training session but not backed by sufficient practice. Lack of practice during training transaction session might be a constraint to the use of this complex skill, especially at the level of application.

## Learner's Behaviour for Participating in Discussion

Teachers/ students participate in discussion during training/classroom transaction by asking questions for seeking clarification and seeking information on the topic under discussion as well

Table 4.34(a)
**Learner's Behaviour used in Discussion**

| State | | Asking questions for seeking clarification | | | Seeking information on topic under discussion | | |
|---|---|---|---|---|---|---|---|
| | | Often | Sometimes | Rarely | Often | Sometimes | Rarely |
| Bihar | (TT) | 11.11 | 52.78 | 36.11 | 19.44 | 50 | 30.55 |
| | (CT) | 27.5 | 45 | 27.5 | 52.5 | 42.5 | 5 |
| Gujarat | (TT) | 42.39 | 46.74 | 10.87 | 50 | 43.48 | 6.52 |
| | (CT) | 23.6 | 32.58 | 43.82 | 28.09 | 40.45 | 31.46 |
| Haryana | (TT) | 11.36 | 78.41 | 10.23 | 13.64 | 48.86 | 37.5 |
| | (CT) | 17.65 | 70.59 | 12 | 68.63 | 31.37 | 0 |
| Maharashtra | (TT) | 36 | 60 | 4 | 20 | 72 | 8 |
| | (CT) | 4.16 | 62.5 | 33.33 | 19.15 | 55.32 | 25.53 |
| Meghalaya | (TT) | 6.45 | 47.31 | 46.24 | 4.3 | 45.16 | 50.4 |
| | (CT) | 86.75 | 10.05 | 1.2 | 96.39 | 3.61 | 0 |
| Nagaland | (TT) | 5.68 | 77.27 | 17.05 | 2.27 | 30.68 | 67.05 |
| | (CT) | 93.1 | 6.9 | 0 | 100 | 0 | 0 |
| Odisha | (TT) | 75.86 | 20.69 | 3.45 | 27.59 | 62.07 | 10.34 |
| | (CT) | 11.8 | 58.47 | 29.6 | 12.7 | 61.8 | 25.4 |
| Rajasthan | (TT) | (4.76 | 71.43 | 23.81 | 14.28 | 61.9 | 23.81 |
| | (CT) | 18.5 | 40.7 | 40.7 | 25.9 | 59.3 | 14.8 |
| Tamil Nadu | (TT) | 75 | 25 | 0 | 25 | 50 | 25 |
| | (CT) | 1.19 | 14.29 | 84.52 | 4 | 12 | 84 |
| West Bengal | (TT) | 32.35 | 58.82 | 8.82 | 35.29 | 58.82 | 5.88 |
| | (CT) | 15.15 | 58.58 | 26.26 | 32.32 | 63.63 | 4.04 |

TT: Training Transaction
CT: Classroom Transaction

Table 4.34(b)
**Learner's Behaviour used in Discussion**

| State | | Making comments on the basis of their experience | | | Raising issues relating to the topic under discussion | | |
|---|---|---|---|---|---|---|---|
| | | Often | Sometimes | Rarely | Often | Sometimes | Rarely |
| Bihar | (TT) | 38.89 | 47.22 | 13.89 | 30.56 | 41.67 | 27.78 |
| | (CT) | 55 | 35 | 10.00 | 75 | 15 | 10 |
| Gujarat | (TT) | 48.91 | 40.22 | 10.87 | 48.91 | 44.57 | 6.52 |
| | (CT) | 7.87 | 57.3 | 34.8 | 0 | 100 | 0 |
| Haryana | (TT) | 22.73 | 60.23 | 17.04 | 14.77 | 35.23 | 50 |
| | (CT) | 86.27 | 13.73 | 0 | 92.16 | 7.84 | 0 |
| Maharashtra | (TT) | 12 | 46 | 42 | 18 | 44 | 38 |
| | (CT) | 57.4 | 31.9 | 10.6 | 63.8 | 29.8 | 6.4 |
| Meghalaya | (TT) | 4.30 | 49.46 | 46.24 | 2.15 | 34.41 | 63.44 |
| | (CT) | 75.9 | 22.89 | 1.2 | 92.77 | 6.02 | 1.2 |
| Nagaland | (TT) | 11.36 | 27.27 | 61.36 | 9.09 | 18.18 | 72.73 |
| | (CT) | 98.6 | 1.4 | 0 | 100 | 0 | 0 |
| Odisha | (TT) | 31.03 | 34.48 | 34.48 | 41.38 | 14.77 | 4.55 |
| | (CT) | 74.5 | 22.03 | 3.38 | 5.08 | 31.35 | 9.3 |
| Rajasthan | (TT) | 42.86 | 47.62 | 9.52 | 14.29 | 76.19 | 9.52 |
| | (CT) | 25.9 | 68.5 | 5.6 | 29.6 | 59.3 | 11.1 |
| Tamil Nadu | (TT) | 41.67 | 16.67 | 41.67 | 8.33 | 83.33 | 8.33 |
| | (CT) | 11.9 | 84.52 | 3.57 | 3.26 | 79.35 | 17.39 |
| West Bengal | (TT) | 5.88 | 82.35 | 11.76 | 20.59 | 52.94 | 26.47 |
| | (CT) | 51.51 | 46.46 | 2.02 | 54.54 | 43.43 | 2.02 |

TT: Training Transaction
CT: Classroom Transaction

as making comments on the basis of their experience and raising issues relating to the discussion theme. In the present study, the investigators who observed training and classroom teaching recorded how often a particular behaviour was noticed in training sessions/classrooms. Three categories, 'often', 'sometimes' and 'never' were used for each of the alternatives. With regard to the teachers' and students' participation raising issues is more desirable followed by using own experience for making comments. It makes discussion life-centric. The other two behaviours are simpler and more or less routine. Table 4.34 provides information with regard to the percentage of RPs and teachers demonstrating different learner behaviours aimed at encouraging teachers'/ students' participation in discussion.

Table 4.34 reveals that raising issues related to the topic was used more often and sometimes in the training situations in the States of Bihar, Gujarat, Maharashtra, Rajasthan, Tamil Nadu, and West Bengal. It was more in classroom transaction than in training transaction in Bihar, Haryana and Maharashtra. It is indicative of the impact of training. Similar trend was observed in using own experience for making comments. Little change in the case of asking questions for clarification and seeking further information on the topic under discussion might be due to simpler nature of these component skills and their routine use for the purpose indicated against them.

## Response Pattern of Resource Persons/ Teachers to Questions Asked During Training/Teaching

Resource persons' and teachers' handling of learner responses during transaction were categorised into 'providing the desired answer/ clarification', 'reprimanding for interrupting the session/lesson', 'asking someone else to respond', or 'postponing the answer to the next day'. The occurrences of behaviours were classified as 'Often', 'Sometimes' and 'Never'. In these alternative ways of responding to questions asked by teachers/students asking someone else to respond is a desirable behaviour for involving students and encouraging peer learning. Table 4.35 summarises data on these behaviours in training and classroom transaction. Postponing answering to the next day is indicative of professional integrity of teachers. The other two are negative ways of responding that discourage student questioning.

Asking someone else to respond often and sometimes was high in Maharashtra, Odisha, Rajasthan and Tamil Nadu. It was more than TT in CT in Gujarat, Haryana, Maharashtra, Odisha and West Bengal. Tamil Nadu and Gujarat were seen to be better in both respects showing training impact on teachers. Postponing answering to the next day was more in CT than TT in the States of

Table 4.35(a)

**Percentage Sessions/Classroom Showing Response to Questions asked by RPs/Teachers**

| State | | Providing the disired answer or clarification | | | Reprimanding teachers/students for interrupting the lecture | | |
|---|---|---|---|---|---|---|---|
| | | Often | Sometimes | Rarely | Often | Sometimes | Rarely |
| Bihar | (TT) | 11.11 | 50 | 38.89 | 50 | 44.44 | 5.55 |
| | (CT) | 10 | 42.5 | 47.5 | 70 | 22.50 | 7.5 |
| Gujarat | (TT) | 73.91 | 26.09 | 0 | 1.09 | 7.61 | 91.3 |
| | (CT) | 10.11 | 40.45 | 44.44 | 61.8 | 35.96 | 2.24 |
| Haryana | (TT) | 54.55 | 38.64 | 6.82 | 1.14 | 15.91 | 82.95 |
| | (CT) | 1.92 | 55.77 | 42 | 50) | 38.46 | 12.5 |
| Maharashtra | (TT) | 42 | 56 | 2 | 8 | 74 | 18 |
| | (CT) | 0 | 75 | 25. | 31.3 | 54.2 | 14.50 |
| Meghalaya | (TT) | 53.76 | 39.78 | 6.45 | 0 | 1.08 | 98.92 |
| | (CT) | 40.96 | 20.48 | 38.55 | 95.18 | 4.82 | 0 |
| Nagaland | (TT) | 43.18 | 39.77 | 17.05 | 0 | 0 | 100 |
| | (CT) | 91.7 | 5.6 | 2.8 | 100 | 0 | 0 |
| Odisha | (TT) | 68.97 | 27.59 | 3.45 | 3.45 | 13.79 | 82.76 |
| | (CT) | 3.38 | 27.1 | 69.4 | 63.5 | 32.2 | 4.2 |
| Rajasthan | (TT) | 0 | 33.33 | 66.67 | 4.76 | 76.19 | 19.05 |
| | (CT) | 1.9 | 31.5 | 66.7 | 24.1 | 63 | 13 |
| Tamil Nadu | (TT) | 58.33 | 33.33 | 8.33 | 0 | 58.33 | 41.67 |
| | (CT) | 19.04 | 20.23 | 60.71 | 21.42 | 67.85 | 10.71 |
| West Bengal | (TT) | 25.42 | 67.80 | 6.78 | 1.69 | 50.85 | 47.46 |
| | (CT) | 14.14 | 48.48 | 37.37 | 31.31 | 61.61 | 7.07 |

TT: Training Transaction

CT: Classroom Transaction

Table 4.35(b)

**Percentage Sessions/Classroom Showing Response to Questions asked by RPs/Teachers**

| State | | Asking someone else to respond | | | Postponing the answer to the next day | | |
|---|---|---|---|---|---|---|---|
| | | Often | Sometimes | Rarely | Often | Sometimes | Rarely |
| Bihar | (TT) | 33.33 | 52.78 | 13.89 | 86.11 | 11.11 | 2.78 |
| | (CT) | 50 | 35 | 15 | 90 | 10 | 0 |
| Gujarat | (TT) | 0 | 57.61 | 42.39 | 1.09 | 3.26 | 95.65 |
| | (CT) | 26.97 | 59.55 | 13.48 | 78.65 | 17.98 | 3.37 |
| Haryana | (TT) | 2.27 | 68.18 | 29.55 | 0 | 0 | 100 |
| | (CT) | 46.15 | 53.84 | 0 | 100 | 0 | 0 |
| Maharashtra | (TT) | 2 | 42 | 56 | 0 | 24 | 76 |
| | (CT) | 62.5 | 35.4 | 2.08 | 100 | 0 | 0 |
| Meghalaya | (TT) | 2.15 | 17.2 | 80.65 | 0 | 0 | 100 |
| | (CT) | 84.34 | 15.66 | 0 | 3.61 | 3.61 | 0 |
| Nagaland | (TT) | 0 | 12.5 | 87.5 | 0 | 0 | 100 |
| | (CT) | 100 | 0 | 100 | 100 | 0 | 0 |
| Odisha | (TT) | 20.69 | 62.07 | 17.24 | 0 | 3.45 | 96.55 |
| | (CT) | 13.5 | 77.1 | 9.4 | 79.7 | 20.3 | 0 |
| Rajasthan | (TT) | 9.52 | 80.95 | 9.53 | 76.19 | 19.05 | 4.76 |
| | (CT) | 25.9 | 51.9 | 22.2 | 57.4 | 38.9 | 3.7 |
| Tamil Nadu | (TT) | 33.33 | 33.33 | 33.33 | 5 8.33 | 41.67 | 0 |
| | (CT) | 89.29 | 9.52 | 1.19 | 88.1 | 10.71 | 1.19 |
| West Bengal | (TT) | 33.33 | 52.78 | 13.89 | 86.11 | 11.11 | 2.78 |
| | (CT) | 50 | 35 | 15 | 90 | 10 | 0 |

TT: Training Transaction

CT: Classroom Transaction

Bihar, Gujarat, Tamil Nadu, Rajasthan and West Bengal. The message of professional integrity seems to have made an impact on the teachers.

Use of reprimanding was quite high in CT in Meghalaya, Nagaland, Odisha, Gujarat and Bihar but was not often used in the training situations in all the states except Bihar. There seems to be minimum difference on the use of this component in TT and CT. This skill was not included per se in the training and organisation of activities and group work might have been limited. Specific training may be helpful in accomplishing this objective. The SPD may highlight this component in the training design and transaction for INSET next year. NCERT and other agencies having the know-how may be approached for incorporating such skills in key persons and master trainers.

## Praising Teachers/Students During the Sessions/Lessons

Table 4.36 provides data regarding the extent to which the RPs and teachers praise teachers/ students in training and classroom situations respectively. The occurrence of the praising behaviour has been coded under three categories namely, 'never,' 'sometimes,' and 'often.'

Praising behaviour was found to be more in 'quite often' and 'sometimes' categories in most of the states. The gap is more in favour of CT in the states of Tamil Nadu, Gujarat, and Haryana.

It is an indication of the impact of training, probably, based on modeling.

Table 4.36
**Percentage of RPs /Teachers Praising Teachers/Students**

| State | | Praising of teachers by resource persons | | |
|---|---|---|---|---|
| | | Never | Sometimes | Quite Often |
| Bihar | (TT) | 13.89 | 58.33 | 27.78 |
| | (CT) | 17.5 | 57.5 | 25 |
| Gujarat | (TT) | 5.43 | 35.87 | 58.7 |
| | (CT) | 15.73 | 13.48 | 70.79 |
| Haryana | (TT) | 7.95 | 50 | 42.05 |
| | (CT) | 3.5 | 63.46 | 33 |
| Maharashtra | (TT) | 14 | 70 | 16 |
| | (CT) | 12.5 | 64.6 | 22.9 |
| Meghalaya | (TT) | 20.43 | 64.52 | 15.05 |
| | (CT) | 30.12 | 51.81 | 18.07 |
| Nagaland | (TT) | 29.54 | 46.59 | 23.86 |
| | (CT) | 11.2 | 44.4 | 44.4 |
| Odisha | (TT) | 13.79 | 34.48 | 51.72 |
| | (CT) | 6.7 | 49.1 | 44.06 |
| Rajasthan | (TT) | 0 | 90.48 | 9.52 |
| | (CT) | 7.4 | 83.3 | 9.3 |
| Tamil Nadu | (TT) | 0 | 41.67 | 58.33 |
| | (CT) | 8.33 | 1.19 | 90.48 |
| West Bengal | (TT) | 6.78 | 72.88 | 20.34 |
| | (CT) | 16.16 | 55.55 | 28.28 |

TT: Training Transaction
CT: Classroom Transaction

## Treatment Accorded to the Learners by RPs and Teachers

The treatment accorded to the learners was categorised into four categories, namely, in an authoritarian manner like school children, respectfully, in an indifferent manner and on equal footing. Treating students respectfully and on an equal footing are positive while the other two are in the negative category. The frequency of use was considered as occurrence, 'never', 'sometimes' and 'quite often'. The results are summarised in Table 4.37.

Treating teachers respectfully often and sometimes was low in Maharashtra, maybe, because of the high pedestal of resource persons who were trying to provide value-based training. By culture they consider themselves venerable.

In Tamil Nadu, the teachers in classroom transaction showed quite high percentage of occurrence of this behaviour than RPs. Treating students on equal footing in 'never category' was high in the States of Meghalaya, Nagaland, Tamil Nadu and West Bengal. 'This might be due to the two cultures and values of RPs and teachers. The modelling of cultural and social value may require a different training transaction strategy. If impact to be made on this parameter, the training design and its transaction will have to be thought afresh. The NCERT and the State level agencies may like to develop strategies to incorporate this component in training and the methodology of transacting training and classroom transaction to effect such a change.

## Use of Teaching and Technology Aids

The study attempted to assess the use of the universal aid of blackboard in the classroom and the technology aids such as OHP, film/videos and Computer. Other aids included maps, charts, globe, etc. Table 4.38 provides percentages of observed sessions/lessons in respect of the use of teaching aids. Film/Videos, OHP and computers were excluded from the analysis since these were either not available in schools, or these were not functional or were being exclusively used for non-teaching purposes. For example, computers in BRC and CRC were being used only for DISE data management and were not available for training or teaching. Other aids included use of TLM, maps, charts, globe, kits, etc.

*TLM environment for learning*

Table 4.37(a)

**Treatment Accorded to Learners by RPs and Teachers in Training and Teaching Situations**

| State | | In an authoritarian manner like school children | | | Respectfully | | |
|---|---|---|---|---|---|---|---|
| | | Never | Sometimes | Quite often | Never | Sometimes | Quite often |
| Bihar | (TT) | 80.55 | 8.33 | 11.11 | 2.78 | 19.44 | 77.78 |
| | (CT) | 42.5 | 55 | 2.5 | 20 | 47.5 | 32.5 |
| Gujarat | (TT) | 78.26 | 17.39 | 4.35 | 2.17 | 21.74 | 76.09 |
| | (CT) | 68.54 | 8.99 | 22.47 | 7.87 | 37.08 | 55.05 |
| Haryana | (TT) | 100 | 0 | 0 | 0 | 0 | 100 |
| | (CT) | 44.54 | 38.46 | 17 | 9.62 | 48.08 | 42 |
| Maharashtra | (TT) | 14 | 70 | 16 | 68 | 22 | 10 |
| | (CT) | 35.4 | 35.4 | 29.2 | 4.17 | 45.8 | 50 |
| Meghalaya | (TT) | 73.12 | 23.66 | 3.23 | 1.08 | 50.54 | 48.39 |
| | (CT) | 32.53 | 55.42 | 12.05 | 13.25 | 62.65 | 24.09 |
| Nagaland | (TT) | 79.55 | 20.45 | 0 | 3.41 | 27.27 | 69.32 |
| | (CT) | 40.3 | 50 | 9.7 | 25 | 54.2 | 20.8 |
| Odisha | (TT) | 96.55 | 0 | 3.45 | 0 | 48.27 | 51.72 |
| | (CT) | 67.7 | 24.5 | 7.6 | 23.7 | 49.1 | 27.1 |
| Rajasthan | (TT) | 9.52 | 66.67 | 23.81 | 0 | 23.81 | 76.19 |
| | (CT) | 16.7 | 51.9 | 31.5 | 3.7 | 38.9 | 57.4 |
| Tamil Nadu | (TT) | 0 | 25 | 75 | 66.67 | 33.33 | 0 |
| | (CT) | 70.24 | 29.76 | 0 | 0 | 78.57 | 21.43 |
| West Bengal | (TT) | 28.81 | 66.1 | 5.08 | 6.78 | 62.71 | 30.51 |
| | (CT) | 32.32 | 56.56 | 11.11 | 15.15 | 41.41 | 43.43 |

Table 4.37(b)

| State | | In an indifferent manner | | | On equal footing | | |
|---|---|---|---|---|---|---|---|
| | | Never | Sometimes | Quite often | Never | Sometimes | Quite often |
| Bihar | (TT) | 61.11 | 38.89 | 0 | 30.55 | 44.44 | 25 |
| | (CT) | 75 | 22.5 | 2.5 | 30 | 38.5 | 37.5 |
| Gujarat | (TT) | 0 | 2.17 | 97.83 | 13.08 | 40.18 | 46.74 |
| | (CT) | 23.6 | 41.57 | 34.83 | 19.1 | 19.1 | 61.8 |
| Haryana | (TT) | 80.68 | 19.32 | 0 | 7.95 | 15.91 | 76.14 |
| | (CT) | 75 | 25 | 0 | 19.5 | 13.5 | 67 |
| Maharashtra | (TT) | 8 | 26 | 66 | 90 | 10 | 0 |
| | (CT) | 83.3 | 16.7 | 0 | 72.9 | 25 | 2.1 |
| Meghalaya | (TT) | 96.77 | 3.23 | 0 | 18.28 | 60.21 | 21.51 |
| | (CT) | 87.95 | 10.84 | 1.2 | 57.83 | 36.15 | 6.02 |
| Nagaland | (TT) | 88.64 | 9.09 | 2.27 | 14.77 | 36.35 | 48.86 |
| | (CT) | 100 | 0 | 0 | 66.7 | 18 | 15.3 |
| Odisha | (TT) | 96.55 | 3.45 | 0 | 3.45 | 10.34 | 86.21 |
| | (CT) | 59.3 | 30.5 | 10.1 | 19.4 | 19.4 | 61.2 |
| Rajasthan | (TT) | 0 | 85.71 | 14.27 | 23.81 | 71.43 | 4.76 |
| | (CT) | 37 | 38.9 | 24.1 | 27.6 | 44.4 | 27.8 |
| Tamil Nadu | (TT) | 16.67 | 50 | 33.33 | 50 | 50 | 0 |
| | (CT) | 59.52 | 39.29 | 1.19 | 22.62 | 48.81 | 28.57 |
| West Bengal | (TT) | 55.93 | 42.37 | 1.69 | 59.32 | 11.87 | 28.81 |
| | (CT) | 79.79 | 19.19 | 1.01 | 43.43 | 52.53 | 4.04 |

*TT: Training Transaction CT: Classroom Transaction*

Table 4.38 reveals that blackboards were used in both situations except in the states of Nagaland, Meghalaya and Maharashtra. In Maharashtra these might have not been used due to the nature of training and type of the resource persons involved in value-based training. Other aids were used more in classroom transaction than in TT, especially in the states of Gujarat, Odisha, Rajasthan and Tamil Nadu. It might be due to follow-on training in the states of Tamil Nadu and Gujarat and project-based training in Rajasthan. The impact might be seen in respect of continuing training in monthly meetings in these two states.

Table 4.38

**Use of Teaching and Technology Aids**

| State | | Blackboard | | |
|---|---|---|---|---|
| | | Never | Sometimes | Quite Often |
| Bihar | (TT) | 5.56 | 30.56 | 63.88 |
| | (CT) | 2.5 | 35 | 62.5 |
| Gujarat | (TT) | 2.17 | 21.74 | 76.09 |
| | (CT) | 6.74 | 26.97 | 66.29 |
| Haryana | (TT) | 21.59 | 21.59 | 56.82 |
| | (CT) | 3.85 | 31.15 | 65 |
| Maharashtra | (TT) | 64 | 28 | 8 |
| | (CT) | 14.6 | 37.5 | 47.9 |
| Meghalaya | (TT) | 62.37 | 35.48 | 2.15 |
| | (CT) | 18.07 | 27.71 | 54.21 |
| Nagaland | (TT) | 3.41 | 38.64 | 57.95 |
| | (CT) | 12.5 | 29.2 | 58.3 |
| Odisha | (TT) | 0 | 17.24 | 82.76 |
| | (CT) | 19.4 | 21.8 | 59 |
| Rajasthan | (TT) | 0 | 42.86 | 57.14 |
| | (CT) | 5.6 | 14.8 | 79.6 |
| Tamil Nadu | (TT) | 0 | 0 | 100 |
| | (CT) | 0 | 1.19 | 98.89 |
| West Bengal | (TT) | 5.08 | 59.32 | 35.59 |
| | (CT) | 18.18 | 48.48 | 33.33 |

| State | | OHP (Over Head Projector) | | |
|---|---|---|---|---|
| | | Never | Sometimes | Quite Often |
| Bihar | (TT) | 100 | 0 | 0 |
| | (CT) | 100 | 0 | 0 |
| Gujarat | (TT) | 97.83 | 2.17 | 0 |
| | (CT) | 80.9 | 15.73 | 3.37 |
| Haryana | (TT) | 84.09 | 4.55 | 11.36 |
| | (CT) | 100 | 0 | 0 |
| Maharashtra | (TT) | 10 | 10 | 80 |
| | (CT) | 100 | 0 | 0 |
| Meghalaya | (TT) | 46.24 | 1.07 | 52.69 |
| | (CT) | 98.79 | 1.2 | 0 |
| Nagaland | (TT) | 93.18 | 3.41 | 3.41 |
| | (CT) | 100 | 0 | 0 |
| Odisha | (TT) | 100 | 0 | 0 |
| | (CT) | 97.4 | 1.8 | 0.8 |
| Rajasthan | (TT) | 100 | 0 | 0 |
| | (CT) | 98.1 | 0 | 1.9 |
| Tamil Nadu | (TT) | 75 | 25 | 0 |
| | (CT) | 34.52 | 65.48 | 0 |
| West Bengal | (TT) | 47.46 | 50.85 | 1.69 |
| | (CT) | 100 | 0 | 0 |

| State | | Films/Videos | | |
|---|---|---|---|---|
| | | Never | Sometimes | Quite Often |
| Bihar | (TT) | 97.22 | 2.78 | 0 |
| | (CT) | 100 | 0 | 0 |
| Gujarat | (TT) | 94.57 | 4.35 | 1.09 |
| | (CT) | 82.02 | 17.98 | 0 |
| Haryana | (TT) | 100 | 0 | 0 |
| | (CT) | 100 | 0 | 0 |
| Maharashtra | (TT) | 100 | 0 | 0 |
| | (CT) | 97.9 | 0 | 2.08 |
| Meghalaya | (TT) | 100 | 0 | 0 |
| | (CT) | 100 | 0 | 0 |
| Nagaland | (TT) | 98.86 | 1.14 | 0 |
| | (CT) | 100 | 0 | 0 |
| Odisha | (TT) | 100 | 0 | 0 |
| | (CT) | 100 | 0 | 0 |
| Rajasthan | (TT) | 100 | 0 | 0 |
| | (CT) | 100 | 0 | 0 |
| Tamil Nadu | (TT) | 0 | 100 | 0 |
| | (CT) | 100 | 0 | 0 |
| West Bengal | (TT) | 59.32 | 40.68 | 0 |
| | (CT) | 100 | 0 | 0 |

| State | | Computer | | |
|---|---|---|---|---|
| | | Never | Sometimes | Quite Often |
| Bihar | (TT) | 100 | 0 | 0 |
| | (CT) | 100 | 0 | 0 |
| Gujarat | (TT) | 91.3 | 7.61 | 1.09 |
| | (CT) | 67.42 | 2.24 | 30.34 |
| Haryana | (TT) | 85.23 | 2.27 | 12.5 |
| | (CT) | 100 | 0 | 0 |
| Maharashtra | (TT) | 100 | 0 | 0 |
| | (CT) | 97.9 | 0 | 2.08 |
| Meghalaya | (TT) | 51.61 | 48.39 | 0 |
| | (CT) | 100 | 0 | 0 |

| | | | | |
|---|---|---|---|---|
| Nagaland | (TT) | 93.18 | 5.68 | 1.14 |
| | (CT) | 100 | 0 | 0 |
| Odisha | (TT) | 100 | 0 | 0 |
| | (CT) | 100 | 0 | 0 |
| Rajasthan | (TT) | 95.24 | 0 | 4.76 |
| | (CT) | 100 | 0 | 0 |
| Tamil Nadu | (TT) | 0 | 100 | 0 |
| | (CT) | 100 | 0 | 0 |
| West Bengal | (TT) | 89.83 | 10.16 | 0 |
| | (CT) | 100 | 0 | 0 |

| State | | Other learning aid(s) | | |
|---|---|---|---|---|
| | | Never | Sometimes | Quite Often |
| Bihar | (TT) | 50 | 36.11 | 13.89 |
| | (CT) | 82.5 | 10 | 7.5 |
| Gujarat | (TT) | 82.61 | 11.96 | 5.43 |
| | (CT) | 39.33 | 39.33 | 21.34 |
| Haryana | (TT) | 48 | 24 | 25 |
| | (CT) | 100 | 0 | 0 |
| Maharashtra | (TT) | 82 | 16 | 2 |
| | (CT) | 75 | 8.33 | 16.7 |
| Meghalaya | (TT) | 60.22 | 18.28 | 21.51 |
| | (CT) | 36.14 | 15.66 | 48.19 |
| Nagaland | (TT) | 45.45 | 26.14 | 28.41 |
| | (CT) | 38.9 | 19.4 | 41.7 |
| Odisha | (TT) | 17.24 | 58.62 | 24.14 |
| | (CT) | 23 | 44 | 33 |
| Rajasthan | (TT) | 71.43 | 19.04 | 9.52 |
| | (CT) | 48.1 | 22.2 | 29.6 |
| Tamil Nadu | (TT) | 0 | 22.2 | 0 |
| | (CT) | 71.43 | 19.05 | 9.52 |
| West Bengal | (TT) | 52.54 | 19.05 | 20.34 |
| | (CT) | 83.33 | 27.12 | 1.11 |

TT: Training Transaction

CT: Classroom Transaction

## Attentiveness of Learners in Training and Teaching Situations

Indicator of attentiveness was visualised as the estimation of the attentive learners in five categories, 'disruption of the class', 'very few', 'some of them', most of them', and 'all of them'. Table 4.39 provides percentage responses under different categories.

Some disruption was observed in the states of Bihar, Haryana and Maharashtra while in other states there was no disruption both in training and teaching situation. Most learners (60 per cent+) were reported as 'attentive' in all states. Attentiveness was higher in CT than in TT in the States of Bihar, Haryana, Odisha, Rajasthan and Tamil Nadu. It implies that the number of attentive students was similar or higher in teaching situations than in training situations. It is indicative of transfer of training to classroom practice in a way.

## Concluding the Session/Lesson in Training and Teaching Situations

The modality used for concluding the session covered such categories as 'ending abruptly,' summarising the main points,' 'giving assignments,' and 'highlighting some points for reflection.' Summarising is important for learning from the cognitive psychology espoused by Bruner and Asubel and highlighting points for reflection is in consonance with the reflection skills required for classroom transaction by NCF 2005 and SSA Framework 2008, 2011. Giving assignment is for follow on learning opportunity beyond the session or for practice of some skills, especially intellectual skills. Ending abruptly is an undesirable behaviour. It may be a symptom of inadequate time management regarding transaction during the session/lesson.

Table 4.40 reveals that 'abruptly ending the session/lesson' is almost similar in all states except in the states of West Bengal and Nagaland where it is higher in teaching situations and except in the states of Bihar, Haryana, Maharashtra, Rajasthan where it is higher in training situations. Summarising main points was higher or similar in the two situations in the states of Tamil Nadu, Rajasthan, Odisha and Bihar. Giving assignments was higher in CT than in TT in almost all states. Highlighting points for reflection was higher in CT than in TT in the states of Maharashtra, Odisha, Rajasthan and West Bengal. Overall there is transfer of training in concluding the lesson. It is a little limited in the complex skill component of highlighting points for reflection which is important from the perspective of NCF-2005. This aspect needs to be addressed in the forthcoming INSET.

Table 4.39
**Attentiveness of Learners in Training and Teaching Situation**

| State | | Session was disrupted by teachers/students | Very few | Some of them | Most of them | All of them |
|---|---|---|---|---|---|---|
| Bihar | (TT) | 2.78 | 5.56 | 19.44 | 61.11 | 11.11 |
| | (CT) | 0 | 7.5 | 40 | 50 | 2.5 |
| Haryana | (TT) | 6.82 | 15.91 | 28.41 | 36.36 | 12.5 |
| | (CT) | 0 | 1.9 | 7.7 | 55.8 | 34.6 |
| Maharashtra | (TT) | 4 | 2 | 14 | 28 | 52 |
| | (CT) | 2.13 | 4.26 | 25.5 | 21.3 | 46.8 |
| Meghalaya | (TT) | 0 | 0 | 11.83 | 66.67 | 21.51 |
| | (CT) | 0 | 2.4 | 25.3 | 45.78 | 26.52 |
| Nagaland | (TT) | 0 | 0 | 17.05 | 71.59 | 11.36 |
| | (CT) | 0 | 1.4 | 12.5 | 56.9 | 29.2 |
| Odisha | (TT) | 0 | 3.45 | 24.14 | 62.07 | 10.34 |
| | (CT) | 0 | 1.69 | 6.7 | 49.15 | 42.3 |
| Rajasthan | (TT) | 0 | 0 | 52.38 | 47.62 | 0 |
| | (CT) | 0 | 3.7 | 18.5 | 66.7 | 11 |
| Tamil Nadu | (TT) | 0 | 0 | 8.33 | 16.67 | 75 |
| | (CT) | 0 | 0 | 1.99 | 78.57 | 2.24 |

TT: Training Transaction CT: Classroom Transaction

Table 4.40
**Concluding the Training Session/Classroom Lesson**

| State | | Abruptly | Summarising the main points | Giving assignments | Highlighting some points for reflection |
|---|---|---|---|---|---|
| Bihar | (TT) | 30.56 | 11.11 | 22.22 | 36.11 |
| | (CT) | 17.5 | 32.5 | 35 | 15 |
| Gujarat | (TT) | 6.52 | 34.78 | 21.74 | 36.96 |
| | (CT) | 14.6 | 19.1 | 39.33 | 26.97 |
| Haryana | (TT) | 35.23 | 35.23 | 3.41 | 26.14 |
| | (CT) | 7.69 | 30.77 | 44.23 | 15.38 |
| Maharashtra | (TT) | 32 | 62 | 4 | 2 |
| | (CT) | 10.64 | 48.94 | 25.53 | 14.89 |
| Meghalaya | (TT) | 49.46 | 20.43 | 10.75 | 19.35 |
| | (CT) | 42.17 | 19.27 | 27.71 | 10.84 |
| Nagaland | (TT) | 3.41 | 39.77 | 17.05 | 39.77 |
| | (CT) | 16.7 | 41.7 | 34.7 | 6.9 |
| Odisha | (TT) | 13.79 | 17.24 | 51.72 | 17.24 |
| | (CT) | 10.1 | 16.1 | 52.5 | 21.18 |
| Rajasthan | (TT) | 57.14 | 28.57 | 9.52 | 4.76 |
| | (CT) | 33.3 | 37 | 24.1 | 5.6 |
| Tamil Nadu | (TT) | 16.67 | 58.33 | 8.33 | 16.67 |
| | (CT) | 7.14 | 89.29 | 3.57 | 0 |
| West Bengal | (TT) | 3.39 | 47.46 | 37.29 | 11.86 |
| | (CT) | 34.34 | 37.37 | 7.07 | 21.21 |

TT: Training Transaction CT: Classroom Transaction

## Mode of Evaluating Teachers/Students During Training Transaction Sessions/ Teaching Session

The categories for coding in this component are 'no evaluation,' 'oral questioning,' 'assignments,' and 'written tests.' Table 4.41 provides data regarding the mode of evaluation adopted in training and teaching situations.

Table 4.41 reveals that in Gujarat, Rajasthan and Tamil Nadu 'no evaluation' category in CT was zero which implies that evaluation was carried out in classroom situation. In other states observation of 'no evaluation' was higher in TT than in CT. Probably, this might be due to the requirement of evaluation in schools during pre-service training. Written test was not given in training sessions in any sampled state except in Rajasthan. Oral questioning and assignments as modes of evaluation during CT were higher than in TT in almost all states.

## Use of Different Training/Teaching Strategies

The strategies included in estimates of time spent in training transaction/teaching situation were 'RP talking', 'teacher talking', 'interaction with the teachers/students, 'group work' and 'other activities'. Other activities included preparing TLM, arranging furniture, helping in using technology aids, etc. Time estimation categories were 'zero', 1-25, 26-50, 51-75 and above 75 training transaction sessions classroom transaction during which different strategies were adopted.

Table 4.42 reveals that half of the states show 'no interaction' in Haryana, Maharashtra, Nagaland, Odisha and Tamil Nadu which means that in training/teaching situation there was Uni-directional flow of communication from teacher to students. In the remaining states also this was prominent either in training or teaching situations.

Table 4.41
**The Mode of Evaluating the Teachers/Students during Training Transaction Session/Teaching Situation**

| State | | No Evaluation | Oral Questioning | Assignments | Written Test |
|---|---|---|---|---|---|
| Bihar | (TT) | 11.11 | 75 | 13.89 | 0 |
| | (CT) | 5 | 60 | 27.5 | 7.5 |
| Gujarat | (TT) | 14.13 | 60.87 | 19.57 | 5.43 |
| | (CT) | 0 | 52.81 | 32.58 | 14.16 |
| Haryana | (TT) | 60.23 | 30.68 | 9.09 | 0 |
| | (CT) | 7.69 | 69.23 | 15.38 | 7.69 |
| Maharashtra | (TT) | 56 | 40 | 4 | 0 |
| | (CT) | 10.64 | 53.19 | 31.91 | 4.26 |
| Meghalaya | (TT) | 58.06 | 23.66 | 18.28 | 0 |
| | (CT) | 24.09 | 53.01 | 22.89 | 0 |
| Nagaland | (TT) | 27.27 | 53.41 | 19.32 | 0 |
| | (CT) | 12.5 | 59.7 | 16.7 | 11.1 |
| Odisha | (TT) | 10.34 | 20.69 | 31.03 | 37.93 |
| | (CT) | 2.54 | 22.8 | 35.5 | 38.9 |
| Rajasthan | (TT) | 4.76 | 76.19 | 4.76 | 14.29 |
| | (CT) | 0 | 55.6 | 37 | 7.4 |
| Tamil Nadu | (TT) | 33.33 | 66.67 | 0 | 0 |
| | (CT) | 0 | 10.59 | 1.18 | 88.25 |

TT: Training Transaction
CT: Classroom Transaction

Table 4.42
**Estimated Time Spent on Interaction by the RPs/Teachers during Training/Classroom Transactions**

| State | | Zero | 1-25 | 26-50 | 51-75 | >75 |
|---|---|---|---|---|---|---|
| Bihar | (TT) | 2.78 | 30.56 | 58.33 | 8.33 | 0 |
| | (CT) | 2.5 | 57.5 | 37.5 | 2.5 | 0 |
| Haryana | (TT) | 0 | 53.41 | 46.59 | 0 | 0 |
| | (CT) | 0 | 53.85 | 46.15 | 0 | 0 |
| Maharashtra | (TT) | 0 | 50 | 48 | 0 | 2 |
| | (CT) | 0 | 39.58 | 60.42 | 0 | 0 |
| Meghalaya | (TT) | 15.05 | 75.27 | 9.68 | 0 | 0 |
| | (CT) | 9.63 | 65.06 | 24.09 | 1.20 | 0 |
| Nagaland | (TT) | 0 | 68.18 | 31.82 | 0 | 0 |
| | (CT) | 0 | 53.7 | 43.5 | 1.4 | 1.4 |
| Odisha | (TT) | 0 | 17.24 | 82.76 | 0 | 0 |
| | (CT) | 0 | 47.4 | 49.15 | 3.38 | 0 |
| Rajasthan | (TT) | 0 | 47.62 | 52.38 | 0 | 0 |
| | (CT) | 1.9 | 63) | 27.8 | 7.4 | 0 |
| Tamil Nadu | (TT) | 0 | 8.33 | 83.33) | 8.33 | 0 |
| | (CT) | 0 | 8.86 | 91.14 | 0 | 0 |
| West Bengal | (TT) | 0 | 54.24 | 45.76 | 0 | 0 |
| | (CT) | 0 | 84.37 | 15.62 | 0 | 0 |

Table 4.43
**Estimated Time Spent on Group Work by the RPs/ Teachers during Training/ Classroom Transactions**

| State | | Zero | 1-25 | 26-50 | 51-75 | >75 |
|---|---|---|---|---|---|---|
| Bihar | (TT) | 5.56 | 41.67 | 50 | 2.78 | 0 |
| | (CT) | 52.5 | 37.5 | 10 | 0 | 0 |
| Haryana | (TT) | 37.5 | 50 | 12.5 | 0 | 0 |
| | (CT) | 50 | 48.08) | 1.92 | 0 | 0 |
| Maharashtra | (TT) | 36) | 56 | 8 | 0 | 0 |
| | (CT) | 43.8 | 50 | 6.25 | 0 | 0 |
| Meghalaya | (TT) | 74.19 | 5.38 | 10.75 | 5.38 | 4.3 |
| | (CT) | 97.59 | 0 | 0 | 1.20 | 1.2 |
| Nagaland | (TT) | 0 | 67.05 | 26.14 | 6.82 | 0 |
| | (CT) | 0 | 88.9 | 5.5 | 5.5 | 0 |
| Odisha | (TT) | 0 | 68.97 | 31.03 | 0 | 0 |
| | (CT) | 0 | 82.2 | 13.5 | 4.2 | 0 |
| Rajasthan | (TT) | 0 | 66.67 | 33.33 | 0 | 0 |
| | (CT) | 3.7 | 79.6 | 13 | 1.9 | 1.9 |
| Tamil Nadu | (TT) | 0 | 28.57 | 71.43 | 0 | 0 |
| | (CT) | 0 | 11.9 | 86.9 | 1.19 | 0 |
| West Bengal | (TT) | 3.39 | 62.71 | 23.73 | 10.17 | 0 |
| | (CT) | 0 | 85.71 | 14.28 | 0 | 0 |

TT: Training Transaction CT: Classroom Transaction

The teaching in these states was like preaching. Upto 25 per cent of time was used in interaction predominantly in the States of Rajasthan, West Bengal and Odisha. It was also higher in CT than in TT. The increased zero interaction category was non-existent. In Tamil Nadu interaction time was estimated to be within the range of 26-50 per cent category and higher in CT than in TT. It implies that the transfer of training was observed in Tamil Nadu. In other categories of the estimated time up to 75 per cent or more the percentage was negligible.

Group work was missing in TT and CT in the States of Maharashtra, Haryana and Bihar. Estimated time devoted to this component indicates that up to 25 per cent time was used in more than two third of the TT and CT in the States of West Bengal, Rajasthan, Odisha and Nagaland. It was higher in CT than in TT. In Tamil Nadu estimated time ranged between 26-50 per cent. These are also the 'no zero group work' States which are indicative of transfer of training.

Overall this section complements the findings of the section comparing experimental (group with INSET) and control (with no INSET) group. Indication of the transfer of training to classroom transaction was observed in more component behaviours in the states of Tamil Nadu, Gujarat and Odisha. Yadav (2000, 2002, 1999) also supports the impact of training in classroom transaction. The likelihood of transfer of training seems to be better in the case of simpler component skills than complex component skills. The transfer of training to classroom practice is more likely if more time is allocated to interaction and group work during training and classroom transaction. Similarly, attentiveness is more in CT in states having no disruption in TT/CT.

# 5 Impact of Follow-on In-service Training on Teachers

## THE FOCUS

The SSA framework for teachers' INSET envisages one-day training each month at the CRC for ten months in an academic year (MHRD, 2008). The policy is based on the findings of researches on effectiveness of teacher training that indicate that one time block training is not sufficient for professional development of teachers as it does not equip them to translate learning accrued from training into classroom practice. The continuous training at regular intervals involving sharing of experiences and collaborative problem-solving reinforces block training enhancing chances of its utilisation in classroom transaction. This model follows summative and integrative models of transfer of training to classroom practice (Jangira 1992). The SSA model of block and continuous training is based on the established credentials of the integration of the two modalities. The one-day training in monthly meetings of teachers at the CRC stipulates that the teachers shall share their successful practices, demonstrate innovations attempted by them and discuss the problems faced by them in their attempt to transfer the training gains to their pupils through classroom teaching. In order to assess the impact of monthly follow-on INSET at the CRC level, the required data in the present study were collected from the CRC coordinators, teachers attending the CRC meetings and the field investigators who observed the conduct of monthly CRC meetings. The data collected through different sources have yielded information regarding frequency of monthly meetings, educational and professional background of the CRC coordinators, institutional arrangement for monthly training, the extent of involvement of resource persons and experts, nature of planning and preparation undertaken, formal agenda transacted during the meetings, participation rate of teachers and discussions held during the meetings.

*Monthly meeting at CRC*

Though the nomenclature of CRCs and CRC coordinators is not the same in all the states but for the sake of convenience in understanding, the term CRC has been used for similar structures in different states.

## STATE BRIEFS

The briefs are based on field investigator visits to 140 CRC meetings attended by 2891 teachers in 12 States. In the states of Haryana, Meghalaya and Nagaland CRC meetings were not held. CRC meetings are used for information flow for administrative data in many states. In Rajasthan and Uttar Pradesh only Heads of primary and upper primary schools attended meetings. CRCs are mostly located in upper primary schools. CRC coordinators were the same for both primary and upper primary schools. The states profiles follow:

### Andhra Pradesh

In Andhra Pradesh, 1137 Mandal Resource Centres (MRCs) and 6935 School Complexes or CRCs are functioning. The days of monthly meetings are fixed and eight school complex level meetings are scheduled on any one Saturday of every month from July to March except December. In the monthly meetings, attendance of all the teachers is mandatory. The teachers who are not able to attend the meeting are considered to be on leave. The present report is based on the observation of meetings held at 42 school complexes. The attendance of the teachers in the monthly meetings ranged from 70 to 80 per cent. There are seven to eight primary schools in the jurisdiction of each CRC.

Most CRCs are located in lead school of the school complexes which is either Upper Primary school or High School located in the jurisdiction of the CRC. There is no separate room for CRC for conducting monthly meetings and no separate room for CRC coordinator. Seating arrangement in most of the CRCs has been found to be poor as the teachers had only either classroom benches or floor mats to sit. In some centres, chairs were hired from the local suppliers. About 43 per cent of CRCs were without electricity. 86 per cent of CRCs were not having library facilities. The agenda for different CRC meetings is drawn by the State project office which is communicated to each CRC through DPO, RVM-SSA. The monitoring officers like Deputy Education Officer, Lecturer of DIET, MRP and MEO attend the meetings to help the teachers to resolve academic issues and problems. Yoga and meditation is included in the agenda. The children's progress in the schools of the participants during the month is reviewed. The head of the school complex shares the report on his/her visit to the schools in its jurisdiction. The special review of SSA activities is based on the experiences of the teachers in practising and implementing new pedagogical activities suggested under SSA during the block training. The model demonstration by senior teachers or by the DIET faculty based on the pedagogical approaches suggested under SSA is sometimes arranged. The meeting is concluded with some discussion on the agenda of the next meeting. Subject-wise school complexes have been set up for different subjects. There are four to five school complexes for each subject in each educational division. The monthly meetings at school complexes (CRCs) have been found to be helpful in providing academic support to teachers as stated in State policy document. These meetings have helped the functionaries at various levels in the State to obtain feedback regarding different initiatives of RVM-SSA.

### Bihar

In the state of Bihar there are 534 BRCs and 4479 CRCs. The number of monthly meetings is fixed while dates of monthly meetings are not fixed. The present report is based on the study of 10 CRCs located in five sampled districts of Bihar and responses of 290 teachers consisting of 171 (58.97%) men and 119 (41.03%) women.

As reported by majority of teachers (95.17%), agenda is prepared for monthly meetings in advance and they know the criteria followed for identifying issues for the monthly meeting. One meeting is held for three to six hours every month,

in the room allotted to CRC. As many as 96.89 per cent of teachers attended the monthly meetings regularly. In 60 per cent of CRC Centres, teachers did not raise issues relating to curriculum and curriculum transaction. An overwhelming majority (more than 80%) of teachers have stated that they are given a chance to prepare material and to clarify their doubts. However, in a majority of centres, innovations of teachers are not presented and discussions are not held for deciding issues to be discussed in the next meeting.

A majority of teachers (94.14%) are satisfied with the conduct of meetings and have reported that separate rooms for the coordinator's office and for holding meetings are available. But the essential teaching aids/equipments like television, computer, internet facility, VCD/Projector dictionary, science kit, mathematics kit, and globe, maps/charts are not available in majority of the CRCs.

The teachers attending monthly meetings are reported to have learnt new approaches related to group learning, play way method, presenting and telling stories, etc. and for making teaching-learning process activity-based. The meetings further equipped the teachers for smooth organisation of co-curricular activities, conduct of examinations, preparation of progress cards and implementation of MDM programmes.

Teaching Learning Equipments (TLE), including science and mathematics kits, need to be provided to the centres. A complete set of TLE would serve as a model for schools under respective CRCs. There should be provision for regular visits of resource persons, and subject experts who should provide help in clarifying the hard spots in the prescribed syllabi.

## Chhattisgarh

In the state of Chhattisgarh, 10-day training in the form of monthly meetings (one day each every month) at the CRC level was organised.

Approximately 45 per cent CRCs have their own buildings whereas 55 per cent CRCs are located either in primary or upper primary schools. In less than 33 per cent CRCs, separate rooms are available for coordinators and for holding meetings. The books available in the library of CRCs have been found to be inadequate. Abut two-third of teachers have stated that they have to sit on mats during the meeting. Teaching learning equipments and materials like TV, VCR, and VCP are generally not available in the CRCs. Even basic TLMs like maps, charts, globe, etc. are not available in approximately 50 per cent schools.

It has been reported that the agenda for the meetings is prepared in advance and the records are maintained. The training coordinators identify the issues to be discussed in the meetings on the basis of the suggestions of teachers in the previous meeting and decisions taken at BRC/CRC level.

But it was observed by the field investigators that in some of the meetings the agenda was prepared on the spot. The issues relating to attendance, absenteeism of students, mid day meal, change in the school timings, pulse polio pragramme, students' progress report to be sent to BRC are discussed in the meetings. Occasionally, lectures are given by CRC coordinators on the use of TLM and preparation of lesson plans. In most of the CRC meetings teachers do not raise academic or pedagogical issues or discuss problems related to the implementation of innovative ideas acquired during in-service training. There is wide training perception among teachers that CRC meetings are organised to disseminate information about decisions taken at BRC level to school teachers and to obtain the required information. Thus, it can be concluded that CRCs are functioning more like a channel for information flow than a forum for academic support.

The dates of monthly meetings are fixed. The date of meeting for half number of teachers of a school is 5th and for the rest of them it is 21st of the month. As per the report of the CRC coordinators, 88.15 per cent teachers attended the monthly meetings in 2010-11.

In sum, CRC monthly meetings are not organised for providing academic support to teachers as stated in State policy document. These

meetings are more like channels for information flow from SPD to BRC and BRC to CRC and to teachers and vice-versa. The discussions are generally not related to the pedagogical issues but are mostly related to the administrative issues. The CRC meetings organised as a part of the 20-day training should aim at imparting training to the teachers on issues related to the transaction of content.

### Gujarat

In the state of Gujarat 20-day training is imparted in two phases in 228 BRCs and 3337 CRCs. 10-day block level training is conducted during summer vacation in the beginning of the year, which is followed by 10-day cluster level training in the form of monthly meetings at CRC Level. The CRC meeting is held on second week's Friday every month and if the school is closed due to some reason, then the meeting is held the next day. The agenda for the meetings is drawn in the offices of the SPD and BRC. Occasionally, the BRC co-coordinator participates in the meetings of CRCs.

In the monthly meetings discussions are organised around a variety of themes such as next year's time-table, innovative teaching methods, hard spots in different subjects, learning through activities, games, rhymes, etc. and organisation of PRAVESOTSAV (Admission Festival). In sum, the meetings served the twin purposes of teachers' professional development and their participation in decision making relating to preparation of the time- table for the next session and organisation of programmes like Admission Festival.

### Haryana

In the state of Haryana, there is no provision for INSET at the CRC level.

### Jammu and Kashmir

In the State of Jammu and Kashmir, meetings are organised on 14th and 15th of each month at the cluster level inviting 50 per cent teachers each day. The state has prepared detailed guidelines for the operationalisation and effective functioning of CRCs. The District Resource Groups (DRGs) have been formed in all districts with a provision for eight CRPs in each zone for providing on the spot academic support to the schools included in clusters.

The CRPs prepare programme schedule for each month and submit the same to the concerned DRG member. A CRP is required to visit one school each day for providing on the spot resource support to the teachers. In addition, they are also required to check records like teacher diaries, class diaries, performance register, SSA cash register, etc. and provide guidance, wherever necessary. They are further expected to deliver lessons using appropriate TLMs to enable the teachers to use TLMs themselves in future.

Most of the CRCs have adequate furniture for seating purposes (benches, chairs) but do not have library facilities or teaching learning equipments like TV, VCR/VCP, Computer, etc. and wherever available, these are seldom used. However, teaching learning aids like maps , charts, globes, dictionary, science and mathematics kits, etc. are available in more than 50 per cent centres but are used only occasionally.

The participation rate of teachers in the monthly meetings is around 50 per cent. The work transacted in the meetings includes organisation of activities, organisation of discussions on curricular issues, demonstration of innovations, etc. An overwhelming majority of teachers have been found to be satisfied with the conduct of meetings.

In sum, the state of Jammu and Kashmir has institutionalised on site training of teachers on a continuing basis by making arrangements for permanent cluster resource persons who are mandated to provide on the spot guidance to teachers, demonstrate the use of TLMs and monitor the work of teachers including the maintenance of records. However, the CRCs are not equipped properly to function as training venues. There is need to initiate appropriate measures to improve the participation rate of teachers in monthly meetings.

## Madhya Pradesh

In the state of Madhya Pradesh, there is a provision of conducting six monthly meetings of two days each at CRC/BRC level. However, it has been observed that only ten meetings of one day each were conducted at CRC level during the year 2010-11. The present report is based on the observation of ten cluster resource centres (CRCs) from the five sampled districts and the data provided by the SPD, CRC coordinators and the participating teachers.

The available data have revealed that library facilities and electronic equipments like TV, VCD, DVD, etc. are not available in a majority of CRCs. However, charts, maps, globe, dictionary, science and mathematics kits are available in more than 70 per cent of the centres, but optimum use of the available material is seldom made. Regarding infrastructural facilities, it has been reported that separate rooms for the CRC coordinator and CRC meetings are available in about 40 per cent of centres, but the availability of separate toilet facility for women and regular supply of electricity is not satisfactory in a majority of centres.

The monthly meetings are conducted at CRCs where primary and upper primary teachers participate. The agenda of the meeting is prepared in advance at CRC level by taking into consideration the suggestions of the teachers. The date of the meeting is fixed in advance keeping in view the convenience of the teachers. The CRC also maintains the minutes of previous meetings. In the meetings teachers raise issues related to curriculum transaction, clarify their doubts, and prepare TLMs. The mechanism for the evaluation of teachers' performance in the monthly meetings is in place in a majority of CRCs.

In sum, the State of Madhya Pradesh has adopted the split-up model of INSET. Against six monthly meetings of two days each, ten one day meetings were organised during 2010-11. Separate rooms for CRC coordinators and CRC meetings are available in a majority of centres. The agenda alongwith dates of the meetings is fixed in advance. In a majority of CRCs, suitable mechanism for the appraisal of teachers' performance in the meetings is in place. In addition to the discussions on curricular and other academic issues, the meetings are also utilised for the compilation and transmission of information from BRC to CRC and vice versa.

## Maharashtra

In the state of Maharashtra, teachers' in-service training of 20 days comprises 10 days continuous formal training and 10 days continuous training in 10 monthly meetings at CRC level. The agenda of a monthly meeting is fixed in advance keeping in view the academic needs of teachers and the date is fixed keeping in view the convenience of teachers. The duration of a meeting is on an average 6-7 hours. The minutes of meetings are prepared and maintained as records. It has been reported by the teachers and coordinators that the participation rate of teachers is more than 90 per cent. However, infrastructural facilities (rooms) and instructional facilities like TV, LCD, and DVD etc. are not adequate. Teachers need to be provided opportunities to raise curricular issues prepare TLMs and present their innovations.

## Meghalaya

In the state of Meghalaya, split-up model of INSET has not been adopted as the one time block training is not supplemented by monthly meetings at the CRC level. The meetings on some occasions are organised when administrative issues are to be discussed or DISE data are to be collected.

## Nagaland

In the state of Nagaland also, the one time block training is not supplemented by continuing training in the form of monthly meetings at CRC level.

## Odisha

In the state of Odisha there are 316 BRCs and 4806 CRCs. In an academic year, 10 one-day monthly meetings are held at the CRC. The date of the meeting is decided by the BRC in

consultation with the CRC. The meetings are held either in the room allotted for the CRC or in a classroom of the school where the CRC is located. The observation of 10 CRCs in the State has revealed that most of the centres do not have library facilities, chairs or benches for the use of teachers, separate toilet facilities for the use of teachers, and teaching learning equipments and materials, and wherever teaching learning aids like maps, charts, etc. are available, these are seldom used.

The participation rate of teachers, both primary and upper primary, in the monthly meetings is around 70 per cent. A majority of teachers are satisfied with the conduct of meetings as they get a chance to prepare and use TLMs, clarify their doubts, prepare different types of questions, identify hard spots and conduct practical activities. Besides discussion on academic or pedagogical issues like use of TLMs, lesson planning, the monthly meetings are also utilised for administrative purposes such as compilation of the required information for submission to BRC. The issues like student attendance, school timings, mid-day meal programme, progress report cards, etc. are also discussed. The agenda for the next meeting is also prepared after discussion.

In sum, CRC monthly meetings are organised in the State for providing academic support to teachers and to facilitate flow of information from SPO to BRC and CRC and vice versa. Though physical facilities are not adequate, academic activities conducted are satisfactory. It has been found that agenda for monthly meetings is prepared in advance and the teachers know the agenda before the meetings. All teachers attend the meeting regularly. They get an opportunity to prepare materials, clarify their doubts, raise problems and issues related to curriculum and the discussions are beneficial to them. Physical facilities at the centres such as meeting rooms, drinking water facility, toilet facility, etc. are not adequate. Educational aids such as TV, Video, library, Science kit, mathematics kit, etc. are not available in all the CRCs. There is need to upgrade the infrastructural and instructional facilities in the CRCs, and up-gradation of professional and organisational skills of CRC coordinators and other resource persons.

### Rajasthan

In the State of Rajasthan, there were 3074 CRCs in the 248 blocks of the State in the year 2008-09. At present, separate posts of Block Resource Centre Facilitators (BRCF) and Cluster Resource Centre Facilitators (CRCF) do not exist as their functions have been entrusted to BEEO and Headmasters of 9805 Nodal Schools. The Headmaster of the Nodal school holds the additional charge of CRCF. In addition to the one time block training, there is provision for 10 monthly meetings which are organised for primary and upper primary teachers together. There is no fixed date for holding the meeting. In spite of the provision for 10 meetings, very few meetings were held during 2009-10 and 2010-11.

The agenda of monthly meetings, by and large, includes administrative matters such as disbursement of SC/ST scholarship, organisation of mid day meal, finalisation of time-table for yearly examination, maintenance of school records, transmission of information regarding release of SSA funds and receipt of directions issued by BEEO/BRCF. It is evident that these meetings do not serve as a platform for academic discussions leading to teachers' professional growth. However, occasionally innovations attempted by some teachers and usage of science and mathematics kits are also discussed.

It has been noticed that majority of teachers are not interested in the meetings. The interaction between the teachers and CRC coordinators is limited, which is perhaps due to the absence of a dedicated full time coordinator. There is need to ensure that 10 monthly meetings are held every year as a continuation of the block training and should aim at providing academic resource support to primary and upper primary teachers separately as the academic needs of the teachers of primary and upper primary levels are not identical.

## Tamil Nadu

In the state of Tamil Nadu, the system of teachers' continuing education at the cluster level is in place. The dates and agenda for the monthly meetings are planned well in advance at the State level. The meetings scheduled on first or third Saturdays of every month for lower primary teachers are held simultaneously in all the clusters throughout the State. There are separate full-time cluster resource co-coordinators called 'Cluster Resource Teacher Educators (CRTEs)' for lower primary and upper primary teachers. At present the number of CRTEs is 4088 in the State. The responsibilities of CRTEs include planning and organising CRC level training and selection of resource persons for the same. They have the responsibility of arranging meetings and discussions among teachers on the content of the training programmes. They also have the responsibility for passing on relevant information to the schools. The dates for monthly meetings are finalised every year in January and recorded in the AWP & B. The dates fixed may change in extraordinary circumstances due to weather etc. The themes for discussion in the CRC meetings are also decided at the State level.

The present report is based on the study of one cluster in each of the 12 blocks in four districts. The data collected from different sources have revealed that the CRC coordinators in Tamil Nadu possess post-graduation qualification alongwith teaching experience of more than five years. The CRCs located in primary or upper primary schools use the facilities of the host school, though Teaching Learning Aids like Science Kit, Mathematics Kit maps, charts, globe dictionary, etc., are available in a majority of schools and are used for the benefit of teachers participating in monthly meetings.

The training needs of teachers are identified at the State level and there is less flexibility in attending to the same at the local level. This uniformity may be due to administrative convenience but may not be suitable to address the needs of teachers at individual level.

Each cluster resource centre caters to the training needs of around 40-60 teachers in a set of schools around. The meetings are co-coordinated by Cluster Resource Teacher Educators (CRTEs). One CRTE is attached to one cluster and is responsible for organising training and arranging monthly meetings for the teachers.

Since the agenda for the meetings is prepared at the State level, the CRTEs are not directly involved in its finalisation. However, for the identification of issues for discussion, teachers' suggestions are solicited during monthly meetings. The CRTEs are provided one day training to prepare them for the planning, organisation and appraisal of the monthly meetings.

It has been observed that the participation rate in the CRC meetings is more than 90 per cent. In the meetings teachers are provided opportunities to prepare TLMs and clarify their doubts relating to content they have to teach. The teachers were encouraged to present the innovations on some occasion. The teachers' performance in the meetings is assessed on the basis of their participation in discussions.

In sum, the CRCs in Tamil Nadu are housed in primary and upper primary schools and as such they utilise the facilities of the host school. The centres are run by well qualified and experienced CRC coordinators known as Cluster Resource Teacher Educators (CRTEs). The participation rate of teachers in the meetings is very high. The agenda for meetings is finalised at the State level and therefore, the themes are uniform across the State and as such these do not appear to be need based and contextualised. The themes identified for one day training are not necessarily linked with the block level training. The identification of themes at the State level enables the authorities and training organisers to communicate with teachers on the latest developments in the field of education and pedagogy.

## Uttar Pradesh

As per the provisions of SSA, 880 BRCs and NPRCs are functioning in the state of Uttar

Pradesh. In accordance with the SSA guidelines, the most important role of NPRC in Uttar Pradesh is to organise well-structured monthly meetings to discuss academic issues, i.e. teachers guides, TLM, hard spots of syllabus and other pedagogical issues. The number and dates of monthly meetings are fixed. Six NPRC level meetings are scheduled in a year on the last Saturday of the months of July, September, November, January, March and May. But a majority of teachers have reported that no meeting was organised during the year 2010-11.

The present report is based on the study of 18 NPRCs located in six districts of Uttar Pradesh. The NPRCs are located either in primary schools or upper primary schools or housed in separate buildings and have only one room at their disposal. The NPRCs use the facilities of the school.

In most of the NPRCs, teachers sit on a *durrie* during the meetings. Essential teaching learning equipments and materials and adequate library facilities are not available in most of the centres. Special meetings organised for the purpose of the present study were utilised as a channel for communication of information and not as a forum for discussion on educational issues. During meetings, majority of teachers did not raise issues related to curriculum or its transaction. In fact, the meeting at the NPRC is conducted only when some administrative issues are to be shared with the teachers and necessary instructions are to be given. It has also been reported that generally head teachers are invited to attend the monthly meetings and teachers of single teacher schools find it difficult to attend the meeting.

In sum, the NPRCs have not become fully functional in the State of Uttar Pradesh and organisation of monthly meetings has not been institutionalised. This is inspite of the policy formulation that structured monthly meetings at NPRC level are meant for discussing academic issues, teacher's guides and hard spot of syllabus. Against this stipulation, monthly meetings are not held regularly and whenever held the meetings are utilised for communicating information and for issuing directions.

## West Bengal

In the state of West Bengal, INSET is organised both at the BRC and CRC levels. The CRC level meetings are held twice a month, the dates of which are decided by the CRC coordinator as per the convenience of teachers. In a majority of CRCs separate rooms furnished with chairs/ benches are available for holding meetings. However, essential teaching learning equipments and aids like TV, VCD and computer, dictionary, science kit, mathematics kit, charts, maps and globe are not available in a majority of CRCs. The dates of monthly meetings are fixed in advance keeping in view the convenience of teachers.

In the state, there is provision for training of CRC coordinators in the planning and management of short term in-service training, especially organisation of monthly meetings. The CRC coordinators maintain records of the meetings, which includes teachers attendance, agenda transacted and appraisal of teachers' performance.

The teachers attending the monthly meetings have reported that besides learning new approaches to curriculum transaction like peer group discussion, recitation, activity based teaching learning, joyful and participatory teaching learning, etc. they got familiarised with administration related functions like procurement of school uniforms, maintenance of records, admission guidelines, utilisation of available resources. The other agenda items included discussion on ways and means to maintain discipline, organisation of co-curricular activities, effective implementation of MDM programme, student evaluation and preparation of progress card, implementation of SSA, etc.

In sum, there is provision for holding two monthly meetings at CRC level which perhaps aim at compensating the shorter duration of training at the block level. A majority of CRCs do not have essential TLEs and material like TV, computer, internet facility, science kit, mathematics kit, etc. but these are not frequently used even if these are available. In the meetings,

both academic and administrative matters are discussed which are, by and large, found useful by a majority of teachers. The teachers are generally satisfied with the way meetings are conducted. It is perhaps due to the satisfaction of teachers that their participation rate in such meetings is quite satisfactory.

## APPRAISAL OF FOLLOW-ON INSET

The status and appraisal of the follow-on INSET at the CRC level based on State profile briefs given above is briefly presented in this section. To start with, information regarding the CRCs has been summarised in table 5.1. This will be followed by State briefs giving more details.

Table 5.1

**Status of Monthly Meetings at CRC Level : 2010-11**

| State | CRC Meeting Venue | Designation of the Coordinator | No. of Meetings held | Day of Meeting | Agenda of the CRC Meetings |
|---|---|---|---|---|---|
| Andhra Pradesh | School Complex | School Complex Head | 8+2 | 1st/2nd/3rd Saturday every month | Special review of SSA activities in schools demonstration of modules by Sr. Faculty /Teacher, Upper Primary-Mathematical Ability Acquisition Programme (MAAP), experiment and project in science, subject-specific projects like PASS, Learning Improvement Programme in Telugu, English and Hindi. |
| Bihar | CRC | CRC Coordinator | 10 | 28th of every month | Agenda of monthly meetings fixed in the previous meeting. Discussion on students attendance, preparation of TLM, annual evaluation and students progress report |
| Chhattisgarh | CRC | CRC Coordinator | 10 | Not fixed | Information flow and Non-academic agenda. |
| Gujarat | CRC | CRC Coordinator | 7 | 2nd Friday of every month | Discussion of next year time-table, difficult topics, topics related to teacher's proficiency, classroom observation of teacher, learning with activity (games, rhythm's etc.) |
| Jammu & Kashmir | CRC | CRC Coordinator | 10 | 14th and 15th of every month | Clarification of doubts of the teachers presentation of practices by teachers. |
| Madhya Pradesh | CRC | CRC Coordinator | 10 | Last Saturday | Discussion on mechanism to evaluate the performance of teachers, information flow from senior officers to teachers for implementation of administrative matters. |
| Maharashtra | CRC | CRC Coordinator | 10 | 1 and 2 meetings held in a month | Preparation of TLM clarification of doubts of teachers. |
| Meghalaya | CRC | CRC Coordinator | 5 | Not fixed | Filling up of DISE and CLF forms discussion of issues related to teachers roles of function. |
| Odisha | CRC | CRC Coordinator | 10 | Not fixed | Discussion of issues related to schools of students, presentation of innovations by teachers, preparation of TLM, Teaching-aids etc., discussion of Evaluation reports by CRC, conduct of practical exercises. |
| Rajasthan | Nodal Centre/CRC | Nodal In-charge/CRC Facilitator | 10 | Not fixed/usually on the day next to BRC meeting | Discussion on SC/ST scholarship, time table of yearly exam, objective of the programme and mid-day meal, issues related to shortage of staff, salary and mid-day meal, Non-academic issues |
| Tamil Nadu | CRC | CRTE (Cluster Resource Teacher Educator) | 10 | 1st Saturday of the month | Agenda prepared at state level. TLM preparation widely presentation of innovations and clarifying doubts. |

| | | | | | |
|---|---|---|---|---|---|
| U.P | NPRC | NPRC Coordinator | 6 | Not fixed | Non-academic issues like attendance of drop-out of students, mid-day meal, change in time of schools, polio programme, progress of students programme report. |
| West Bengal | CRC | CRC Coordinator | 8 | Twice a month. Dates not fixed | Sharing the experiences of teachers on good practices, clarification of doubts on hard spots, presentation of innovations by teachers demonstration lessons |

## THE ESSENCE

The essence of the analysis of the state profiles follows:

- The split-up model of INSET of 20 days every year comprising 10 days' structured and formal block training and 10 days' continuing training at the cluster level recommended in the SSA Guidelines has not been uniformly followed in all states. In the states of Haryana, Meghalaya and Nagaland, the intervention of INSET for teachers is confined to the one time structured training at a formal training centre, and cluster level structures have not been either established or made operational. In all other states, cluster level structures have been created but the extent of their utilisation is not uniform across the states. There is need to create and operationalise cluster level structures for the continuing professional development of teachers in the states.
- The CRCs have been set up either in primary, upper primary or high schools or in some cases a separate set-up has been established for the running of a CRC. It has been observed that in almost all the states majority of CRCs do not have the required infrastructural and instructional facilities. The essential teaching learning equipments like TV, computer, VCR/VCP, DVD etc. are not available in most of the centres. Teaching learning materials like maps, charts, globes, references books like dictionary, science kits, and mathematics kit are available in a majority of centres but the materials are seldom used by the CRC coordinators or resource persons for the benefit of teachers. It has been noticed that in a large number of centres, a separate training room with proper furniture is not available and therefore teachers have to either sit on students' benches or *durries* during the conduct of meetings or training sessions.
- It is imperative to locate CRCs in well established upper primary or high schools enabling them to utilise the resources and facilities of the host school. A suitable room with a seating capacity of 40-50 should be developed as a seminar-cum-training room with proper furniture and essential teaching learning equipments and materials. It is recommended that a detailed blueprint of a CRC giving details of the minimum essential infrastructural facilities and teaching learning equipments and materials be prepared.
- The effective functioning of CRC depends on the academic and professional background of the person appointed as CRC Coordinator. In this context, the practice followed in the state of Tamil Nadu may be considered as an option in other states also. In Tamil Nadu full time CRC coordinators with post-graduation qualification and minimum five years teaching experience have been appointed as CRC coordinators. Besides, holding monthly meetings, the CRC coordinators are required to visit the schools included in the jurisdiction of their centre to provide on the spot guidance to the teachers to solve their problems. In Rajasthan, Head of the school in which the CRC is located has to shoulder the dual responsibility of running the school as well as the CRC. In such cases also, a full time and well qualified CRC coordinator needs to be appointed who should work under the overall guidance and supervision of the Head of the School.

- It is not sufficient to appoint full time qualified and experienced CRC coordinators. It is necessary to help them to switch over to the role of a 'teacher trainer' from their erstwhile role of a teacher. In states, like Odisha, Tamil Nadu and West Bengal a short training of one or two days is provided to the CRC coordinators. It is recommended that a well designed training of 2-3 days duration should by mandatory for the newly appointed coordinators in all the States. The training curriculum should include planning, organisation and appraisal of training.
- The monthly meetings at the CRC level are conceived as an integral part of the In-service Education of Teachers. One CRC coordinator, however qualified, shall not be able to fulfill all training needs of the teachers. Therefore, it will be necessary to nominate a Cluster Resource Group (CRG) comprising experts in curriculum, evaluation, training, etc. In this context, the experience of the state of Jammu and Kashmir where the system of cluster resource persons is in place may be studied and implemented with modifications, if necessary.
- Regarding preparation of the agenda of monthly meetings, different patterns are followed in different states. In some states, the agenda is prepared at the state level while in a majority of states, it is prepared by the CRC and BRC coordinator in consultation with each other. In some states, the agenda for the next meeting is discussed before the conclusion of a meeting. It is recommended that the role of the SPD, BRC and CRC coordinators in the preparation of agenda should be defined properly. It will be better if the agenda is prepared at the CRC level in the light of the broad guidelines prepared at the state level and Block specific guidelines prepared at the BRC level.
- It is rightly visualised that the training content of the monthly interactions between the resource persons and teachers should be organised around issues related to the block training and relevant curriculum and pedagogical issues. The teachers should be provided hands-on experience in the preparation and use of TLMs including Science and Mathematics kits, charts, maps, etc. but it has been observed that in many states like Rajasthan, Uttar Pradesh, Chhattisgarh monthly meetings are, by and large, utilised as channels of information flow from BRC to CRC and vice versa. In Uttar Pradesh, meetings are held only when there are some administrative matters for discussion for which only Heads are involved. It is recommended that the agenda of the monthly meetings should be a mix of both curricular issues and administrative matters with about 75 per cent weightage for curriculum and pedagogy themes.
- Regarding CRCs for primary and upper primary teachers, two broad patterns have been observed, that is, common CRCs and separate CRCs for the two stages. For example, in Rajasthan, there are common CRCs for the two stages as only administrative issues relevant to all teachers are discussed in the meetings. In Andhra Pradesh, there are separate CRCs to meet different training needs of the primary and upper primary teachers. Even if the same CRC is meant for the primary and upper primary teachers, they should be invited separately to attend the meetings.
- It is evident that the states have operationalised the CRCs in their own ways. In order to realise the contemplated objectives of these grass-roots level educational resource and support structures, it is imperative to internalise their vision and design appropriate strategies to realise the same. It is recommended that a Detailed Project Report (DPR) articulating the vision, mission and functions of these structures along with details of staff and infrastructural requirements and their linkages with the support structures at the block, district and State levels be prepared and made available to the States for their reference. The funding for the establishment and operationalisation of CRCs should be linked to the vision articulated in the DPR.

# 6 Impact on Students

INSET is expected to improve classroom transaction directed at improving student learning and achievement. The conceptual frame for studying the impact of INSET on the end beneficiary in terms of learning and achievement has been specified in Figure 1.1. The measurement of student achievement in terms of test scores is the main indicator of impact on students was not included in the study. The NCERT survey of Class V student achievement conducted in 2010-11 was considered as an alternative measurement of student achievement in the sampled States. Ranking of the sampled States in respect of Class V student achievement and training transaction variables of relevance of training to teachers and enrichment of teachers' understanding of the training content was compared. Rank order correlation was computed. Students' achievement was also compared with the classroom transaction of variables of the manner of treating students in classroom transaction (respectfully), group work, praising students for participating in discussion, and concluding the lesson by summarising. The relationship between the two sets of ranking indicates impact of training on students. The results of this exercise are presented in section one and two of the present chapter. The interim measure in terms of student perceptions about change in classroom transaction as a intermediate variable likely to influence student learning and achievement studied through focus group discussion (FGD) has also been covered in this chapter to complement the analysis based on comparing ranks.

## SECTION ONE : TRAINING TRANSACTION AND STUDENT ACHIEVEMENT

The section provides analysis of the ranking of the sampled States on the achievement of Class V students in the NCERT Achievement Survey conducted during 2010-11 and corresponding rankings of these States on each of the training transaction variables mentioned earlier.

### INSET Relevance and Student Achievement

Immediately after the block training perception schedule was filled by the teachers. One of the items in the schedule relates to the relevance of training to their needs in classroom practice. Table 6.1 presents ranking of the sampled States on student achievement and relevance of training with the computed co -efficient of Rank Order correlation.

Significant Rank Order correlation of 0.54 indicates that the sampled States have an association in respect of relevance and student achievement. 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 comparision since the analysis of the value based training of Jeewan Vidya was qualitative only.

Table 6.1

**States' Rank on Student Achievement and Training Relevance to Teachers**

| State | Rank on Student Achievement** | Rank on Relevance of Training to Teachers |
|---|---|---|
| Andhra Pradesh | 12 | 5 |
| Bihar | 14 | 7 |
| Chhattisgarh | 15 | 14 |
| Gujarat | 8 | 6 |
| Haryana | 13 | 15 |
| Jammu & Kashmir | 6 | 2 |
| Madhya Pradesh | 5 | 13 |
| Maharashtra | 4 | 3 |
| Meghalaya | 11 | 8 |
| Nagaland | 9.5 | 10 |
| Odisha | 7 | 11 |
| Rajasthan | 9.5 | 2 |
| Tamil Nadu | 2 | 1 |
| Uttar Pradesh | 1 | 4 |
| West Bengal | 3 | 9 |
| Rank Order Correlation | | 0.54* |

*Significant at 0.05 level.

**Source: National Achievement Survey, 2011(NCERT)

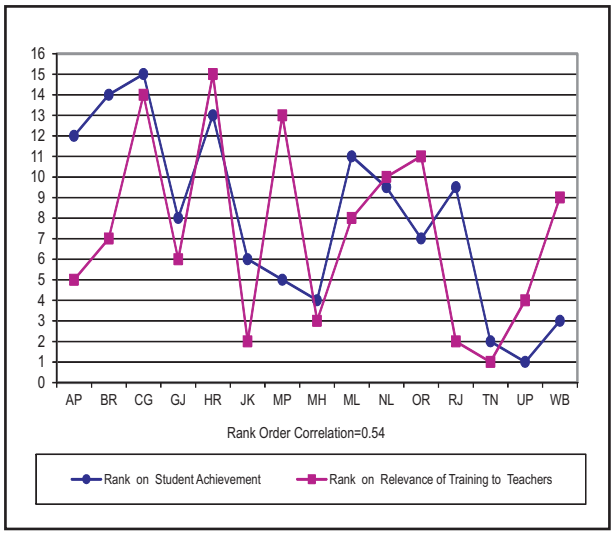


**Figure 6.1 :** Student Achievement and Relevance of Training to Teachers

## Enrichment of Teachers' Understanding of the Training Content and Achievement of Students

Table 6.2 presents states' ranking on the achievement of Class V students and corresponding ranking in respect of enrichment of teachers' understanding as expressed in the teacher perception schedule completed after the block training.

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. This is also supported by the significant achievement gains of teachers and is presented in table 6.2.

Table 6.2

**States' Rank on Student Achievement and Enrichment of Teachers' Understanding of the Training Content**

| State | Rank on Student Achievement** | Rank on Enrichment of Teachers' Understanding of the Training Content |
|---|---|---|
| Andhra Pradesh | 12 | 10 |
| Bihar | 14 | 11 |
| Chhattisgarh | 15 | 14 |
| Gujarat | 8 | 2 |
| Haryana | 13 | 13 |
| Jammu & Kashmir | 6 | 7 |
| Madhya Pradesh | 5 | 12 |
| Maharashtra | 4 | 6 |
| Meghalaya | 11 | 8 |
| Nagaland | 9.5 | 5 |
| Odisha | 7 | 4 |
| Rajasthan | 9.5 | 15 |
| Tamil Nadu | 2 | 1 |
| Uttar Pradesh | 1 | 3 |
| West Bengal | 3 | 9 |
| Rank Order Correlation | | 0.64* |

*Significant at 0.05 level.

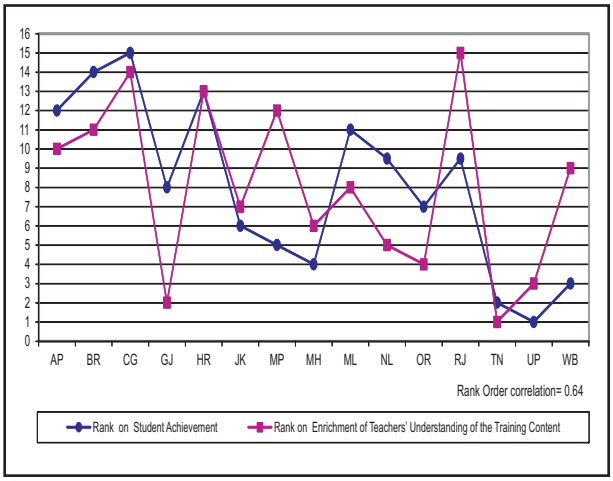


**Figure 6.2 :** Student Achievement and Enrichment of Teachers' Understanding of the Training Content

## SECTION TWO : CLASSROOM TRANSACTION AND STUDENT ACHIEVEMENT

This section provides analysis of the ranking of the sampled states on achievement of Class V students in the NCERT Achievement Survey (2010-11) and corresponding ranking of these states on classroom transaction variables mentioned earlier.

### Teachers Dealing with Students Respectfully and Achievement of Students

Table 6.3 ranks the states on achievement of students and the way they are treated by their teachers during the classroom transaction. The findings related to the teachers' dealing with students is based on classroom transaction observation carried out by the field investigators.

Overall, Rank Order correlation of 0.49 is on the margin (0.51) of significance at 0.05 percent 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 and Kashmir have ranks between 1-6 on both variables.

Table 6.3
**Achievement of Students and Teachers Treating the Students Respectfully**

| State | Rank on Student Achievement | Rank on the way Students are Treated by Teachers Respectuflly |
|---|---|---|
| Andhra Pradesh | 12 | 15 |
| Bihar | 14 | 12 |
| Chhattisgarh | 15 | 8 |
| Gujarat | 8 | 6 |
| Haryana | 13 | 7 |
| Jammu & Kashmir | 6 | 2 |
| Madhya Pradesh | 5 | 9 |
| Maharashtra | 4 | 4 |
| Meghalaya | 11 | 10 |
| Nagaland | 9.5 | 14 |
| Odisha | 7 | 13 |
| Rajasthan | 9.5 | 3 |
| Tamil Nadu | 2 | 1 |
| Uttar Pradesh | 1 | 5 |
| West Bengal | 3 | 11 |
| Rank Order Correlation | | 0.49 |

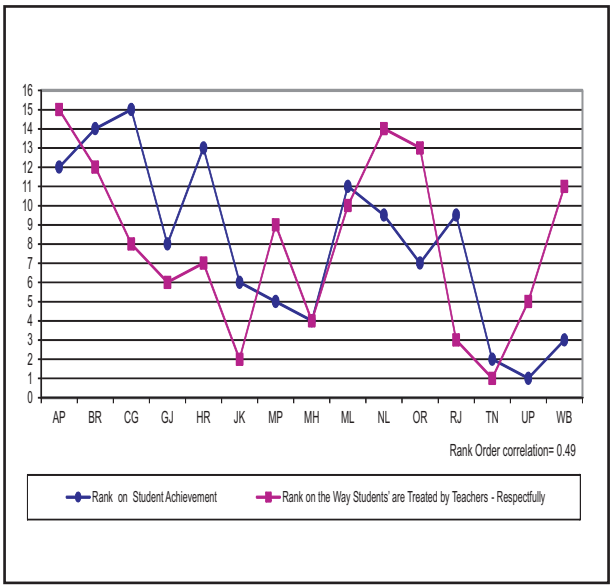


**Figure 6.3 :** Student Achievement and Teachers' Treating the Students Respectfully

## Group Work and Student Achievement

Table 6.4 provides ranks of the sampled states on achievement of Class V students and group work undertaken in classroom transaction. The group work undertaken in training transaction might have influenced classroom transaction.

Table 6.4
**States Ranking on Student Achievement and Group Work**

| State | Rank on Student Achievement | Rank on Group Work Organised During the Lesson |
|---|---|---|
| Andhra Pradesh | 10 | 2 |
| Bihar | 12 | 10 |
| Chhattisgarh | 13 | 7 |
| Haryana | 11 | 8 |
| Jammu & Kashmir | 5 | 3 |
| Maharashtra | 4 | 11 |
| Meghalaya | 9 | 13 |
| Nagaland | 7.5 | 4 |
| Odisha | 6 | 6 |
| Rajasthan | 7.5 | 5 |
| Tamil Nadu | 2 | 1 |
| Uttar Pradesh | 1 | 12 |
| West Bengal | 3 | 9 |
| Rank Order Correlation | | 0.42 |

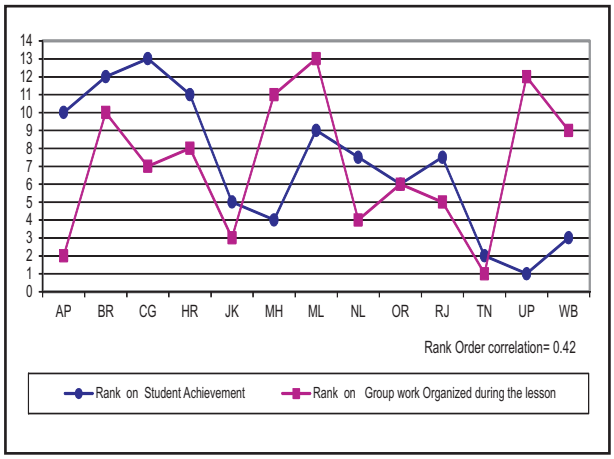


**Figure 6.4 :** Student Achievement and Group Work in the Classroom

The Rank Order correlation of 0.42 between the two variables in the sampled States is not significant but in positive direction. 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.

## Summarising Main Points for Concluding the Lesson and Student Achievement

The ranking of states on these two variables are given in table 6.5.

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 1-6 on both the variables are Jammu and Kashmir, Madhya Pradesh and West Bengal.

Table 6.5
**States Ranking on Students Achievement and Summarisation of Main Points to Conclude the Lesson**

| State | Rank on Student Achievement | Rank on the lesson concluded by summarising the main points |
|---|---|---|
| Andhra Pradesh | 12 | 15 |
| Bihar | 14 | 9 |
| Chhattisgarh | 15 | 11 |
| Gujarat | 8 | 13 |
| Haryana | 13 | 10 |
| Jammu & Kashmir | 6 | 2 |
| Madhya Pradesh | 5 | 5 |
| Maharashtra | 4 | 3 |
| Meghalaya | 11 | 12 |
| Nagaland | 9.5 | 4 |
| Odisha | 7 | 14 |
| Rajasthan | 9.5 | 7 |
| Tamil Nadu | 2 | 1 |
| Uttar Pradesh | 1 | 8 |
| West Bengal | 3 | 6 |
| Rank Order Correlation | | 0.58* |

*Significant at 0.05 level.


**Figure 6.5:** Student Achievement and Lesson Concluded by Summarising the Main Points

## Classroom Discussion and Student Achievement

Table 6.6 provides ranking of the sampled states on Class V students achievement on the one hand and on the other praising students for participation in the classroom discussion, presentation of concepts/ideas by discussion with explanation and using own experience in making comments during participation in classroom discussion.

The Rank Order correlations between student achievement and praising students for participation in discussion (0.36), making experience based comments for participation in discussion (0.25), and using discussion with

Table 6.6
**Participation in Discussion and Achievement of Students**

| State | Rank on Student Achievement | Rank on Presentation of New Concepts/ Idea by Discussion with Explanation | Rank on Participation of Teachers in Discussion-making Comments on the basis of their Experience | Rank on Praising of Students for their Participation in Discussion |
|---|---|---|---|---|
| Andhra Pradesh | 12 | 14 | 3 | 14 |
| Bihar | 14 | 7 | 12 | 9 |
| Chhattisgarh | 15 | 10 | 6 | 11 |
| Gujarat | 8 | 3 | 1 | 2 |
| Haryana | 13 | 9 | 13 | 6 |
| Jammu & Kashmir | 6 | 8 | 11 | 3 |
| Madhya Pradesh | 5 | 4 | 5 | 13 |
| Maharashtra | 4 | 5 | 10 | 10 |
| Meghalaya | 11 | 13 | 14 | 12 |
| Nagaland | 9.5 | 15 | 15 | 4 |
| Odisha | 7 | 6 | 7 | 5 |
| Rajasthan | 9.5 | 2 | 4 | 15 |
| Tamil Nadu | 2 | 1 | 2 | 1 |
| Uttar Pradesh | 1 | 12 | 9 | 7 |
| West Bengal | 3 | 11 | 8 | 8 |
| Rank Order correlation | | 0.28 | 0.25 | 0.36 |

explanation for the presentation of the new concepts or ideas (0.28) are in the positive direction without reaching the significant level. The results are indicative of the direction of association between student achievement and the above variables. Tamil Nadu continues to be consistent on ranking on achievement and the classroom transaction variables relating to participation of students in classroom discussion, followed by Gujarat, Jammu and Kashmir (except on using experience based comments), and Madhya Pradesh and Rajasthan (except on praising students). As mentioned before Maharashtra was not included due to its exclusive training on Jeewan Vidhya.

The analysis of data relating to sets of ranking on student achievement from the Class V survey 2010-11 and selected variables specified above reveals significant association between the paired sets in positive direction and on some paired sets the association is in positive direction without reaching the significant level. Tamil Nadu stands out consistently with higher association. Other states of Jammu and Kashmir, Uttar Pradesh, Madhya Pradesh and Odisha have reasonable association. In other States association seems to less than average.

## SECTION THREE: STUDENT FGD PERSPECTIVE

INSET is expected to improve classroom transaction directed at improving student learning and achievement. The study design envisaged the student reported change as an intermediate indicator of student learning and achievement. This change was assessed through focus group discussion (FGD) involving 5-6 students taught by the teachers whose class was observed after about a month of receiving INSET. This section provides analysis of FGDs with students.

### Student Perception of Change

In order to ascertain the impact of training under SSA on classroom transaction, it was decided to reach the students who are indeed the ultimate beneficiaries of the teachers' enhanced competence resulting from INSET. It was decided to organise Focus Group Discussions (FGDs) with students of the terminal classes of the Primary and Upper Primary Stages such as, Classes IV/V and VII/VIII respectively in order to find out the changes that might have occurred in the classroom transaction behaviour of teachers after at least one month of their participation in

*Sensing perceptible change in the classroom*

training. The strategy is obviously based on the assumption that the students are capable of comparing the pre-training and post-training classroom transaction of teachers and therefore would be able to identify the changes in the classroom practices and teachers' behaviours.

The Field Investigators (FI) were required to organise one focus group discussion in each school with a small group of 5-6 students of those teachers who participated in the training programme under SSA. The total number of students listed in the register was divided by 6 and every 6th student was selected for the FGD. If the number of students in a class were less than 5-6, all students were included in the FGD group. The FGDs were conducted immediately after observation of the classroom transaction during teaching by the teachers who had received the INSET. The Field Investigators were trained at the State level to organise such discussions in a cordial atmosphere around issues regarding changes in teaching behaviours, preparation and use of TLMs, dealing with students, teachers abilities to facilitate comprehension of new content, difference in the nature and type of activities organised by teachers and the extent of student involvement in their organisation.

In all, 1258 FGDs (730 in primary and 528 in upper primary schools) involving 6,491 students (3953 primary and 2538 upper primary students) were organised. State-wise coverage is available in Table 2.6

## Dimensions of Change

Impact of training was assessed along the following three dimensions through FGDs:

1. Teacher Behaviour involving explanation with examples, setting up demonstration, encouraging students asking questions, helping students overcoming learning difficulties, raising issues, encouraging students to respond, praising student efforts participation in learning activities, creating positive atmosphere in the classroom, etc.
2. Use of Teaching Learning Material covers the materials developed by the teacher himself/herself or with assistance from students. These include charts, maps, pictures, cards, games, puzzles, working models, etc.
3. Organisation of Activities involves project work, participation of students in carrying out experiments and setting out demonstration, involving students in preparing TLM, increasing students' participation in learning activities in the classroom, organising group activities and use of play way methods.

## State-wise FGD Briefs

In the state of Andhra Pradesh, an overwhelming majority of primary school students reported that after training, the teachers had started using more TLMs including kits supplied by the government. This change can be attributed to the fact that during INSET, the teachers were provided intensive training for the preparation and use of TLMs. The students also reported that they noticed some changes in the teachers' behaviours and quality of their inter-personal relationships such as demonstration of more affectionate behaviour towards students, encouraging them to ask questions freely and involvement in developing TLM such as posters and charts. They also started using Science and Mathematics Kits more frequently and handling the same more effectively.

In the state of Bihar, 40 FGDs were conducted in primary schools with students of Class IV/V. The deliberations of FGDs held in different districts of the State, point towards the enhanced use of TLMs in teaching-learning of different subjects, both self-developed and the ones supplied by the educational authorities. The students also noticed behavioral changes among teachers as they found their teachers had become more supportive and accommodative. The classroom activities became more interesting due to increased (i) use of TLM; (ii) students' participation in group activities; (iii) encouragement to students to ask questions and; (iv) use of demonstration, setting up experimentation and

using examples and anecdotes to explain things. However, the situation varied among teachers working in different schools, as they could also notice either negligible or no change in the behaviour and performance of some teachers who had attended INSET. A few cases of scolding students and disturbing other students were also reported. Similar changes were reported by upper primary students.

In the state of Chhattisgarh, 38 FGDs were conducted in respect of upper primary school teachers teaching Mathematics, Science, Social Sciences and Languages. The analysis revealed that the preparation and use of TLMs increased after training imparted to Mathematics teachers. The students also reported behavioral changes among mathematics teachers after their return from training. They became more particular about the need for motivating students, encouraging them to ask more questions and willingly answered student questions. The number of students comprehending the lesson increased after the return of teachers from training as reported by the students in the FGDs. However, the students also reported that even after training only 50 per cent teachers organised classroom activities and involved students in their execution.

In the case of teachers teaching Sciences, Social Science and Languages (Hindi and English) the FGDs yielded similar results. The use of TLMs increased after training and the students noticed observable changes in the behaviour of teachers such as encouraging students to ask questions, organising activities and undertaking project work. However, the students reported that though the proportion of teachers designing and organising activities had increased, yet it was less than half in teaching of Science and Social Sciences, and was a little over half in the case of language teaching. A majority of students reported that after training, their teachers showed more considerate and affectionate behaviour. They also became more capable of making concepts clear to students by explaining with examples. After training, the proportion of teachers using TLMs and adopting self-learning and group learning techniques also increased.

In the state of Gujarat, FGDs organised with the students belonging to the age group of 5 to 10 years revealed that, by and large, they felt that the teachers' ability to communicate clearly had increased considerably after the training. The proportion of teachers using TLM and adopting self-learning and group work also increased and more teachers were willing to teach afresh to help the students to understand better. Teachers were better equipped to give more examples and involve students in group discussions. Teachers became more supportive and cordial in their dealings with the students.

In the state of Haryana, 30 and 24 FGDs were organised by the two private companies, namely, New Horizon and Educomp Solutions respectively. In the case of New Horizon trained teachers, students reported almost no change in the use of TLM in teaching. In addition, substantial increase was not perceived in the organisation of classroom activities. However, about 50 percent groups stated that after training, teachers were better equipped to explain the content clearly. In the case of training provided by Educomp, the results of FGDs were similar in all respects. This type of results might be due to the general nature of the training that did not reflect in subject teaching-based changes.

In the state of Jammu and Kashmir, 58 FGDs involving 286 primary school students were organised. During the FGDs, the students reported that majority of teachers did not use TLM before training but after training, some of them started using charts, maps, and pictures. Some students observed minor change in the classroom behaviour of teachers and also in their teaching. A majority of students did not find any noticeable change in the teachers' classroom behaviour and in the number of activities organised by them.

In the case of upper primary stage, 48 FGDs organised with 192 students, yielded similar results as in the case of FGDs with primary school students. Some teachers started using teaching aids like charts, maps, etc. after receiving training

but did not make proper use of science kits. Some change was reported in the teachers' behaviour and methods of teaching. In short, the students, by and large, did not find noticeable changes in the behaviours and competencies of teachers.

In the state of Madhya Pradesh, 58 and 29 FGDs were organised with students of primary and upper primary classes respectively. Since 58 primary stage FGDs were conducted separately in respect of teachers teaching Mathematics, EVS, Hindi and English, the content of FGDs was analysed subject-wise. In respect of Mathematics classes, the students reported that their teachers after return from training were able to relate the lesson with the previous learning, involve more students in classroom interaction, encourage the use of problem-solving approach and check students' homework regularly. In respect of EVS, the students reported that after training the teachers started using waste materials for preparing TLM and making use of activity-based teaching. A majority of students reported that their teachers provided them more opportunities to ask questions, work in groups, and participate in activities.

In respect of the teaching of Hindi, the students reported that Hindi classes taken by majority of teachers were uninteresting and monotonous and only one third teachers could make use of TLMs. However, participation in the training had led to some improvement in the attitudes and behaviour of teachers. In the case of English teaching, the students reported that more than 50 percent teachers use TLM. Teachers, by and large, encouraged students to participate in teaching learning process, involved more students in question-answer activity and organised a variety of language activities.

It is clear from the above discussion that the students had reported about the activities and behaviour of teachers without linking them with their participation in training. As per the reports of students, teachers' participation in INSET seems to have influenced their classroom teaching to some extent and has led to increased use of TLM and positive changes in their behaviour.

In the state of Meghalaya, 35 and 15 FGDs were organised with the students belonging to lower primary classes (Classes III to V) and upper primary class students, respectively. In the course of discussions, a majority of students stated that they did not find much difference between the teachers without training and with training. The students reported that only one third teachers use TLMs and there had been no increase in their use after their training. Further, the students did not find any noticeable change in the behaviour of teachers, and in their ability to explain concepts. About two third teachers did not organise activities even after receiving training. The students did not find much improvement in the teaching by teachers. Similar situation was reported in FGDs with upper primary school students. A majority of students however reported that the teachers after training had become more competent to present the content with clarity. Students value subject mastery of the teachers at the upper primary stage.

In the state of Nagaland, FGDs organised with students of upper primary classes in respect of 14 teachers revealed that more than half of the teachers did not use TLM even after training. In fact, the use of TLMs decreased after the teachers had completed the INSET. However, significant changes were reported in the classroom behaviour of teachers as they were reported to have become more appreciative, friendly and accommodative with the students. In addition, they had developed the ability to explain the subject matter in a style that is likely to lead to better comprehension and an overwhelming majority of students developed more liking for their teachers. A majority of teachers had changed their styles and approaches to teaching. The discussions, however, revealed that majority of teachers did not organise activities even after they had received training. FGDs with upper primary school students yielded similar results.

In the state of Maharashtra, 12 FGDs were conducted with the students of classes IV to VII. Each group consisted of six students. The areas covered in focus group discussion were classroom

transaction, use of TLMs, methods of teaching, teachers' classroom behaviours and evaluation techniques. Since the training organised in the State was on Jeewan Vidhya, the areas of discussion during FGDs were not directly related to the content of training. Thus, the discussion centred around what the teachers normally do in their classrooms, such as organisation of group activities, discussion, story-telling, recitation of poems/songs, etc. The students reported that the teachers helped them to solve their problems. However, the impact of Jeewan Vidhya training could be observed with positive changes that occurred in the classroom behaviours of teachers. The students reported that after attending the training, their teachers became more affectionate and caring towards them.

In the state of Odisha, FGDs were conducted in all the sampled schools where students of both primary and upper primary classes were present. The discussion centred around the use of TLMs by teachers, teaching methods and strategies used by teachers, teachers' relationships with students, organisation of activities and students' involvement in such activities.

The analysis of the reports of FGDs conducted in 12 blocks of the Districts of Puri, Ganjam, Jajpur and Balasore revealed that the participating students found increase in the use of TLMs and the teachers better-equipped to make proper use of TLMs. The students also found noticeable change in the classroom behaviour of teachers, especially in relation to students. The teachers appreciated the students if they performed well and also made efforts to conduct activities and encourage students' involvement in their organisation. In short, the teachers made efforts to make their teaching more interesting with the increased use of charts, worksheets, games, group work, discussions, demonstration, experimentation, etc. The discussion with the students of different blocks as summarised above is indicative of positive impact of teacher training on classroom transaction, as the teachers acquired the confidence to use innovative methods of teaching and TLMs. Further, the training also resulted in the improvement of teachers' classroom behaviour as they became more cordial, caring and affectionate in their dealings with the students.

In the state of Rajasthan, 69 FGDs conducted with 345 students of Classes VI and VIII revealed that before training, teachers seldom made use of TLMs but after training the use of TLMs became more frequent and systematic. A few students could notice some changes in the classroom behaviour of teachers but a majority of them did not find any noticeable change. The students found that only a few teachers used improved ways of teaching in some subjects and made increased use of activities in the classrooms. In short, the training had limited impact on the classroom transaction and classroom behaviour of teachers. In fact, the students were not aware of the fact that their teachers had gone for training. Above all, they were not able to compare the teachers' pre-training and post-training behaviour and teaching competencies. Therefore, they had simply expressed their opinion about the teachers' current behaviour including their inclination to use TLMs and use active methods of teaching.

In the state of Tamil Nadu, FGDs were organised in all the sampled schools in three blocks each of four districts. The FGDs were conducted separately in respect of teachers teaching Language, Mathematics and EVS at the lower primary stage. With regard to the teaching of language, the students reported that they observed increased use of teaching aids such as models, charts, etc., change in modulation of voice and enhanced emphasis on reading by teachers. In the case of Mathematics and EVS also, the students found more frequent use of models, which made the lessons easier to understand. In the case of EVS, use of more examples by teachers were reported by the students. The students had observed an increase in the use of TLM and in the involvement of students in their preparation. Besides, the students also observed changes in the teachers' classroom

behaviour in the form of giving more examples, organising different types of activities and encouraging students' participation in such activities.

The FGDs organised with upper primary students in respect of 48 teachers yielded similar results. After training, it was observed that language and Mathematics teachers used a greater number of models and charts more frequently. The EVS teachers gave more examples and used models frequently. The students reported that the use of TLM was very limited. The students also noticed some behavioural changes among the teachers such as providing more opportunities to students for participation in activities and classroom discussion.

In the state of Uttar Pradesh 48 and 24 FGDs were conducted with students of primary and upper primary classes, respectively. The students were not aware whether their teachers had received training or not. Therefore, they could give their opinions only with regard to the practices and methods currently adopted by them. The students of primary classes reported that their teachers used no TLM other than the blackboard. The teachers did not organise mathematical games or activities as suggested in the training module. In the name of activities, occasional opportunities were provided to the students to solve the sums on the blackboard and reading of language textbooks. Activities like role play, games, field studies, etc. were not organised. The activities suggested in the modules of Hindi and English like 'Reading Corner', sentence formation, etc. were seldom organised in schools. Most of the teachers used no TLM other than the blackboard. However, a few science teachers made efforts to prepare teaching aids out of the waste material.

In respect of teachers teaching upper primary classes, the students reported that their teachers encouraged and appreciated them more often. However, some instances of corporal punishment were also reported. Most of the teachers were generally reported using the 'chalk and talk' method and had seldom organised activities suggested in the modules. Most of the students did not find any worthwhile change in the classroom behaviour of teachers. It is evident from the above discussion that in the State of Uttar Pradesh, the impact of INSET had been adequately felt by the students, who are the ultimate beneficiaries of the input.

In the state of West Bengal, FGDs were organised with the students of primary and upper primary classes separately. The discussions centred around issues like preparation and use of TLMs, impact of INSET on teachers' classroom behaviour, methods of teaching and strategies adopted by the teachers, designing and organisation of activities and student participation in them. The FGDs revealed that as a result of the intervention of INSET, significant changes did not take place in the methods of teaching of language, mathematics and EVS. Most of the teachers seldom prepared and used TLMs in the teaching of mathematics and language. However, teachers teaching Science and EVS used TLMs to some extent which led to better understanding among students. The students further reported that they did not observe any change in the classroom behaviour of their teachers. However, the students did observe that some teachers, after training, were better equipped to organise activities like demonstration, games, group work, etc.

The findings from the FGDs have been summarised and State-wise information regarding the change in teaching (General), subject teaching, use of TLM, teacher behaviour and organisation of activities are given in Table 6.7 and 6.8.

## Change in Teaching

Change in teaching was reported by students in the states of Andhra Pradesh, Bihar, Chhattisgarh, Gujarat, Jammu and Kashmir, Madhya Pradesh, Maharashtra, Nagaland, Odisha, Rajasthan, Tamil Nadu and West Bengal both at primary and upper primary level. In Meghalaya, the change was reported at the upper primary level but not at primary level. In Haryana, the change was reported at the upper primary level, in 3 out of

Table 6.7

**Changes in Classroom Transaction as Reported by Primary Students**

| State | Teaching (General) | Subject Teacher | | | Use of TLM | Teacher Behaviour | Organisation of activities |
|---|---|---|---|---|---|---|---|
| | | Language | Maths | Science | | | |
| Andhra Pradesh | √ | X | √ | √ | √ | √ | √ |
| Bihar | √ | √ | √ | √ | √ | √ | √ |
| Chhattisgarh | √ | √ | √ | √ | √ | √ | √ |
| Gujarat | √ | X | √ | √ | √ | √ | √ |
| Haryana | | | | | | | |
| (i) New Horizon | X | X | X | X | X | X | X |
| (ii) Educomp | X | X | X | X | X | X | X |
| Jammu & Kashmir | √ | X | √ | √ | √ | √ | X |
| Madhya Pradesh | √ | √ | √ | √ | √ | √ | √ |
| Maharashtra | √ | X | X | X | √ | √ | √ |
| Meghalaya | X | X | X | X | X | X | X |
| Nagaland | √ | X | X | X | X | √ | X |
| Odisha | √ | √ | √ | √ | X | √ | √ |
| Rajasthan | √ | X | X | X | √ | X | X |
| Tamil Nadu | √ | √ | √ | √ | √ | √ | √ |
| Uttar Pradesh | X | X | X | √ | X | X | X |
| West Bengal | √ | X | X | √ | √ | X | √ |

Table 6.8

**Changes in Classroom Transaction as Reported by Upper Primary Students**

| State | Teaching (General) | Subject Teacher | | | Use of TLM | Teacher Behaviour | Organisation of activities |
|---|---|---|---|---|---|---|---|
| | | Language | Maths | Science | | | |
| Andhra Pradesh | √ | √ | X | √ | √ | √ | √ |
| Bihar | √ | X | √ | √ | √ | √ | √ |
| Chhattisgarh | √ | √ | √ | √ | √ | √ | √ |
| Gujarat | √ | X | √ | √ | √ | √ | √ |
| Haryana | | | | | | | |
| (i) New Horizon | √ | X | X | X | X | X | √ |
| (ii) Educomp | √ | √ | X | √ | √ | X | X |
| Jammu & Kashmir | √ | X | X | X | √ | √ | X |
| Madhya Pradesh | √ | √ | √ | √ | √ | √ | √ |
| Maharashtra | √ | X | X | X | √ | √ | √ |
| Meghalaya | √ | X | X | X | X | X | X |
| Nagaland | √ | X | X | X | X | √ | X |
| Odisha | √ | √ | √ | √ | X | √ | √ |
| Rajasthan | √ | X | X | X | √ | X | X |
| Tamil Nadu | √ | √ | √ | √ | √ | √ | √ |
| Uttar Pradesh | X | X | X | √ | √ | X | X |
| West Bengal | √ | X | X | √ | √ | X | √ |

(√) Yes, (X) No

10 FGDs for Educomp; while it was not reported in any of the FGDs for New Horizon Ltd. no change was felt in almost all the FGDs at primary level, both for New Horizons Ltd and Educomp. In Uttar Pradesh no change was reported both at primary and upper primary level.

Except Haryana, Uttar Pradesh and Meghalaya (primary level) teaching-learning process seems to have changed due to INSET in the states as revealed by the FGDs. INSET design and implementation in these states however needs review, reflection and revamp. More efforts are needed in this regard in the states of Haryana, Uttar Pradesh and Meghalaya.

## Change in Teaching Subjects

The change in Science teaching was observed in 10 out of 15 states at primary level and 9 out of 15 states at the upper primary level. The change in Mathematics teaching was observed in 8 states at primary level and in 6 at upper primary level. In language teaching, the change has been observed in 5 states both at primary and upper primary level.

It may be mentioned here that the INSET in Haryana and Maharashtra was general in nature. Subject-wise teaching was not discussed in these two states. In Rajasthan INSET was project-based. At primary level, LEHAR training was confined to teachers teaching project Classes of I and II only. The INSET was common for primary and upper primary teachers in Haryana, Maharashtra, Meghalaya and Nagaland. As such the impact of INSET on teaching of different subjects was not possible to assess in these states.

In order to improve the quality of elementary education, the subject-wise changes in teaching-learning process will have to be focused alongwith the issues of teaching-learning process in general.

## Change in Teacher Behaviour

The change in the behaviour of primary and upper primary class teachers was reported by the students of Andhra Pradesh, Bihar, Chhattisgarh, Gujarat, Jammu and Kashmir, Madhya Pradesh, Maharashtra, Nagaland, Odisha, and Tamil Nadu. However, in Jammu and Kashmir, the change in behaviour has been to a small extent only. In Haryana, Meghalaya, Rajasthan, Uttar Pradesh and West Bengal no significant change was reported in the behaviour of the teachers teaching at primary and upper primary level. In these four states, the training strategy will have to be chalked out to take care of this aspect of training.

## Use of TLM

Increase in use of teaching-learning material by the teachers of primary and upper primary classes was reported in the states of Andhra Pradesh, Bihar, Chhattisgarh, Gujarat, Jammu and Kashmir, Odisha, Madhya Pradesh, Rajasthan, Tamil Nadu and West Bengal. However, in West Bengal, the use of TLM was reported only in Science and EVS. In Uttar Pradesh, the use of TLM by the teachers of Upper Primary classes was reported in science only. No change in use of TLM was reported in Uttar Pradesh at primary level. In Maharstara, Meghalaya and Nagaland no increase in the use of TLM by the teachers of primary and upper primary classes was reported. In Haryana, change was reported in the teachers trained by Educomp, while no change was reported in the case of teachers trained by New Horizon Ltd. In order to make the teaching-learning more effective, the teachers of Haryana, Maharashtra, Meghalaya, Nagaland and Uttar Pradesh will have to be trained for making better use of TLM.

## Organisation of Activities

The primary and upper primary teachers of Andhra Pradesh, Bihar, Chhattisgarh, Gujarat, Madhya Pradesh, Maharashtra, Odisha, Tamil Nadu and West Bengal organised activities and involved students in the activities. In Jammu and Kashmir, Meghalaya, Nagaland, Rajasthan and Uttar Pradesh, the teachers will have to be motivated and trained for organising activities and involving students in the activities. In Haryana, the teachers trained by New Horizon Ltd. at Upper Primary stage were reported organising activities. Other teachers will have to be motivated to organise

activities for making the teaching-learning more effective.

## Conclusions

In order to assess the impact of INSET under SSA on classroom transaction, classes taken by the trained teachers (Teachers who had received In-service training as per SSA training policy) were observed by the field investigators. They also held discussions with selected students taught by the trained teachers to know if they had noticed some improvement in their classroom behaviour and teaching competencies. The field investigators were given a set of focused issues around which they were required to organise informal conversation with the students in small groups (5-6 students) in an atmosphere of cordiality. They were informed that the teacher (the subject of discussion in a FGD) had sometimes back attended training which aimed at upgrading the knowledge and skills of the participating teachers'. The discussions held in schools in respect of individual teachers were synthesised at the district and state levels. In the present report, an overall broad view on the basis of state reports on FGDs has been presented, which is, to some extent, indicative of the impact of INSET on the classroom performance of teachers. However, the conclusions regarding the impact of training from FGDs should be drawn with caution as the students' ability to recall the pre-training behaviour of teachers as a reference for comparison with post-training behaviour cannot be taken for granted. The impact of INSET on teachers' classroom transaction is a function of several attributes such as the effectiveness of training and relevance of the training content to the needs of teachers. The improvement observed in the behaviour and competence level of teachers may be attributed to the quality of training received by them, while absence of improvement may be due to poor quality of training and lack of motivation on the part of teachers.

The students participating in FGDs in seven states, namely, Andhra Pradesh, Bihar, Chhattisgarh, Gujarat, Madhya Pradesh, Odisha and Tamil Nadu had reported that the preparation and use of TLMs by their teachers has significantly increased after training and positive changes have taken place in the classroom behaviour of teachers as they have become more caring and supportive to the need of the students. They tend to encourage classroom interaction and more often used activity-based teaching-learning approaches in order to make students active learners. Thus, it can be presumed that INSET organised in these states did make some impact on teachers.

The students participating in FGDs in the States of Jammu & Kashmir, Nagaland, Meghalaya and Rajasthan reported the following modest changes

- In the extent and frequency of the use of TLMs positive changes in the inter-personal behaviour of teachers.
- Increased use of active methods of teaching - learning involving students' initiative and active participation in the teaching-learning process. This indicates that positive improvements were observed in some aspects, while in some other aspects positive changes were not noted.

The students participating in FGDs in the States of Haryana, Maharashtra, Uttar Pradesh and West Bengal reported negligible changes in the context of the issues relating to the use of TLMs, classroom behaviour of teachers and the use of activity-based and child-centred approaches. The reasons for the negligible change was not uniform in the four States, as these may relate to the content of training or to the effectiveness of its organisation. In the states of Haryana, in place of subject-based content, only general educational issues were taught during the training and no emphasis was laid on their practical application. Therefore, it is too much to expect direct impact of such training on classroom performance of the teachers in the context of teaching different subjects. In the State of Maharashtra, Jeewan Vidhya training could not improve the performance of teachers in the teaching of different subjects. This had limited impact on the teacher's behaviour only to some

extent. In the state of Uttar Pradesh, the training content was divided into several modules in different subject areas with the training reduced to short duration of 2-5 days, which can hardly lead to some worthwhile changes in the classroom performance of the teachers. In the state of West Bengal, the negligible impact of training can be attributed to several reasons such as weaknesses in the organisation of training, non-availability of the required TLMs in schools and lack of seriousness on the part of teachers. Moreover, in all the sample states except Tamil Nadu no effort was made to organise training of the teachers in school situation which tends to encourage transfer of training to the work place.

From the analysis of data in sections one, two and three of this chapter, there is an indication of the impact of training on student achievement as indicated by association of classroom transaction and training transaction variables in several States. It implies that if the training is relevant to the needs of teachers there is likelihood of its use in classroom transaction and its influence on student learning.

# 7 Road Ahead

The preceding chapters presented the scenario emerging from the implementation of 20-day INSET organised during 2010-11 in 15 sampled States. The major focus was to study the impact of INSET on teachers' and students' achievements and factors affecting their achievements. The synoptic view of analysis and the road ahead for refocusing the forthcoming INSET and researches related to SSA are discussed in this chapter. The road is aligned to the landmark sequence followed in Chapter 3-6 and sections within chapters.

## REFOCUSING INSET

SSA Framework (2008) guidelines on INSET, which were reiterated in its recent Framework (2011), provide for 10 day in-service training for all elementary school teachers each year at BRC level followed by peer group training sessions in 10 monthly meetings at CRC level. The study reveals variations in implementation of the SSA policy. The full coverage of teachers in INSET was in the states of Gujarat, Haryana and Tamil Nadu while in other states there was partial coverage ranging from 30 per cent to 70 per cent. The lowest 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, and West Bengal. The training for teachers was not residential except in some centres in Bihar, Chhattisgarh, Gujarat, Madhya Pradesh and Maharashtra. Area specific findings in respect of different components of INSET are discussed below.

### Training Transaction

The trained investigators observed training delivery during sessions scheduled by training coordinators. The main focus was on observing the use of different skills by RPs during the training session. The salient skills observed by the Field Investigators are discussed in terms of preferred alternatives specified under each skill.

- Introducing a lesson through posing a problem was at a higher level. RPs in Tamil Nadu (50%) and Odisha (45%) performed better in using it.
- Presentation of new concepts and ideas was made by the RPs through predominant use of 'discussion with explanation' in all states except Meghalaya where teacher talk 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 in Tamil Nadu excluded the demonstration since the stress was on actual activity by each learner. General training might be responsible for the exclusion of demonstration in Haryana.
- The posing of question 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 per cent in Haryana.

- Addressing question to the class as a whole was the highest in Rajasthan (86%), maybe due to project-based practice. In Maharashtra (60%), it might be due to the same reason—asking rhetorical questions to reinforce value-based issues. As many as 52 per cent were in Haryana which might be due to inexperienced RPs and training of general nature.
- RPs encouraging teachers' participation in discussion through raising issues, seeking clarification and offering views based on their experience was found 'often' used in the States of Gujarat (49%), Odisha (75%), Rajasthan (40%) and Tamil Nadu (75%).
- The RPs responding to the 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 teachers 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 using praise 'quite often' in the states of Gujarat (59%), Tamil Nadu (58%), Haryana (42%) and Odisha (52%).
- RPs used the blackboard quite often in many 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.
- 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 maybe 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.
- 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 in training centres indicated in the case studies of training centres.
- In most of the states RPs evaluated the learning of teachers during the training session mostly through oral questioning and assignment. However, no evaluation was carried out in the states of Haryana (60%), Meghalaya (58%) and Nagaland (27%).
- 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.

Overview of the findings on training transaction reveals that 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.

## Training Package

Another factor which was studied as a part of quality of INSET was the training package used. The training packages were developed and used for organizing INSET in sampled states. These packages were assessed by the Expert Groups and perceptions of TCs, RPs and teachers were also sought. The findings of both follow:

- Separate training packages for primary and upper primary stages were prepared in Andhra Pradesh, Bihar, Chhattisgarh, Gujarat, Meghalaya, Odisha, Rajasthan, Tamil Nadu, Uttar Pradesh and West Bengal. A common package for primary and upper primary stage was prepared in the states of Haryana, Jammu and Kashmir, Maharashtra, Madhya Pradesh and Nagaland.
- SSA framework has a provision of 10 day training for all the teachers both at primary

and upper primary stages but the states had their own policy with a lot of variations among them and accordingly training packages were prepared. In Rajasthan, there was project based LEHAR training for Classes I and 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 and 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, but 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 and SSA developed the training package in most of the states by involving experts from SCERTs and DIETs. Only in Jammu and 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. Educomp Solution and 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 Shri Bhajanashram, Amarkantak, 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. in some of the States. These changes in training packages reflected the supply side and not the demand side.
- Constructivist approach to teaching as advocated in NCF-2005 and SSA Framework 2008 was not reflected in the training packages. However, activity based approach was followed in the states of Andhra Pradesh, Bihar, Gujarat, Chhattisgarh, Odisha, Rajasthan and Tamil Nadu. In other States like Meghalaya, Haryana, Madhya Pradesh and Nagaland, the training packages did not reflect this approach.
- The role of reflective teacher to guide student learning was not given prominence in the training packages, though some glimpses of it were noticed in the project based packages such as Science through Experiments and Projects (STEP) in Andhra Pradesh, Learning Enhancement Activities in Rajasthan (LEHAR) and experiments in Tamil Nadu.
- The split-up model as envisaged in SSA Framework (2008) was not used in any state. The States organised training for 10 days, sometimes more or less than 10 days.
- Specific areas such as art and heritage craft, health and physical education, work education and education for peace as recommended in the SSA Framework-2008 were not included in most of the training packages in sampled states.
- Analysis of the training needs was not carried out except in Gujarat. The packages were prepared at the state level without undertaking training needs assessment. Top down approach was mostly followed.
- In most of the training packages the objectives, sequential treatment of content, concepts dealt with adequately, appropriate illustrations, language, activity-based learning, appropriate transactional methodology, review exercise, suggested

readings, audio-video aids, and follow-up activities were not optimally covered.

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 balancing 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 with greater scope for reflection, examples and illustrations, easy to understand language, 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 craft, education for peace should be covered in the training package in addition to basic subjects-language, mathematics, social sciences and science. The package should include audio-video materials. Training material should be prepared based on experiential learning activities to minimise 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 support of NCERT and other concerned agencies.

## Human Resources

The human resources for in-service training cover 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. Out of these, 34 (20%) were women and 143 (80%) were men. There was not even a single woman coordinator in the states of Maharashtra, Odisha and West Bengal. The representation of women was quite low.
- Average age of most of coordinators was about 50 years. 40 per cent were in the age group of 40-50 years.
- As many as 58 training coordinators were graduates and 117 were post graduates. 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 D.Ed. were in Gujarat, Bihar, Chhattisgarh, Jammu & Kashmir and Uttar Pradesh.
- About 70 per cent coordinators had experience of organising the training programmes earlier. However, 30 per cent 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.
- The coordinators had dual responsibility as BRC and BEO in most of the States. They looked after both academic and administrative work.

### *Resource Persons*

- As many as 770 Resource Persons were drawn from schools, BRCs, DIETs and SCERTs for delivery in 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 also low in RPs in the States of Andhra Pradesh, Bihar, Rajasthan, Jammu and 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, 486 (63%), were in the age group of 30-45 years, and those below 30 years were only 19 per cent. It implies that young RPs were involved in the study.
- As many as 406 (53%) were post graduates, 295 (38%) were graduates and 54 (7%) were higher secondary pass in the states of Gujarat, West Bengal, Nagaland, Chhattisgarh, Odisha, Uttar Pradesh, Bihar and Madhya Pradesh. 15 (2%) from Andhra Pradesh, Jammu and Kashmir, Meghalaya, Odisha, Uttar Pradesh and West Bengal had Ph.D. Degree. It is essential that Resource Persons should have at least a post graduate degree.
- Regarding professional qualifications, 42 per cent RPs had B.Ed. degree, 9 per cent M.Ed. and 19 per cent D.Ed. Thirty per cent from Nagaland, Meghalaya, Jammu and Kashmir, Bihar, Chhattisgarh, Haryana and Gujarat had no professional qualification. A separate manual for RPs to organise training programme was not prepared and even RPs were not oriented towards organising the training of teachers in most of the states.

The findings indicate that neither 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 specific 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 institutionalised capacity building of RPs with support from NCERT and SCERT should be evolved.

### *CRC Coordinators*

- 140 CRC coordinators were covered in 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 and Kashmir had their own building. CRC coordinators had dual responsibility to look after the work of CRC as well as schools. Only in Tamil Nadu, there are 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 post graduates and 49 (35%) were undergraduates or higher secondary passed. In the States of Bihar, Chhattisgarh, Gujarat, Odisha and Uttar Pradesh, they were either undergraduate or higher secondary pass.
- Majority of CRC coordinators 72 (51%) were B.Ed., and the remaining 19 (14%) were M.Ed. and 49 (35%) D.Ed. The CRC coordinators with D.Ed. degree were spread over almost all the States.

The study reveals that BRC and CRC coordinators had dual responsibility 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 organising INSET and monthly meetings and school visits respectively to provide on-the-spot guidance to teachers in schools. The representation of women as BRC and CRC coordinators should be enhanced.

### *Teachers*

- SSA guidelines made a provision for 20-day in-service education for all teachers every year. In the study, 9100 teachers up to elementary level were covered. They received INSET during 2010-11. Out of these, 78 per cent teachers belonged to rural areas and 22 per cent to urban areas. About 56 per cent were men and 44 per cent were women. Out of available disaggregated data 14 per cent teachers belonged to scheduled castes and 22 per cent were scheduled tribes.
- Thirty five per cent teachers were graduates, 23 per cent were post graduates and 42 per cent were matriculate and higher secondary pass. A large number of undergraduate teachers were from Meghalaya, Haryana, Nagaland and Gujarat.

- Forty seven per cent teachers had D.Ed. and 23 percent had B.Ed. and 30 per cent had no professional qualifications. Untrained teachers were from Meghalaya (88%), Nagaland (69%), Bihar (59%), West Bengal (51%) and Jammu and Kashmir (36%)
- More than half the teachers had about 10 years experience and only 5 per cent had 30 years of experience.
- Many teachers had not received INSET during 2009-10. Among them, Haryana was followed by Bihar 80 per cent, Meghalaya 56 per cent and Nagaland 53 per cent.
- The SPDs should ensure that all teachers are covered by INSET according to the provision made in the SSA Framework (2008, 2011).

## Physical Facilities

The analysis of physical facilities has yielded the following findings:

- Training for teachers was organised in 177 centres. About 40 per cent of the training centres had one or two rooms in the States of Haryana, Jammu and Kashmir, Uttar Pradesh, West Bengal and Chhattisgarh. The remaining 60 per cent 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, borewells. 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 per cent centres toilets were inadequate and unclean.
- Electricity was available in about 80 per cent of the centres. The remaining 20 per cent 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 per cent 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 per cent centres, but it was adequate only in 40 per cent of them in Madhya Pradesh, Maharashtra, Chhattisgarh, Bihar and Haryana.
- Library facility was available in 50 per cent 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 summarised below:

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

SPD should ensure that physical facilities and equipments available at the BRC centres are utilised 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 support, adequately equipped library, ICT, learning and teaching aids, electricity supply with alternative arrangement in case of power failure, safe drinking water, separate toilet facilities for women, display facilities, etc.

## Impact: Teacher Achievement

Impact of the training on teachers was assessed through administration of achievement test based on training package used in the state before and after the training. In the states, where training was completed before launching of the study, only post-test was administered.

- Paired t-test was used to find the significance of difference in achievement scores of teachers through administration of test 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 level. It implies that teachers of these States gained in learning during 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 before and after training in terms of change in their thoughts on quality of life. Changes were reported in awareness about Jeevan Vidya.
- Pre-testing and post-testing could not be conducted in the states of Andhra Pradesh, Madhya Pradesh, Rajasthan and Tamil Nadu because the training for 2010-11 was 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 INSET during this year were termed as untrained. Both groups were compared on mean achievement score using t-test. The significant difference was found 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 and 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 per cent teachers scored below 60 per cent and 19 per cent scored above 75 per cent at the primary stage. At the upper primary stage, 62 per cent teachers scored below 60 per cent and 12.25 per cent teachers scored above 75 per cent.

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

For making training more effective, useful and relevant for teachers, a multi-pronged strategy is needed to enhance quality of training with improved design backed by developing skills and reflective dynamics of teaching behaviour, cooperative learning using constructivist approach, continuous evaluation feedback mechanism and onsite support with follow-up. Split-up model in true spirit should be followed for organising effective INSET.

## Impact: Classroom Transaction

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

- Significant difference was found in classroom transaction in using most of the skills in the States of Tamil Nadu, Madhya Pradesh, Andhra Pradesh, Chhattisgarh, Gujarat, Jammu and Kashmir, 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.
- 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 State should redesign the training programme by including more practice of complex teaching skills by teachers.
- Problem posing as a means of introducing the lesson which comes closer to the curriculum transaction approach in NCF-2005 was preferred component behaviour by primary school teachers in most of the states. This needs to be included in the subsequent INSET programmes and appropriate measures should be taken for its inclusion in the training packages. The culture of frequent use of textbooks needs to be changed.

*In harmony with nature: Impact without barriers*

## Transfer of Training

The transaction of different teaching skills used during training and classroom teaching was 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 modelling. Items of training transaction and classroom behaviour observers were the same.

- Higher percentage occurrence in most of the skills was observed in classroom transaction in 10 sampled states.
- Low percentage occurrence of skills was observed in classroom transaction skills in the remaining five states Maharashtra, West Bengal, Haryana, Nagaland, Rajasthan.

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 for reflection 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.

## Impact of Follow-on Training of Teachers

SSA Framework-2008 provides 10 monthly meetings in 10 months for follow-on training of teachers from seven to eight primary schools in jurisdiction of each CRC. The impact of follow-on training was assessed by observing monthly meetings in CRC. The data were collected from CRC coordinators and also from teachers who attended the monthly meetings. The findings are given below:

- The ten CRC monthly meetings were not organised in some states as recommended in SSA Framework-2008. Eight monthly meetings were organised in Andhra Pradesh, seven in Gujarat, six in Madhya Pradesh, five in Meghalaya, six in Uttar Pradesh and nine in West Bengal. In West Bengal and Jammu and 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 and 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.

- 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 had dual responsibility both as head teacher and coordinator. Separate CRCs were set up at some places in Andhra Pradesh, Chhattisgarh, Gujarat, Jammu and 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 trainings were available only in some of the CRCs.
- In most of the states, agenda 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 per cent 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.

There is a need to create and operationalise Cluster Resource Centre (CRC) equipped with physical facilities and equipments and human resources for the continuing and 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 the school.

The agenda of meeting should be prepared well in advance with a mix of both curricular issues and administrative matters in consultation with SPD, SCERT, BRC and CRC coordinators.

Monthly meetings for teachers should be organised 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.

## Impact on Students

The ranking of NCERT achievement survey (2010-11) of Class V students and corresponding ranking of training transaction and classroom transaction variables of the sampled states were computed by applying Rank Order Correlation to study the relationship.

- Ranking of the states on Class V student achievement based on NCERT survey conducted during 2010-11 was compared with the ranking on INSET variable based on teachers' perception. The students' achievement was found significantly correlated with the relevance of INSET and enrichment of understanding of the content in the States of Tamil Nadu, Uttar Pradesh, Gujarat, Jammu and Kashmir and Odisha. On the lower end of the association were the States of Haryana, Chhattisgarh, Rajasthan and Nagaland.
- The analysis of comparing achievement and classroom transaction variables revealed that students' achievement had significant correlation with 'treating students respectfully' and summarising main points to conclude the lesson in the states of Tamil Nadu, Jammu and Kashmir, Madhya Pradesh, Uttar Pradesh and West Bengal. In the remaining states except Meghalaya, Nagaland and Haryana the correlation was in positive direction between students' achievement and group work, praising students, presenting new concepts/ ideas through discussion with explanation and using own experience to participate in 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 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, discussion, involvement, evaluation.
  - Subject Teaching (English, Mathematics, Science).
  - Use of TLM.
  - Teacher behaviour.
  - Organisation of activities (Group Work, Demonstration in Activity Cards).
- Changes in some of the above mentioned areas of classroom transaction were reported in FGDs in the States of Bihar, Jammu and 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.

Overall findings of the study reveal that impact of INSET on classroom transaction depends on the quality of training and its transaction inputs. There is a need for adopting multipronged strategies including networking of institutions like SPDs, SCERTs, DIETs, CTEs, IASEs, University Departments in terms of sharing information, expertise and facilities for improving training transaction and classroom learning.

## 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 interval. 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.

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**ANNEXURE-I**

# Advisory Group

| | | |
|---|---|---|
| 1. | The Director<br>NCERT,<br>New Delhi | Chairperson |
| 2. | The Representative of MHRD | Member |
| 3. | Professor A. B. L. Srivastava<br>Chief Consultant<br>Research Wing<br>Ed.CIL (India) Limited<br>Technical Support Group<br>10-B, Indraprastha Estate,<br>New Delhi-110 002 | Member |
| 4. | Professor N. K. Jangira<br>5, Park View Apartment,<br>Sector-15 II,<br>Gurgaon, Haryana-122 001 | Member |
| 5. | Professor G. L. Arora<br>House No. 423/7, Urban Estate<br>Gurgaon, Haryana-122 001 | Member |
| 6. | Professor V. K. Jain<br>BF-107, Janakpuri,<br>Near Hari Nagar Depot,<br>New Delhi -110 058 | Member |
| 7. | Professor D. K. Bhattacharjee<br>Former Head,<br>DTEE, NCERT,<br>New Delhi | Member |
| 8. | Professor S.K. Yadav<br>Principal Investigator and<br>Head, DTE<br>NCERT, New Delhi - 8 | Convener |

**ANNEXURE-II**

# State Coordinators

1. Professor P. N. Singh
   Coordinator (Uttar Pradesh)
   Head and Dean, Faculty of Education
   Banaras Hindu University
   Varanasi, Uttar Pradesh-221 005

2. Professor R. S. Patel
   Coordinator (Gujarat)
   Head, Gujarat University,
   Navrangpura,
   Ahmedabad, Gujarat-380 009

3. Professor M. S. Lalithamma
   Coordinator (Tamil Nadu)
   Head, Department of Education
   Pondicherry University, R.V. Nagar,
   Kalapet, Puducherry-605 014

4. Professor Rajender Singh Yadav
   Coordinator (Haryana)
   Chairperson, Department of Education
   Kurukshetra University
   Kurukshetra, Haryana-136 119

5. Professor Lokesh K. Verma
   Coordinator (Jammu and Kashmir)
   Head, P.G. Department of Education
   University of Jammu, Jammu-180 006

6. Dr. Ram Babu Pareek
   Coordinator (Rajasthan)
   Regional Institute of Education (RIE)
   Captain D.P.Choudhary Marg
   Ajmer, Rajasthan -305 004

7. Dr. N. C. Ojha
   Coordinator (Chhattisgarh)
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8. Dr. K. K. Khare
   Coordinator (Madhya Pradesh)
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9. Dr. Sanjay Pandagale
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10. Professor Hrushikesh Senapaty
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    Bhubaneswar, Odisha-751 022

11. Dr. Laxmidhar Behera
    Coordinator (Bihar)
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12. Shri S. Gyaneswar Rao
    Coordinator (Odisha)
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13. Dr. F. G. Dkhar
    Coordinator (Meghalaya)
    NE Regional Institute of Education
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14. Dr. S. K. Pandey
    Coordinator (Nagaland)
    NE Regional Institute of Education
    Nongrim Hills, Shillong-793 003

15. Dr. G. Viswanthappa
    Coordinator (Andhra Pradesh)
    Regional Institute of Education (RIE)
    Manasgangotri, Mysore-570 006

**ANNEXURE-III**

# Resource Persons

1. Professor A. B. L. Srivastava
   Chief Consultant
   Research Wing,
   Ed.CIL (India) Limited
   Technical Support Group
   10-B, Indraprastha Estate,
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2. Professor Snehlata Shukla
   A-1, Kaveri Apartments,
   Alaknanda, New Delhi-110 019

3. Professor M. S. Yadav
   C-3/3038, Vasant Kunj
   New Delhi

4. Professor N. K. Jangira
   5, Park View Apartment,
   Sector-15 II, Gurgaon,
   Haryana-122 001

5. Professor Saroj Bala Yadav
   Head, DESS
   NCERT, New Delhi

6. Professor V. P. Garg
   90-31-A, Second floor
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7. Professor D. K. Bhattacharjee
   Former Head, DTEE,
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8. Professor I. K. Bansal
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9. Dr. J. K. Gupta
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10. Professor V. K. Jain
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13. Professor B. R. Goyal
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14. Dr. Nasiruddin Khan
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    Dwarka, New Delhi.

15. Dr. J. K. Patidar
    Assistant Professor
    DTE, NCERT,
    New Delhi

16. Dr. Vijayan K.
    Assistant Professor, DTE,
    NCERT, New Delhi

**ANNEXURE-IV**

# State Project Directors of SSA

1. Shri Mohammad Ali Rafath
   State Project Director
   Rajiv Vidhya Mission (SSA),
   SIEMAT Building, SCERT
   Opp. to Lal Bahadur Stadium,
   Hyderabad-500 001

2. Shri Rajesh Bhushan
   State Project Director,
   Bihar Education Project
   Beltron Bhawan, Baily Road,
   Shastri Nagar, Patna-800 023

3. Shri K. R. Pisda
   State Project Director
   Rajiv Gandhi Shiksha Mission
   Board Office, Aikakrit Bhawan
   2nd Floor, Pension Bada
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4. Ms. Arti Kanwar
   State Project Director
   Gujarat Council of Primary Education
   District Primary Education Programme
   Behind MLA Canteen, Sector - 17
   Gandhinagar-382 017

5. Shri Mandip Singh Brar, IAS
   State Project Director
   Haryana Prathamik Shiksha
   Pariyojna Parishad,
   SCO 170 - 172, Sector 17 - C,
   Chandigarh-160 001

6. Shri Vinay Mohan Raina,
   State Project Director,
   Directorate of SSA, Govt. of J & K
   105, Ved Mandir Karan Nagar
   Jammu

7. Shri Manoj Jhalani
   Secretary Education (School) and
   State Project Director, SSA
   Rajiv Gandhi Shiksha Mission,
   Rajya Shiksha Kendra, Pusthak Bhawan,
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9. Shri Kevi Legise
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10. Smt. Aparajita Sarangi, IAS
    State Project Director
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12. Shri R. Venkatesan, IAS
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13. Shri Jitendra Kumar, IAS
State Project Director cum Secretary
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14. Smt. C. D. Lama
State Project Director,
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