



**GOVERNMENT OF KARNATAKA**

**CONCURRENT EVALUATION OF THE IMPLEMENTATION  
PROCESS AND ACHIEVEMENTS OF THE  
TECHNOLOGY ASSISTED LEARNING PROGRAMME  
IN KARNATAKA STATE**



ಕರ್ನಾಟಕ ಮೌಲ್ಯಮಾಪನ ಪ್ರಾಧಿಕಾರ  
Karnataka Evaluation Authority

**KARNATAKA EVALUATION AUTHORITY**

**DEPARTMENT OF PLANNING, PROGRAMME MONITORING AND STATISTICS**

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**APRIL 2022**



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IN KARNATAKA STATE**

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## FOREWORD

Technology Assisted Learning Programme (TALP) has been introduced in Government schools of Karnataka State from 2016 with an objective to complement normal classroom teaching with ICT enabled teaching and learning in Science, Mathematics, Social Studies and English as well as to ensure digital literacy for all secondary school students for enhancing learning outcomes. A concurrent evaluation of the programme was initiated by the department of primary and Secondary Education to assess the implementation process and get the feedback for mid-course corrections and further refinement/improvement of the programme. The evaluation was conducted by Karnataka Evaluation Authority through M/s. PAN India Network, Bengaluru.

The empirical base of the study is derived from the secondary data and the primary data collected from a sample of 650 high schools, 6500 students, 68 Control Group schools (136 students), 650 Head Teachers, 1300 parents, 50 PU colleges and 1500 students. of TALP Schools, and 70 Educational Officers.

The major findings are: 92% Schools have set up Computer Lab, but 47% Schools do not get uninterrupted electricity and do not have UPS also. 45% Schools use Laptops, 16% have a CD Library, in 80% Schools, students maintain a CE Notebook, All TALP Teachers are either DIET trained (86%) or Self – trained. Teachers have developed e-lessons in 58 per cent schools. 90 per cent teachers use DIKSHA portal but the opinion is not favourable. The enrolment in secondary education has increased and transition rate has improved. 97 per cent students report that TALP is highly useful for them. 33 per cent students get guidance in computer use at home. 80 per cent clarify their doubts with teachers. The learning outcomes have improved as TALP has contributed to 11 percent (gain) in marks- from 78 percent at 8th standard in 2018-19 to 89 percent marks in 10th standard in 2020-21. 77% PU Students like TALP lessons. 37 % students find the Audiocassettes to be useful for language learning. Only 14 per cent schools have adopted a correct approach to e-waste management. Teachers feel that CD/DVD lessons are useful at the least up to 60 per cent.

The major recommendations are -upscaling of TALP project, facilitate development of (digital) CD/DVD library in all TALP schools using DLR, OLR and audio cassettes for

language learning. Standardize quality of training programmes through a Standard Operating Procedure (SOP) for DIETs, adequate human resources to implement the programme, integration of Lessons in all subjects with school syllabi, SOP for integration of lessons for EDUSAT teachers, ensure remedial classes for slow learners of TALP lessons, upscaling, systematization, and enrichment support from DSERT. Battery of e-projects and assignments for use by schools, EDUSAT to be strengthened with additional investment as intervention in Elementary Education, Cloud Network to be developed in the Department of Education seeking assistance from Centre for e-Governance, provision of TALP tool kit for schools, and publishing information about good quality e-lessons from schools in 'Shikshana Vaarthe' magazine of e-lessons.

I expect that the findings and recommendations of the study will be useful to the Government & Department of Primary & Secondary Education in meeting the programme deficits and upscaling the programme to build the Young Karnataka with digital skills.

The study received support and guidance of the Additional Chief Secretary Planning, Programme Monitoring and Statistics Department, Government of Karnataka. The report was approved in 53<sup>rd</sup> Technical Committee meeting. The review of the draft report by KEA, members of the Technical Committee and an Independent Assessor, provided useful insights and suggestions to enhance the quality of the report. I acknowledge the assistance rendered by all in successful completion of the study.



Chief Evaluation Officer  
Karnataka Evaluation Authority

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The report on “**Concurrent Evaluation of the Implementation Process and Achievements of the Technology Assisted Learning Programme (TALP) in Karnataka State**” Implemented by Education Department- State Project Director SSA/RMSA & DSERT was compiled with efficient analysis of primary and secondary data obtained from 34 Educational Districts. The valuable information was contributed by Head Teachers of TALP High Schools, Principals of PU Colleges, EDUSAT and Tele-Education Schools, Students and Parents.

PAN INDIA NETWORK would like to acknowledge the following persons for their valuable contributions in completing this evaluation study.

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Dr. H. S Ganesha Bhatta has carried out this study as Principal Investigator. Dr. A. S Seetharamu, Expert Team Member has contributed immensely. Their total dedication for the evaluation study and involvement in preparing this report is highly appreciated.

Our sincere thanks to all the Pan India Network team, who have facilitated the completion of the evaluation of the TALP programme without whom the evaluation would not have been possible.



(Smt. Aparna M Kolla)

Managing Partner

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## Abbreviations

AIO	All In One
AIPMT	All India Pre Medical Test
AMC	Annual Maintenance Contract
APF	Azim Premji Foundation
BEO	Block Education Officer
BRPs	Block Resource Persons
CAI	Computer Assisted Instruction.
CAL	Computer Assisted Learning
CALC	Computer Assisted Learning Centre
CD	Computer Disc
CDAC	Centre for Development of Advanced Computing
CE	Computer Education
CeG	Centre for e-Governance
CEO	Chief Executive Officer
CIET	Central Institute of Education and Training
CL	Computer Laboratory
CLASS	Computer Literacy and School Studies
CRPs	Cluster Resource Persons
CSR	Corporate Social Responsibility
D.Ed.	Diploma in Education
DDPI	Deputy Director of Public Instruction
DDPU	Director Department of Pre-University
DIET	District Institute of Education And Training
DIKSHA	Digital Infrastructure for Knowledge Sharing
DIO	Division Information Officer
DLP	Digital Light Processor
DLR	Digital Learning Resources
DSE	Department of Secondary Education
DSERT	Directorate of State Educational Research and Training
DVD	Digital Versatile Disc
DyPC	Deputy Project Coordinator

EO	Executive Officer
FDG	Focus Group Discussion
FI	Field Investigator
FTTH	Fibre-to-the-Home
GATE	Graduate Aptitude Test in Engineering
GB	Giga Byte
GP	Gram Panchayath
HT	Head Teacher
IDI	In-Depth Interview
ICT	Information Communication Technology
ILO	International Labor Organization
IT	Information Technology
JEE	Joint Entrance Examination
K-12	Kindergarten - 12th Grade
KEA	Karnataka Evaluation Authority
KPI	Key Programme Indicators
KSQAAC	Karnataka State Quality Assessment And Accreditation System
KSWAN	Karnataka State Wide Area Network
LCD	Liquid Crystal Display
LED	Light Emitting Diode
M & S	Monitoring and Supervision
MCQs	multiple-choice questions
MHRD	Ministry of Human Resource Development
MIS	Monitoring Information System
MLE	Minimum Levels of Education
MODEM	Modulator Demodulator
MOODLE	Modular Object-Oriented Dynamic Learning Environment
MOUSE	Manually Operated User Selection Equipment
NCERT	National Council of Educational Research and Training
NCTE	National Council of Teacher Education
NEP	National Education Policy, 2020
NET	National Eligibility Test



NGO	Non-Governmental Organization
NIC	National Informatics Centre
NPE	National Policy of Education, 1986
NPIT	National Policy on Information Technology
OER	Open Educational Resources
OER	Open Educational Resources
OLABS	Online Labs
OS	Open Source
PoP	Point of Presence
QCBS	Quality and Cost based selection
RBM	Results Based Management
RDPR	Rural Development and Panchayath Raj Department
RMSA	Rashtriya Madhyamik Shiksha Abhiyan
ROT	Redundant, Outdated, and Trivial
SATS	Student Achievement Tracking System
SDC	with State Data Centre
SDG	Sustainable Development Goals
SDL	self- directed learning
SITE	Satellite Instructional Television Experiment
SMART	Specific Measurable Achievable, Relevant Time Bound
SOP	Standard Operating Procedure
SPD	State Project director
SRPs	State Resource Person
SSA	Sarva Siksha Abhiyana/Samagra Sikshana Abhiyana
STF	Subject Teachers' Forum
TALP	Technology Assisted Learning Programme
ToEFL	Test of English as a Foreign Language
ToR	Terms of Reference
TP	Taluk Panchayath
TPACK	Technology, Pedagogy, and Content Knowledge
U-DISE	Unified District Information System for Education
UNESCO	United Nations Educational, Scientific and Cultural Organization

UPS	Uninterrupted Power Supply
USB	Universal Serial Bus
WHO	World Health Organization
ZP	Zilla Panchayath

# **EXECUTIVE SUMMARY**

## **Programme Details**

TALP began in 2016 as an initiative for Computer Education and education through Computers in Government high schools, known as IT @ Schools and later extended to Government PU Colleges. Unlike all other previous Computer Education programmes where persons with technical skills were hired to teach school subjects, capacities of regular school teachers was built to teach their own school subjects/syllabus. TALP included Science, Mathematics, Social Studies and English in its fold.

## **Methodology**

Descriptive Survey, Documentary analysis, Observation and Case Study techniques are the chief methods. Questionnaires, Rating Scales, Checklists, FDG/IDI schedules, Observation Data Sheets, Case Study data sheets have been used for Primary Data Collection.

Data have been collected, across the State, from 650 high schools, 6500 students of TALP Schools, 68 Control Group schools where Computer Education (not TALP) is there and 136 students thereon; 650 Head Teachers, 1300 parents of TALP Schools, 70 Educational Officers each of Directorates of school Education and pre university Education.

Sample of PU Education/TALP is 150 TALP PU Colleges and 1500 students, 750 Lecturers, 300 parents of PU Students constitute sample of PU Colleges.

Sample of EDUSAT Components of TALP study is 50 schools of which EDUSAT is 25 Schools from 05 EDUSAT districts and 25 Tele Education schools of 18 Districts covered during pandemic Times.

Sampling is as per ToR of the Study. A total of 14 tools are used. IT@ High School (05), TALP in PU Colleges (05) and EDUSAT (03), for 14 different target groups.

Analysis has been both qualitative and quantitative.

## **Summary of Significant Findings of the Study**

### **Infrastructure Facilities: Distribution to Schools**

#### **Section – I: IT@High Schools Programme and Performance**

Analysis of State Level Secondary data for 8<sup>th</sup>, 9<sup>th</sup> and 10<sup>th</sup> Standards during the reference period 2016-17 to 2020-21 on enrolments, attendance and transition rates reveals the following insights.

- It is noted that 2016-18 is pre TALP and 2019-2021 is TALP period. Gains in enrolments in percentage terms are 4.49, 9.21 and 13.73 at 8<sup>th</sup>, 9<sup>th</sup> and 10<sup>th</sup> standards by 2020-21.
- From negative values in attendance before TALP, gains by 2020-21 at 8<sup>th</sup>, 9<sup>th</sup> and 10<sup>th</sup> standards are observed to be 9.33, 11.14 and 17.53 percent respectively.
- Transition trends showed losses before TALP from 8<sup>th</sup> to 9<sup>th</sup> and 9<sup>th</sup> to 10<sup>th</sup> standards. This trend got reversed to positive gains, marginal values, by 2020-21, 2.68 and 1.13 percent gains.
- **DSERT Basic Data:** DSERT/DoE/GoK had supplied 7658 desktops, 1221 laptops and 239 tablets to 1000 schools in 3 packages of 11, 15 and 21 systems. .
- DSERT also gave 3221 Computers depending upon the size of schools. A total of 15945 Computers were given during 2016-17 to 2019-20 includes supply to DIETs/Offices. Again 6330 systems were given during 2020-21. TALP coverage of 2020-21 is 3851 high schools. All the systems have pre-loaded cassettes on syllabi/topics of 04 subjects: Science, Mathematics projectors across 3851 TALP schools and SMART Boards to 242 TALP schools.
- No school has been given TALP Management Contingency Grant.

#### **Infrastructure in Sample Schools (650) – Primary Data/Field Survey Data Reports**

- 92 per cent schools have set up a Computer Laboratory (CL). All the schools (with CL) have Printers wherein 19 per cent schools have Colour printer facility (Colour Printers are essential for Biology/Geography/etc lessons for advanced learning/surfing/to get a print out). 34 per cent schools have scanners also [2 to 3 page downloading, for project work/assignment, scanners would be useful].
- 26 per cent schools do not get uninterrupted electricity and neither have UPS facility in computer laboratory. 47 per cent schools do not have either internet or Bluetooth facility.
- 91 per cent schools have projectors to use Computers for classroom teaching-learning transactions [83 per cent LCD projectors]. No LED projector anywhere.

#### **Organization of Computer Education in Schools (TALP)**

- 82 per cent schools begin Computer Education at 8<sup>th</sup> standard [11 per cent do not have 8<sup>th</sup> standard]. Majority of students had no exposure to Computer before 8<sup>th</sup> standard. Pace of learning for 80 per cent students is uniform and good.

- 45 per cent schools give only pre-loaded cassettes experience/learning opportunity to students. 16 per cent schools have CDs/DVDs [with or without a CD/DVD Library; 11 per cent have a CD/DVD Library] for use of students [schools have procured]. Students in 39 per cent schools visit learning web-sites.
- In 80 per cent schools students maintain a Computer Education/TALP notebook. Computer Education is an examination subject in 27 per cent schools. 40 per cent schools give project work/assignments in Computer Education.

### **MIS and SATS in Schools**

- 27 per cent TALP schools report that they have adopted MIS.
- SATS is adopted by 99 per cent schools. 95 per cent find it useful. Basic analysis of SATS data is there in almost all schools.

### **Proficiency in TALP Implementation**

- Teachers have developed e-lessons in 58 per cent TALP schools. It is a team effort in almost all schools. In majority of schools TALP trained teachers have trained their untrained (in DIETs) colleagues (shared their skills). All of them are reported to use their skills (report by HTs).
- Web links were given to teachers under Level II, Refresher Training, to 62 per cent TALP schools. These links are reported to be useful, relevant and simple.
- 41 per cent schools report that they get their school/Computer Laboratory budgets audited.
- 90 per cent teachers use DIKSHA portal. They do not have positive views on DIKSHA Portal in the context of State school system.

### **Teaching – Learning Process (TALP) in Schools – Reports by Head Teachers**

- There is a balance in average number of teachers managing 04 subjects of TALP in all schools, though there are slightly more Mathematics teachers.
- 92 per cent teachers engaging TALP classes are either trained by DIETs or by colleagues or self-trained. 5.5 per cent schools have engaged Contract teachers.
- Average Contingency expenditure is Rs.1,00,000/- per year, per school, for the maintenance of Computer Laboratory reported by 66 out of 650 schools.
- 35 per cent schools have entered into AMC for service and maintenance of computer lab with local franchisees.

- MIS (27 per cent schools) include mainly student/MDM (student)/teachers attendance, admission/TC registers.
- Nearly 14 per cent schools have adopted a correct approach to e-waste management (once in a month).

### **TALP – Feedback from Teachers**

- It needs to be noted that teachers are serving students without complete facilities needed for TALP. All the lessons are not there in CDs/DVDs, preloaded in Computers. They do not have LED projectors. Most of them are not having SMART Boards and other accessories essential for a TALP kit. Still, for the given level of implementation, teachers are doing full justice to TALP in their schools.
- Majority give equal attention to regular vs. TALP classes, give assignments/ projects to students. However, only a small percentage of teachers evaluate the assignments/ projects.
- Majority concede that CD/DVD lessons are useful at the least up to 60 per cent level.
- Only 22 per cent teachers report that they can complete the full syllabus (cover syllabus) with reliance on computer mediated teaching (TALP). They have a ‘positive attitude’ to TALP.
- Teachers share their skills; work with colleagues in developing e-lessons.
- Overall feedback from teachers is that, teachers are very highly satisfied with the TALP programme.

### **Feedback from Students**

- 97.4 per cent students attend schools from their own homes (not hostels). 95.65 per cent are locals (not migrants) to the place of school; 42 per cent can walk to school. Public bus is also used. 12.5 per cent students travel to school from a distance of more than 5 Kms, which is not in conformity with the national norm. However, commuting is not a problem for them, as 41 per cent of sample students, use bicycles to school, use Free Bicycles given to them by the DoE/GoK. 54 percent students are girls. Either students have schools at a walkable distance or they use bicycles. None of them will be tired to commute to school. Further, it is noted that there are 07 per cent over aged students in the sample.
- 97 per cent students report that TALP is highly useful for them. 33 per cent students get guidance in computer use at home. 80 per cent clarify their doubts with teachers.

- 8<sup>th</sup> standard schooling is the medium level of education among parents of all students. Majority of parents are in low paid jobs which constrains them to buy smart phones, pay for wi-fi and renewal of internet facility (needed for advanced learning/for doing projects), Pre-paid charges.

### **Feedback from PARENTS**

- 90 per cent parents reveal involvement in on-line schooling of children. They have conferred with HTs, Teachers, Margadarshi Teachers (of VIDYAGAMA schools – Pandemic times).
- Parents did not wholeheartedly welcome on-line classes. Only 2 per cent students (parents) had got Smart Phones before the launching of on-line classes. 49 per cent parents purchased Smart Phones for exclusive use of their children, for on-line classes. 79 per cent parents prefer Blended Learning.
- Only 07 per cent students (parents cannot buy packages of more than 1 or 2 GB per day) can use Smart Phones beyond school hours for advanced learning.
- A great majority welcome SAMVEDA classes (beamed on TV by NCERT). Almost all parents have positive opinion about VIDYAGAMA classes.
- Only 8 per cent homes have UPS facility; they are prepared for power problems affecting on line classes. 22 per cent homes/children lose on line classes due to power problems in Kalburgi division.
- A great majority welcome assessment of children in public places (DoE arrangement during pandemic times).
- 55 per cent parents report that their children got addicted to mobile phones.
- Majority of parents, even while they are economically weak, have adjusted to on line schooling with great difficulties; they prefer regular schooling.

**e-content Review Report:** TALP lessons in 04 school subjects had been reviewed by expert at a Workshop. Overall rating of quality of lessons at High School stage is 85 per cent while it is 62 per cent at PU stage.

**A checklist analysis of performance** of TALP on 05 parameters – infrastructure, Learning organization (Sample 650 schools), Teachers’ Feedback (Sample 3250), Students’ feedback (Sample 6500) and Parents’ feedback (sample 1300) revealed that TALP State average performance is functioning at 52.09 percent of expectations (123 variables). Respective percentages on 05 parameters are: 53.4, 75.9, 56.6, 46.1 and 63.0 percent.

District level analysis of performance showed Kodagu, Chikkamagaluru, Gadag, ChamaraJanagar and Bidar are on top 5 of the list of 34 Educational districts. Madhugiri, Sirsi, Yadgir, Raichur and Bellary districts are the bottom 05 districts in the list.

Bottom 05 and more districts need intensive care and attention by DIETs/DSERT.

### **Experimental Vs. Control Groups: TALP and Non TALP Learning Attainments.**

The differential gain in learning attainments as per SATS average achievements between 650 TALP quasi-experimental sample schools and 34 non-TALP control group sample schools is 06 percent in favour of TALP schools. The jump from 2018-19, SATS results to 2020-21 SATS results in TALP schools is 78 to 89 percent while in non-TALP schools for the same reference period, it is from 78 to 83 percent. **TALP matters for learning attainments.**

### **CASE STUDY INSIGHTS:**

**There is 20 per cent difference across top 5 and bottom 5 schools in the State in TALP performance [Implementation], as per CASE STUDY analysis.**

**Better monitoring of learning organization in schools, provision of infrastructure facilities, hands-on-training to teachers, issue of SoP for implementation of TALP in schools are needed to bridge the gap between top and bottom ranked schools.**

**SoP based/Guided M and S will be needed for lifting the bottom ranked schools above optimum levels of performance, as revealed by the 10 schools of the case study.**



## **Section II: TALP in Pre University Colleges**

Scope for assessment / review of PU Colleges is limited as TALP is confined to distribution of Pre-loaded (with lessons) laptops to 750 colleges, 61 percent coverage, during 2017-18 to 2020-21.

**Infrastructure:** Computer Laboratory (CL), Science Laboratory, Library and Reading Room are in 39, 84, 48 and 16 percent PU Colleges (Sample size, 150). PU Colleges in Kalaburgi division lag behind other 03 divisions in all respects. In spite of constraints, 51 percent college faculty have developed e-lessons and shared with DIETs (31 percent faculty shared). PU Colleges are doing well, to the best of their resources, in utilization of pre-loaded laptops for purposes of teaching their subjects.

### **Organization of TALP/Implementation in PU Colleges:**

- Majority of PU Colleges in the Sample are of medium size. Mathematics and Science subjects are accorded priority in Induction, Level I training. While English, Economic, Business Studies, Accountancy get lower priority in training.
- 21 percent colleges show Computer Education/TALP theory classes in the timetable. Pre-loaded laptops are used in Classrooms by 28 percent colleges.
- 33 percent PU Colleges have a computer lab, not a contribution of TALP, own initiative.
- TALP is not implanted either adequately or systematically in PU Colleges. SoP is also not issued by the Department.
- Average expenditure per college which has a Computer Laboratory is Rs. 6269/- per year, excluding expenditures on Wi-Fi/telephone bills. Precise data is not available as colleges do not maintain a lab log book.
- Only 11 out of 31 colleges which have Computer Lab (02 Colleges, no response) dispose e-waste. Disposal methods vary and there is no uniform system.
- 10 percent colleges have AMC for maintenance, repairs and service even while majority face problems in computer maintenance. Other depends on locally available technicians.
- Adoption of MIS in colleges for digital governance is limited in incidence and not uniform in usage.
- 37 percent colleges store question papers of previous years in the computers and share it with students. 60 percent colleges maintain marks registers/data in digital format.

### **Feedback from Lecturers**

- Data is from 750 Lecturers. B.Ed trained and experienced teachers are preferred by DIETs for TALP induction training, especially in Science and Mathematics. Level I Training is well received by the Lecturers.
- 54 Percent lecturers report that 60 percent of their time and effort in teaching/transacting their subjects is saved. It is recalled that there is no full integration of PU Syllabus in pre-loaded lessons; only 62 percent integration is there.
- 96 percent trained Lecturers have tried/sensitized their untrained colleagues. Nearly 20 percent lecturers have also acquired additional digital skills beyond the training curriculum like working on word documents, surfing internet, downloading advance resource materials, pictures, videos, documents, retrieving them and preparing PPTs. A few (10 %) can also work on Excel sheets. A couple of them (2 percent) can edit and save downloads, use graphics and charts.
- A great majority of lecturers report that the training was useful for transacting lessons using preloaded cassettes in the classroom.
- In spite of inadequacy of training, hands-on exercises, infrastructure facilitation, lecturers have integrated well with TALP Opportunity.

### **Feedback from students:**

**Profile:** There are 1500 students from 150 colleges. 64 percent are girls. 14 percent children of first generation learners are learning at High School technology based teaching.

Going by the socio-economic background of students, it is observed that TALP project more than satisfies the concerns of equity and justice while quality of service is a persisting concern.

**TALP exposure:** 56 percent students had exposure to Computer before TALP, in high schools. 31 percent students have TALP Classes in time table. 28 percent students have also Computer Education/TALP practical classes. 77 percent students like TALP classes- Reasons given by those students who did not like TALP teaching (Teachers using pre-loaded computers) was that they themselves were not good in basics- basic concepts of the subjects. 98 percent students use SMART phones for On-Line classes. 30 percent students get help from elders. Conversely, 70 percent students do not have anyone at home to help them. 52 percent students rate the TALP lesson to be 'useful'. 37 percent use audio-cassettes for learning language skills, useful for TOFEL examination.

63 percent students have access to e-gadgets for colleges' related assignments beyond on line classes, either at home or college. Deprived proportions of students across Belagavi, Bengaluru, Mysore and Kalburgi about this opportunity are 32, 36, 38 and 44 percent students respectively.

36 percent students were involved with their classmates/teachers in development of e-content.

**Performance in Computer Education Examination:**

39 percent students have Computer Education as an examination subject in their colleges. 26 percent students (Total 1500) got more than 60 percent marks, A+, A, B+, B grades in Computer Education examination. Concern is about those who do not have Computer Education examination 9.60 percent (who get C/D grades (14 percent)).

**Remedial Classes:** 35 percent students get remedial classes while 12 percent (Total 1500) students get them through laptop mediation.

**On-line Classes:** 38 percent students express difficulty in learning through on-line classes (pandemic context).

**Home Milieu:** for online classes is 'Good' for 58 percent children, 'satisfactory' for 32 percent students and 'poor' for 10 percent students.

**Online Vs. Regular Classes:** 56 percent students prefer on On-line classes

**FINAL INSIGHTS: On-line classes during pandemic times have been organized with utmost efficiency, as per students' report.** However, exposure of students is not complete: e-gadgets problem, practical classes, experience of completing projects/assignments is not comprehensive, assessments are not done comprehensively, assessments are not done for full set of students, internet/power problems are there and home milieu is not uniformly good.

**On-line Classes are challenged by concerns of regional disparities in provision, individual differences in students' receptivity; of equity and justice. They need to be addressed over time.**

**Feedback from Parents:** there are 300 parents, 185 fathers and 115 mothers (62:38). 71 percent parents discussed modalities of on-line education with colleges-HTs/Lecturers. 60 percent parents got SMART phones to their children only after online classes began. 36 percent parents shared their phones, did not have capacity for purchase of phones exclusively to children.

- 20 percent parents do not have capacity for prepaid purchase of 2 GB packages. They buy one GB Package which is used for classes. Students are unable to do post class studies, assignments, surf information and engage in projects. This proportion is 31 percent in Kalburgi division.
- Only 28 percent want regular classes even while 98 percent are happy with on line classes. Only a small proposition of parents believe that their children got addicted to mobile phone.

### **Section: III: EDUSAT**

- **Schools:** EDUCAST refers to TV lessons of erstwhile 05 districts and Tele Education of Pandemic times 18 districts. Sample schools of the Study (50 Schools) are managed by elderly and experienced HTs. 25/50 schools get uninterrupted electricity. Out of them 09 schools have UPS facility. In effect, 16/50 schools are at the mercy of the Power God for EDUSAT programmes.
- 22/50 schools maintain a log book for use of TV/EDUSAT lessons.
- A great majority of schools face problems of maintenance and repairs of TV sets. Majority do not have an AMC. 25/50 Schools need at least one week to get their sets to order. In effect, in 54 percent schools, kids lose classes.
- In 24/50 schools teachers were not trained in integration techniques of EDUSAT lessons with school studies programme.
- 38/50 schools have rated (HTs) quality of EDUSAT lessons to be very good/good. EDUSAT lessons have been received very well by almost all the schools. 12/50 HTs report that students' performance in examination improved substantially due to EDUCAST lessons.

### **EDUSAT-Feedback from Teachers**

250 teachers are the total sample-EDUSAT and Tele Education. 82 percent teachers report that they integrate their classes/lessons with EDUSAT/TV lessons. HTs had given a lower figure. 39 percent integrate when TV lessons are in progress, 14 percent before (give orientation to students on day's lessons before the lessons are beamed). Rest of the teachers, after the TV Classes. There is no SoP for integration of lessons.

- 50 percent students get their doubts of TV lessons clarified with teachers-teachers' feedback.
- **90 per cent teachers rate the lessons as of 'Very Good' (25 per cent teachers) or 'Good' (65 per cent teachers) quality. 'Very Good' or 'Good' certificate given by**

**teachers indicates that the EDUSAT programme is successful in the State. It needs upscaling, systematization and enrichment support from DSERT.**

- **EDUSAT/CIET/DSERT need to recognize individual differences among students in learning deficits, learning style, learning atmosphere at home and learning capacities of students, to maximize the utility of lessons.**
- 66 Percent teachers report that TV lessons integrate 60 percent of their syllabus. 60 percent should be considered as good. Teachers' direct interactions/teaching also matter.
- TV lessons are better in regard to narratives. They need improvement in regard to use of diagrams, maps, experiments and other visuals

**Final insight:** EDUSAT is an extremely useful intervention in Elementary Education, provided it is accorded a higher level of systematized attention and marginal increases in investments.

#### **EDUSAT - Feedback from Students**

**Profile:** There are 500 students from 50 schools, 250 each from EDUSAT and Tele Education programmes with 57 percent girls, 60 percent 4<sup>th</sup> to 8<sup>th</sup> standards and rest in 9<sup>th</sup>/10<sup>th</sup> standards.

**Socio-Economic Background:** EDUSAT/Tele Education is serving the **poorest of the poor** families in the State. **This programme is rich with values of equity and justice.** The Department needs to upgrade the programme through supply of LED Televisions Video-Conference facilities and issue of handouts of TV lessons.

#### **Quality of EDUSAT (Tele Education Also)**

**Lessons:** 88 percent students consider the lessons as 'useful', 90 percent as 'relevant to their syllabuses, 79 percent as 'Visual with Clarity', 82 percent as 'clarity in audibility' and 80 percent for 'simplicity in use of language and style of presentation'.

Lessons are not fully (by all students/more than 90 percent students) approved by students. They report on sub-optimal quality on one or the other parameters.

Coverage of syllabus: 58 percent students report that nearly 50 percent syllabus is covered by EDUSAT lessons. This should be considered as **'satisfactory'** as regular school teachers also transact lessons/syllabus. Teachers matter.

**Final Insight:** There is a need to be devise ways and means of maximizing the effectiveness of a good and useful programme – the EDUSAT.

**Section IV: Control group students- Feedback and a comparative account with evaluation study:**

- Sample for the TALP evaluation study is 650 schools and 6500 students while for the Control group it is 136 students from 68 schools.
- 15 per cent students are first generation learners (both father and mother illiterate) in both Control and Sample groups.
- Mean Level of Education (MLE) in the total sample is better in Control Group Students (7.9 years) than in Sample Students (7.1 years). In case of fathers, the values are Control group – 8.4; Sample – 7.4, and for mothers, Values are Control group – 7.6 and Sample – 6.7 years.
- Going by the MLE of control group and Sample groups, it is inferred that selection of schools under the TALP programme by the Department, a post facto revaluation, is highly justified. Benefits under TALP are going to relatively more educational backward families.
- Going by the occupational background of Control group students and sample students, it is observed that sample students group is relatively poorer than control group students. Both are poor. Their socio-economic background reveals that parents in both Control group and Sample, Sample more than Control group are constrained to get Smart phones and buy pre-paid Internet packages for uses of on-line schooling and off line (digital) project work.
- TALP umbrella, sample group, students are better than control group students in regard to exposure to Computer Education/TALP practical classes, duration of practical classes per week, contribution of TALP to studies.
- However, Control group students are better than Sample group in regard to prior (prior to school Computer Education/TALP) exposure to Computer, possession of e-gadgets other than Smart phones, help/assistance from elders for Internet operations.
- Both groups are placed in the same boat in regard to access to Smart phones beyond school hours, enjoyment and likings for Computer Education/TALP classes.

**FINAL WORD:** TALP programme has proved to be a shade better in its benefits to students of the Sample group in comparison to similar benefits to Control group students in schools which have Computer Education (not TALP). TALP schools get pre-loaded content materials in Computers which is not the case with Control group students/schools. These e-content also make a positive difference in favour of Sample group over Control group.

## **Section V: Feedback from Educational Officers**

There are 70 officers each from DSE (Department of School Education) and DPUE (Department of Pre University Education). Data is collected through IDI in most of the cases. Comparatives analysis across DSE and DPUE is made.

- DSE has field level/grassroots officers like Cluster Resource Persons (CRPs) and Block Resource Persons (BRPs). Both the officers-DSE/DPUE- Feel that ‘adequate infrastructure’ for TALP programmes is not given by the Department.
- PUE officers are relatively more strict in advising parents to purchase smart phones for on-line classes for their own wards. DSE Officers have a better reality perception than DPUE officers about socio-economic conditions and purchasing capacity (phones) of parents, as most of them work at grassroots and has a comparable status. Both DSE and DPUE officers openheartedly welcome the idea of departmental (Government) supply of Smart Phones/Tablets to economically backward parents/students. They have equal empathy.
- There is divergence in option of DSE and DPUE officers in regard to resumption of off-line/regular classes. 73 percent of DSE officers are in favour while 37 percent of DPUE officer approve it.
- DSE officers (43 percent) did household surveys to check on access/ possession of mobile phones with students for on-line classes. PUE officer depend on Principals’ reports.
- DSE Officers recommend Vidyagama Classes along with teachers’ supplementary teaching for slow learners/ also for those who miss/do not comprehend lesson. PUE officers recommend weekend compensatory classes (Note: There is no Vidyagama for PU Stage).
- DSE officers are relatively better in their awareness about DLR- OER and Market access, Wi-Fi applications and study related websites than DPUE officers.
- DSE officers nod their needs in full approval of Vidyagama Classes and SAMVEDA TV Lessons, as Beneficial to Students. Almost all of them have conferred with HTs and Margadarshi teachers about conduct/organization of these classes.

**Final Insight:** DSE officers are relatively better than DPUE officers in their perceptions and orientation for on-line lessons/classes. DSE officers are also better exposed to training programmes in this context.

## **RECOMMENDATIONS**

Two types of recommendations are submitted in this evaluation study report: (i) Short Term which can be implemented immediately and (ii) Long term which need deliberations at higher levels of governance in the State.

### **Short term Recommendations.**

#### **Infrastructure:**

1. Facilitate development of (digital) CD/DVD library in all TALP schools using DLR, OLR and audio cassettes for language learning.
2. It is recommended that DSERT provide Interactive Video-Conferencing Facility to all the schools, supply SMART LED Television Sets, integrate AMC for: all TALP activities, e-gadgets for (TALP) IT schools, IT @ PUC, EDUSAT and other e-gadgets in schools. Let the AMC be a State floated service with franchisees in all District/Taluqa Head Quarters that can reach schools within a day for maintenance, repairs and service of all e-gadgets. Provide training in use of EDUSAT to all HTs/teachers without any deficits.
3. Department needs to upgrade the EDUSAT/Tele Education Programme through supply of LED televisions (many students complained of eye-strain due to regular viewing of ordinary TVs for lessons), Video-conferencing facility (Convert all RoT schools to VCF) and issue of handouts of TV lessons.

#### **Training:**

1. There are Inter-district differentials in TALP training performance of DIETs (See Section 5.4). Standardize quality of training programmes, bring uniformity in training (E.g.: Hands-on-practice sessions differ). Roll out a SoP for DIETs. Ensure full complement of staff for DIETs.
2. Provide training to all HTs and IT coordinators in management of MIS in schools. Provide training in school base MIS to educational officers for M & S of MIS.
3. Provide Basic Training /orientation to all officers of Both DSE/DPUE on M and S of TALP and online classes and digital learning opportunities. Give SoP for M & S.
4. Give Training to teachers and Lecturers 2 sessions, Level I Induction Training which is already there and 2<sup>nd</sup> session on advanced digital skills with hands-on-practice and project work.



**Curriculum:**

1. Maximize the integration of Lessons in all subjects with school syllabi and review the quality of lessons from the perspective of end users (students) (See e-content review workshop report).
2. Quality of TV lessons-visibility audibility, language and style of presentation, relevance to syllabi need a thorough and systematic review from the perspectives of students – end users of the programmes

**Monitoring and supervision:**

1. Facilitate setting up of Computer Lab in schools in a systematic way issue SoP, get State level audit of computer laboratory in TALP schools.
2. Develop a handbook of TALP e-lessons, subject-wise, and distribute to students (and teachers). Involve DIETs in this exercise in a workshop mode.
3. Standardize management techniques of e-waste in schools using an environment friendly framework. Develop a SoP in this context for all end users.
4. **Develop and distribute a SoP for integration of lessons to EDUSAT teachers, (DSERT); give them a day's orientation, subject wise.**
5. There is no uniformity in DIETs in regard to strict implementation of time-table, specifically for hands-on-practice and project work. A SoP to all DIETs on TALP training is desirable.

**Individual Differences:**

1. Ensure remedial classes for slow learners of TALP lessons wherein computer mediated teaching /learning is there.
2. **EDUSAT/CIET/DSERT need to recognize individual differences among students in learning deficits, learning style, learning atmosphere at home and learning capacities of students, to maximize the utility of lessons.**

**Others**

1. **Upscaling: 90 per cent teachers rate the lessons as of 'Very Good' (25 per cent teachers) or 'Good' (65 per cent teachers) quality. 'Very Good' or 'Good' certificate given by teachers indicates that the EDUSAT programme is successful in the State. It needs upscaling, systematization and enrichment support from DSERT.**
2. **Motivation:** Develop criteria of BEST TALP School; in a district and give rewards/incentives to such schools, one from each district and top 05 for the State. This

will promote competitive performance for digital learning and promotion of digital skills, use a workshop mode involving variety of stakeholders and experts for the purpose.

3. Provide orientation to parents PTA meeting on the need and significance of online learning. Impress upon the needed home milieu for the same
4. **Assessment:** Develop a subject-wise, standard wise **Battery** of e-projects and assignments for use by schools, teachers and students. Specify number of projects/ assignments to be completed, periodicity of these exercises ensuring balance across subjects and time-use pattern of students. As an annexure, provide a list of school based 8 to 12 standards DLR web –sites and their special features.
5. **Publicity:** Facilitate publication and publicizing exercises of very good quality e-lessons developed by school teachers and students across the state. Enroll a Quality regulations mechanism. Publish information about good quality e-lessons from schools in ‘Shikshana Vaarthe’ magazine of e-lessons.
6. EDUSAT is an extremely useful intervention in Elementary Education, provided it is accorded a higher level of systematized attention and marginal increases in investments.

#### **Long Term Recommendations:**

**There is a need for a systematic implementation of TALP programme.**

State of the Art AIO Laptops (as per norms), LED projects (as per norms – strength of the school), SMART Boards with pens, colour printer with scanner, pen drives, computer tables with chairs (as per norms), UPS (generator for large schools), contingency fund for purchase of cartridges, printing paper, service/maintenance and repairs, Wi-Fi monthly telephone bills, installation costs etc. Then only TALP implementation will be wholesome (all items of a kit/package), comprehensive (all schools of the DoE) and systematic (addresses all teaching-learning concerns). Cost Estimate of a TALP tool kit is as follows: lower estimate, basic prices-Rs. 55000/-, a little higher, moderate estimate- Rs. 94000/-, with one laptop and one projector, one smart board. Details are given in the report

There is a need for a **CLOUD NETWORK** in the Department of Education with a spread across all wings of the Department. The department of Schools/PU Education should approach Centre for e-Governance (CeG) of the government to get the feasibility report, get funds from the government after a detailed network plan and get the tendering done through CeG.

**Soft-ware personnel engaged on contract basis, in every taluk/district can visit PU Colleges, on a peripatetic arrangement and provide hands-on-practice, develop competencies/skills among lecturers in real time contexts when they teach units/syllabi of their subjects.**

**FINAL WORD:** TALP has been an excellent initiative of the DoE/ GoK in the direction of creation of a DIGITAL SOCIETY. It needs a higher level of systematization for increasing the level of efficiency, justice, equity, effectiveness and quality schooling.



# 1. PERSPECTIVES ON TALP

## 1.1 PERSPECTIVES (BACKGROUND) OF TALP STUDY

### Information Age:

Latter half of the 20<sup>th</sup> century is referred to as the beginning of the Information Age. Concept of 'power' in the modern world has undergone a transformation from military/muscle power through money power to information as power. This is also the terms of Alvin Toffler's 1991 classic 'Power Shift'. Today we are living in a digitized global economy, polity and society. 1990s to 2000 onwards the world has moved from an industrialized to an informed society. Post 2000 the information society got morphed from its information structure to information cum communication format.

### Digital Divide

India or Karnataka State is yet to catch up with this ICT universe and digitizing world. Here is the data on Internet/ Personal Computers users across the world.

**Table 1: Worldwide Internet Users, 2019**

World Population	Users Worldwide	North America	Europe	Latin America	Oceania	Middle East	Asia	Africa
7.7 Billion	59%	89%	88%	69%	68%	68%	<b>54%</b>	40%

Source: [Internet World Stats](#)

Note: Percentages refer to percent of population in the region using Internet.

**Table 1.1: Internet Users Update on India, 2019**

It is useful and pertinent to get an update on the data on Internet users in India as compared to the position across its neighbors. In descending order of percentage of users, here is the data.

Country	Japan	Singapore	Malaysia	China	Sri Lanka	<b>India</b>	Indonesia	Pakistan	Nepal	Bangladesh
% Users	93.5	88.2	81.2	60.1	34.1	<b>40.9</b>	63.5	35	54.1	57.2

Source: Internet World Statistics.

Note: Nearly 41 per cent population is Internet users in India.

**Table 1.2: Internet Users in Karnataka and Neighboring States, 2019 (in million population)**

Neighboring States	In Millions	In % of 2019 projected population
Kerala	24.71	61
<b>Karnataka</b>	<b>40.39</b>	<b>59</b>
Tamil Nadu	45.48	56
Andhra Pradesh	49.29	52
Maharashtra	53.47	43
INDIA	636.73	

Source: Goal 9, SDG India Index: Baseline report, Niti Aayog – (original source)

Economics Research Unit, Department of Telecommunications, Ministry of Communications, [Telecom Statistics of India, 2019](#), Page: 13, Table 12

Note: In terms of percentage, 41 million internet users in Karnataka State would be 59% of projected population in 2019.

- Andhra Pradesh includes Telangana population

### **Challenges ahead:**

It is difficult and challenging to move in the direction of a digital society with nearly 3/5<sup>th</sup> of the 120-crore population (100 crores adult population) being computer illiterate.

Mostly urban computer literate India and most of the urban services in contemporary Indian society is heavily reliant on Internet users. Business, commute, trade, banking, insurance, railways, airways, travel and tourism, corporate activities, governance in bureaucracy and civil service, human resources management, taxation-property, income, customs, excise (GST), defense services, telecommunications, like this, there is no sphere of public life where the Wi-Fi canvas is invisible. Even in the rural areas, progressive section of farmers, though a miniscule proportion, check on wholesale prices of their produce, water updates (on farmers websites), sell their produce, manage bank credit/debit/ATM/other operations. Population/animal/forest wealth/property/ asset census are organized, conducted, analyzed and published through internet. Online transactions are the order of the day. It is very popular among ordinary households for online ordering of food, cabs, groceries and other household needs. Even internet savvy home-makers use online services.

There is a digital divide in India also. With just 41 per cent being internet savvy, this internet divides needs to be immediately addressed from school level. It is challenging to realize the vision of a Digital Society in India with the current state of affairs. It is strongly and earnestly hoped/expected/predicted that TALP will redress this situation. TALP will serve as a game changer in Indian national life (Karnataka State).

### **COVID-19 AND CHALLENGES FOR TALP INITIATIVES**

Severity of Covid-19 pandemic threw up fresh challenges to TALP programmes all over the country and in Karnataka State. A continuous state of ‘Lockdown’ of public life included ‘De-schooling of Society’ (usage in a euphemistic sense). Fortunately, unlike the 19<sup>th</sup> century pandemic times, the Covid-19 challenges could be met partially successfully due to availability of digital technology everywhere. Schools/Colleges could adapt to Internet schooling (Blended Learning in some places), use of EDUSAT and Radio lessons. Schooling of children could be continued with access to the use of smart phones/mobiles, Tablets (Tabs), Laptops, Desktops, TV sets and Radios in households of the country. Even this alternative was beset with problems some of which were insurmountable.

**Problems and Concerns of Digital Education:** Following are the problems and concerns of education/schooling through the use of Information Technology in modern times and specifically the pandemic times:

- Lack of access to infrastructure facilities in schools/colleges – Laptops, Smart Phones, TV sets, Functional Radio sets, Projectors, Dongles, UPS, technology friendly classrooms.
- Shortfall in capacity of teachers/lecturers to adapt to new technologies for teaching-learning transactions;
- Shortfall in capacity of Head Teachers/Principals to organize and conduct IT based education;
- Absence of Broadband connectivity in all regions of the country, especially in remote rural and tribal areas.
- No access to Smart phones to a large number of students, or problems in sharing of one/two phones between elders and children.
- Absence of noise free ambience in poor/small households.
- Areas/regions which have problems in regard to electricity – no electricity or irregular supply.

**Concern:** Problems of access to digital gadgets, connectivity of broadband or electricity lead to **Inequity** in provision of schooling/education.

Problems of access to Smart phones among poorer strata of society (includes sharing arrangements of smart phones at homes), is inequity at grassroots of life.

Following tables give an update of electricity, computer, and Internet facilities in schools of the country as well as access to digital devices among students (6 to 13+ years).

**Table 1.3: Broadband Friendly Facilities in Schools, India (in percentage of provision)**

Facility	Primary Schools	All Schools (all stages)
Electricity	72.6	80.2
Computers	20.6	39.0
Internet	7.9	22.3

Source: U-DISE, Ministry of Education, Government of India, 2019-20.

**Table 2: Technology Divide in Education (States and UTs of India) [in Lakhs]**

Sl. No.	Major States/Union Territories	No. of Children without Digital Devices	Per Cent of All India
1.	Bihar	143.36	48.35
2.	Jharkhand	32.52	10.97
3.	Karnataka	31.31	10.56
4.	Assam	31.06	10.48
5.	Tamil Nadu	17.50	5.90
6.	Odisha	15.08	5.09
7.	Haryana	10.34	3.49
8.	Gujarat	5.92	2.00
9.	Uttarakhand	2.14	0.72
10.	Andhra Pradesh	2.02	0.68
11.	Telangana	1.17	0.39
12.	Kerala	0.95	0.32
	Total		<b>98.95</b>
	All India	<b>296.48</b>	

Notes:

- A few union territories with low incidence add up to the 100 per cent mark.



- Further data, not in the table, revealed that only 4 per cent of Delhi's primary schools students' population (1 to 8 students) did not have access to smart phones. This figure is 28 per cent in Chhattisgarh (State's student population is the denominator count), 42 per cent in Punjab and 70 per cent each in Madhya Pradesh as well as Jammu and Kashmir.
- It is Bihar which disturbs the whole balance, contributes to the depressing scenario, in all India calculus.
- Such a situation in some of the major States reflects gross inequalities in organization and conduct of Internet Schooling in India (on-line teaching/ learning transactions).

## **1.2 EVOLUTION OF ICT, EDUCATIONAL TECHNOLOGY AND ARRIVAL TO TALP STATION- A BRIEF HISTORICAL NOTE.**

The earliest use of technology in education began in 1923 when radio club of Mumbai telecasted a few programmes on education. BBC broadcasted educational and cultural programmes in 1930. The All India Radio began to broadcast educational programmes for school children in 1937. The first education TV (E-TV) began in Delhi in 1961 for Secondary Schools (2 years after first TV service in India at Delhi, 1959).

The first Satellite Instructional Television Experiment (SITE) began in India in 1975. At the same time, this programme began in Karnataka also in a couple of districts including Kalburgi.

The first ever use of computers in school education began with the CLASS (Computer Literacy and School Studies) project in 1984 in India/ Karnataka. However, these are all experimental initiatives.

The first ever considerable scale initiative for use of computers in school education began as an Azim Premji Foundation (APF) and Government of Karnataka (GoK) joint venture in 2001, with the launching of Computer Assisted Learning Centres (CALC) covering 80000 government primary school children and 225 schools. Even SSA began CALC in 2007 in higher primary schools. In 2004, the DSERT began CALC in secondary schools with Mahithi Sindhu, an experimental project.

In phase 2, in 2008, it was extended to PUC colleges. But both Phase 1 (High Schools) and Phase 2 ran the programme through computer qualified contracted persons as teachers. Regular school teachers had not been empowered/ enabled/ skilled to teach their

subjects. In this way, TALP is a game changer; there is a paradigm shift in Computer Education in secondary/higher secondary schools.

### **Systematization of ICT initiatives in India:**

Initiatives to formulate a National Policy of ICT in school education began in 2009 and in 2012, the first ever Policy was rolled out in 2012 by the MHRD along with an overall National Policy on Information Technology (NPIT).

TALP is integral to the NPIT in school education, including the ongoing components; systematized teacher training, content development, supply of hardware and software to schools, and MIS for schools are integral to this policy.

A few other national level initiatives underscore the significance of TALP. National Skill Development Mission (Skill India Mission) was launched on 15<sup>th</sup> July, 2015. At the national level (NCERT) and in Karnataka State a new D.Ed. Curriculum was rolled out in 2012. This is pre-service training. It ensures that all future teachers will be exposed to the new D.Ed. curriculum which has mandated competencies to transact ICT Curriculum in schools. In D.Ed. 2<sup>nd</sup> year, under section 2.4.1- 'ICT Mediation', 40 hours are provided out of which 36 hours are for practical training. ICT literacy, integration with teaching/learning, ICT skills, Information search, exercises in using ICT in classroom contexts are included. 6 units in syllabus, online assignments and Internal Assessments are highlights of the new curriculum.

### **Urgency of TALP**

However, the State cannot wait for ICT implementation for a future date. TALP initiative is for the current times, current generation of students and current needs. Urgency of realization of National Policy necessitates successful implementation of TALP.

(Note: International update on ICT-History, Policy and Programmes are not discussed here, See ICT in Primary Education- Analytical Survey- UNESCO IITE/ Institute for Information technologies in Education, 2012- an update on 9+ countries.)

## 2. REVIEW OF RELATED LITERATURE

### 2.1 Perspective:

The purpose of engaging in a review of related literature is to explore the existing state of knowledge and understandings about a problem/ concern/issue/study on hand and learn from past wisdom about the dynamics of a phenomenon. Several variables operate and function in reality of a phenomenon, an activity, a program or an initiative. These variables influence the phenomenon in diverse permutations and combinations. They would severally or in unison contribute to the efficiency and effectiveness of the phenomenon. Technology Assisted Learning Programme (TALP) is one such initiative, contrived by the Education Department to facilitate fast, efficient, effective and guaranteed learning in high schools and PU Colleges, specifically, and in the education sector in general.

The whole world, India, Karnataka State and society in general is moving fast towards a technological world. This movement was triggered since the 1950s with the onset and growth of Space Technology. Contribution of India to space technology has been immense and pioneering. Spectroscopy, Spectral analysis is a development of the early 20<sup>th</sup> century [Sir C V Raman got Nobel Prize for his work in 1930]. Applications of spectroscopy led to development of Space Technology. Applications of Space Technology in daily life led to the design of Computers, TV, Projectors, Radio photography, Air Transport/Radar, Mobiles,

Smart Phones, Robots and innumerable developments in this direction. In effect the whole global life began moving towards a **'DIGITAL SOCIETY'**.<sup>1</sup>

Applications for Computers, Computer skills, Computer knowledge have spread across Industry, Business, Trade, Commerce, Transport, Finance, Insurance, and Management, and in all areas of economic, political, social, environmental, cultural life. It is a matter of time that this technological world would spread to rural/tribal/remote/hilly corners of the world and the common man on the streets will be **'COMPUTER LITERATE'**.

The youth of this country, our students, assets of India's future need to acquire computer skills and skills of managing life through the use of computers. **TALP is a first**

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<sup>1</sup> See Alvin Toffler: (a) The Third Wave, 1981; (b) Power Shift, 1991.

**step in this direction.** Variants of TALP have been introduced in School systems since the 1990s<sup>2</sup>.

TALP has been introduced in Government schools systems of Karnataka State since 2016. It is yet to be systematized in all respects. However, there are a number of contexts, places and school systems where variants of TALP have been in place. A large number of studies have been completed on the dynamics of efficiency, effectiveness and success as well as on constraints, problems and limitations of Computer Education in schools. They throw light on the Computer Education phenomenon. TALP needs to profit from a review of literature and studies in the area of computer education in schools.

A brief attempt to review these studies, selected/significant studies that have bearing on variables in the successful implementation of TALP has been made.

Significance of variables identified in the ToR, gaps in understanding concerns/issues/problems of implementation of TALP in Karnataka State is the focus of this review.

Distinctiveness of the present study sponsored by the KEA in the context of studies already completed on computer education is highlighted.

## **2.2 International Studies related to TALP**

1. **Apriani, Eka et.al (2021)** e-Learning implementation was studied using perspectives from 50 lecturers across subjects. Most of the lecturers gave a positive feedback as per a qualitative analysis. Time management during training, problems in electricity/internet connectivity was reported.
2. **Hadiyanto et.al (2021)** On-line learning implementation at university of Jambi, Indonesia during Covid-19 pandemic times was studied using 441 students and through survey money technique. Results revealed that on-line learning was useful, it was not a good substitute for regular, off-line classroom learning.
3. **Esfijani, Azam & Zamani, Bibi (2020)** ICT integration status in 180 secondary schools of Isfahan province, Iran, revealed that hardware facilities were good while desirable software was not available. In spite of training, teachers were not comfortable in software usage.

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<sup>2</sup> Everett Murdock: "History, the History of Computers and the History of Computers in Education; Amazon Books, 2007.

4. **Singhavi, Chandan & Basargekar, P (2020)** The present study tries to identify the factors like access to ICT, ICT material etc. affecting the perceived proficiency of teachers related to using ICT. The perceived proficiency is affected by number of factors such as school culture, school leadership, access to ICT resources, availability of digital content as well as support received from colleagues and the administration. These factors also impact the perception about ICT as an effective tool of teaching learning activity
5. **Surahman, E et. al (2020)** Technological, pedagogical content knowledge (TPACK) among 24 high school teachers was studied in South Garut province, Indonesia through survey research. Results showed that their content knowledge was good while they faced problems in designing soft content and assessing students.
6. **Zhang, Si, et. al (2019)** studied contextual influences on TPACK among 81 school teachers in Malaysia, who were both young and elderly. Results revealed that elderly teachers were better in pedagogical and technological knowledge than younger teachers.
7. **Ocak, C and Baran, E (2019)** adopted in-depth video based research to study TPACK among 04 teachers teaching science at primary and secondary levels. Teachers were discovered to be good in technology selection, content design, methods of teaching and assessments of students.
8. **Razak et. al (2018)** studied ICT integration in Malaysian schools (020 using in-depth and qualitative methods. Findings revealed that type of ICT tools, schools discipline (collaborative teaching) and balanced work distribution were factors of good ICT integration.
9. **Homaki, L and Lakkala, M (2018)** adopted innovative Digital school Model (IDSM) to study implementation of digital teaching transactions in 03 schools of Indonesia. School leadership was discovered to be the main contributory factor in success of digital education.
10. **Ekberg, Sir and Gao, Shang (2018)** studied challenges of ICT usage in 04 secondary schools of Sweden. 04 teachers teaching different subjects were subjected to in-depth study. Preparation for ICT classes, need for training in use of ICT resources were discovered to be the main challenges.
11. **Francis, James (2017)** studied the effect of technology assisted learning on student motivation and attentiveness in classroom, at the University of New England. 348

students of a charter school served as sample in a survey type of study. Results showed high level of motivation and inclusiveness thereon due to technology assisted learning.

12. **Al-Hariri MT, Al-Hattami AA (2017)**. Conducted a study on 231 physiology 2<sup>nd</sup> year course students of 05 health colleges at university of Dammam, Saudi Arabia, to examine use of technology for teaching – learning and its impact on learning achievements. Result revealed better academic performance among students who used electronic gadgets for learning.
13. **Nuan Luo, Mingli Zhang, Dan Qi, (2017)** examined the effects of technology assisted group learning and activities on cohesive behaviour of 643 students using a social exchange theory model and discovered positive results.
14. **Jihyun Lee, and Hyoseon Choi (2017)** examined factors of higher order thinking among 487 undergraduates in South Korea in the context of Technology Enhanced Learning (TEL) environments. Positive results were observed across heavy use of technology for learning and higher order thinking.
15. **Cynthia Lee et. al (2017)** examined relationship between self- directed learning (SDL) and use of computers for learning English language among 404 students of 02 universities in Hong Kong. Desire for learning, self-control and self-management were positively associated with language learning through computers while anxiety levels were negatively associated. Age and sex did not moderate the results.
16. **Nocar David et. al (2017)** studied the effectiveness of ICT in mathematic technique among 110 primary school teachers of China and Republic of Czechoslovakia. Teacher attitudes and competencies appreciated with use of ICT in teaching.
17. **Nocar David and Bartek, K (2017)** conducted a questionnaire survey among 42 lower secondary – 6<sup>th</sup> to 9<sup>th</sup> standards- pupils and mathematics teachers of Brno City in Czech Republic to examine the relevance of software tools in learning mathematical concepts video-analysis of classes was also done. Results were positive and were used for teacher training purposes.
18. **Harris, Jennifer et.al (2016)** Completed a study of academic achievements of 4<sup>th</sup> grade students among 25 students exposed to 1:1 technology [which means every student will have access to one or the other electronic gadget for learning school subjects] and 22 students exposed to traditional teaching. One is to one teaching strategy proved to be highly effective.

19. **Ghavifekr, S. & Rosdy, W.A.W. (2015)** examined factors of effectiveness of ICT integration practices among 110 teachers of 10 public secondary schools of Kuala Lumpur, Malaysia. Teacher training programmes and teacher competence in use of ICT tools were revealed as effective factors.
20. **Guzey, S.S and Roaching, G.H (2009)** studied the integration of TPACK in Science teaching in 04 Teacher Training institutions along with its application in K-12 classroom context. There was wide variation among teachers in integration patterns.
21. **Theiman, G.Y (2008)** examined the capacity of Pre-service teacher trainees in use of technology driven pedagogy with K-12 students while they were expected to develop 21<sup>st</sup> century citizenship skills. The study was done on 223 elementary and secondary teacher trainees of Portland State University. This was a longitudinal study spread over a five year period. The study discovered that 85 per cent teacher trainees could successfully achieve the desired integration on as expected by the National Educational Technology Standards for teachers (200 AD) and for, students (2007).
22. **Tondeur, Jo et.al (2007)** examined the ICT curricula and its use in Flanders – Flemish region of Belgium. A survey of 570 teachers from 53 primary schools showed that teachers mostly concentrated on development of ICT usage skills among students leaving out their integration with school subjects.

### 2.3 Indian Studies related to TALP

- 1 **Vaishali, B and Kavitha Oza (2021)** conducted a survey in 26 schools -15 primary and 11 secondary of Kolhapura district/Maharashtra focusing on infrastructure and impact of ICT in school education. Findings revealed that teachers had inadequate training, only 40 percent schools had internet facility and teachers depended heavily on SMART phones.
- 2 **Abhinandan, K (2020)** did a survey to get feedback from 63 teachers and 203 graduate and post graduate students of Dakshina Kannada and Udupi districts of Karnataka on On-line classes during pandemic times. Negative feedback was received about on-line classes. Lack of basic digital infrastructure in the colleges was the chief reason for this negativity.
- 3 **Arnab Kundu (2018)** examined perceptions and willingness of 175 primary and secondary teachers of west Bengal about use of technology for Classroom teaching. Teacher who perceived themselves as facilitators of students' learning revealed apposite

attitude while teachers who considered themselves as experts or authorities revealed negative attitudes towards ET.

- 4 **Kaushalesh Lall and Shampa Paul (2015)** examined the adoption of NET, New Educational Technology among 54 students of universities in Delhi. Adoption of ET was observed to be less among non-technical courses students and government college students. e-infrastructure non-availability and non-availability of content software were the problems reported by non-adopter.
- 5 **Gurumurthy, Kashinathan (2010)** examined the adoption of ICT by teachers of Kerala, Karnataka (Mahithi Sindhu) and many other States of India. Results revealed that 13 States of India had adopted the BOOT (Build, Own, Operate and Transfer) model in Collaboration with NGOs to adopt ICT in schools. Study in Karnataka was 35 schools of 07 districts.

## 2.4 Insights from the reviews

- It was evident from quite a good number of studies that teachers mainly focus on the development of technical ICT skills, whereas the ICT curriculum centres on the integrated use of ICT within the learning and teaching process.
- A few studies explored that the new education technologies use is found to be more prevalent in self-financed colleges and universities than the government aided ones. The major impediments namely; insufficiency of e-class infrastructure and unreliability of new technologies emerged significant in differentiating students based on their level of new education technologies use in the present.
- Quite a good number of Studies expressed by most of the teachers; lecturers had positive perspective about e-learning training because this e-learning training could assist them in teaching effectively.
- Quite a few studies have highlighted the countries like India, in which governments are facing numerous challenges to identify efficient ways to use their scarce resources and elderly culture to raise the quality of education in a tech-savvy environment.
- Majority of studies have been positive and supporting evidences on the value of ICT in school education and at different levels of education in the present pandemic period.
- Most of the studies related to ICT enabled teaching learning highlighted the positive impact in reaching out the learners through various online and offline ICT tools.



- Quite a good number of studies expresses ICT cannot replace teachers but a balance between ICT use and its integration with traditional teaching is needed.

## **2.5 Distinctiveness of the Present Study**

After a review of studies, it is explicitly clear that comparisons between all the 24 studies that have been reviewed here (and many more that are not included) and the present study will be odd and meaningless. All the studies reviewed have touched upon the relationship of a few variables and Computer Education in classroom in classrooms/school/college education. They are piecemeal and narrow in foci, even while such studies are also valuable as they shed light on certain components/aspects/variables of reality.

The present study is unique, significant and distinctive in the following respects:

- It is a comprehensive study that is spread across a large spectrum of computer education in school/PU College Education.
- It captures diverse perspectives of the same reality concerning computer education in schools/PU Colleges. All the primary stakeholders are included in this study – the students, teachers, Head teachers, parents and educational officers.
- A study of the programme of Educational Satellite, EDUSAT, for schools is integral to this study.
- Inputs – Infrastructure facilities, Process (Teaching – Learning process) and outcomes (enrolments, retention, transition, learning outcomes) framework is used for the study.
- The study is not confined only to primary data. State level, macro, secondary data analysis has also been done of the progress and performance of a very important policy initiative – TALP.
- The study has used variety of tools: Questionnaires, Interview Schedules – FDI and IDI, Rating Scales, Checklists and Case Studies apart from documentary analysis.
- The analysis is both quantitative and qualitative. Percentage analysis of received data in the context of theory of computer education is qualitative. Ranking of districts on TALP performance will be quantitative. Review of quality of e-content is both qualitative and quantitative.

In sum, it is a mega effort for '**formative evaluation**' of an important policy initiative involving large samples – 800 institutions, 8000 students, 3250 teachers, 1300 parents and as well as educational officers at various levels.

Results of this study will be subject to multiple quality checks – both internal and external.

Hence, from all these angles of vision, this study is unique, significant, distinctive and stand alone in the universe of computer education literature.

## **3. EVALUATION OBJECTIVES AND METHODOLOGY**

### **3.1 EVALUATION FRAMEWORK**

The framework includes in its fold several components of Technically Assisted Learning Programmes (TALP) in school education (Elementary/ High/ Higher Secondary) in the State. It has a special focus on IT @ Schools component which is at the High School- 8<sup>th</sup>, 9<sup>th</sup>, 10<sup>th</sup> stage.

TALP is a 5-year programme which has completed four years - 2016-17, 2017-18, 2018-19 and 2019-20. It is running the fifth year- 2020-21. Broad contours of the TALP framework of evaluation, a formative/ concurrent exercise, are as follows:

- Capacity building of teachers/ lecturers/ Head teachers/ Principals/ DIET faculty/ officers- Training Component
- Content development for schools/ colleges.
- E-connectivity through BSNL/ CeG
- Supply of hardware to government schools/ colleges.
- Operations and management support.
- Web-based software support for U-DISE, SATS (KSQAAC) and MIS for schools/colleges.

### **3.2 TALP PROGRAMME OBJECTIVES**

**The main objectives of the TALP programme are:**

- Ensure Digital Literacy for all students of Classes 8 to 12 in Government schools and colleges as per NCERT curriculum for ICT in education (Year 1);
- Complement normal classroom teaching with ICT enabled teaching and learning in all subjects
  - a) Use technology and e-content for improving teaching pedagogy in classes 1 to 7.
  - b) Use technology and e-content for improving teaching pedagogy as well as for enhancing learning outcomes through hands on practice of e-content by students in classes 8 and above.
- Build teachers' capacity for their role of drivers of the project at school and college levels as per NCERT curriculum for teachers.
- Track students' learning achievements including that in ICT enabled learning
- Enhance learning achievements including that in ICT enabled learning

- Enhance learning achievements by way of improving mean score of high school students by 5 percentage in SSLC examination
- Establish school/ college management information system

### **3.3 EVALUATION, SCOPE AND PURPOSE**

Purpose of this concurrent or formative evaluation is to focus TALP under the ‘lens’ of ‘Learning Objectives’. The desiderata of the TALP programme is to facilitate smooth, fast, efficient and effective learning of the curriculum prescribed for school/ college (PUC) education through the use of Digital Learning Resources which are both in pre-loaded and open source access formats. Upscaling of TALP to higher levels of efficiency and wider networks is the purpose of this pedagogical and technical evaluation.

#### **3.3.1 Scope of Evaluation:**

The period of coverage is 2016-17 to 2019-20 wherein 2016-17 to 2018-19 periods, 3 years activities / programmes a post-facto exercise is while the year 2019-20 gets focus as a concurrent evaluation exercise. The components and programme activities of the TALP programme during this period has been integral to this evaluation.

Meetings by the evaluation team were held at DSERT on 04<sup>th</sup> January, 2020 and at SSA on 5<sup>th</sup> January, 2020 to get an update of the completed components/ activities/ programmes under TALP from 2016-17 onwards. KEA was apprised of the DSERT meeting on 08.01.2020. As a follow up, Pan India Network had a second meeting with DSERT on 20.01.2020. Following the discussions and appraisal at the meetings the scope of evaluation is outlined as follows.

#### **A. Induction Training**

Induction I training is completed for High School teachers at the rate of 6 teachers per school and PU college lecturers (partial coverage). Induction II and III training for School IT Coordinators and DIET faculty are still in the pipeline. Hence, evaluation will be for teachers/ lecturers (sample) who have undergone Induction I training. It is only for Government Schools. Mentors in schools/colleges will be included.

#### **B. Computer Education Syllabus**

Syllabus in Computer Education as per NCF- 2005 is in place only for 8<sup>th</sup> standard students. Web links on subject content for 9<sup>th</sup> and 10<sup>th</sup> (apart from 8<sup>th</sup> as an additionality), 11<sup>th</sup> and 12<sup>th</sup> are given access to open source software in school/college subjects. Hence evaluation has been for implementation of teaching- learning transactions as per computer

education syllabus (and learning beyond syllabus) for 8<sup>th</sup>–10<sup>th</sup> standard and for utilization of online open source materials for learning of school/college subjects at higher standards (9<sup>th</sup> to 12<sup>th</sup>).

### **C. E-Content Development:**

E-Content has not been developed under TALP. There is e-content consolidation and integration from a variety of sources. This is customized/ localized to High School syllabus as of NCF, 2010 framework. Some of the sources are Khan Academy, OLABS, KOER. Details of sources are given in Annexure 1. Efficacy (appropriateness, relevance, suitability, technical facilitation, language friendliness, comprehensiveness in coverage, quality of integration- perfection in matching- has been reviewed in e-content review workshop involving technical personnel, subject experts and educational technology experts. Syllabus or NCF 2010 Karnataka in various subjects of high schools/ PU colleges will be the foci of the review.

### **D. Hardware in TALP: Use and Maintenance:**

Pre-loaded laptops are given to all schools. Number of laptops vary with size of schools, in 3 ranges. AMC for the computer labs are entered into by DSERT with service providers for attending to school specific problems. Utilization of laptops for learning, by students, teachers' involvement therein, maintenance concerns has been studied.

Laptops are also given to PU lecturers. Utilization of laptops for learning- teaching transactions has also been studied.

### **E. EDUSAT**

Programme managed by DSERT is for standards 4<sup>th</sup> – 8<sup>th</sup> with assistance of CeG. It is operated in 5 districts of the state. EDUSAT programme will be studied in this evaluation.

### **F. SATS**

SATS is being managed by KSQAAC. Schools, DIETs, DDPIs, DSERT and KSQAAC will fall under the scope of the study.

### **G. MIS**

MIS practiced in schools/ PU colleges will be included in the study.

### **3.3.2 Input- Process- Output Framework**

'Systems Analysis' employs Input-process-Output-outcomes framework for evaluation of educational programs/ projects. (See James N. Johnston: "Indicators of Education Systems", published by UNESCO, Paris, November 1981). Application of this framework to TALP programme will be in the following design.

THE PRESENT	INPUTS	PROCESSES	OUTPUTS	FUTURE
<b>A. IT @ SCHOOLS/ PUCs</b>				OUTCOMES
<p>2020 C) India</p> <p style="text-align: center;">↓</p> <p>Existing Society</p> <p style="text-align: center;">↓</p> <p>Traditional, 26% Internet users</p>	<ul style="list-style-type: none"> <li>• Training of Teachers- schools and colleges.</li> <li>• E-content, web links customized to schools/ colleges.</li> <li>• Pre-loaded laptops/ projectors/ UPS.</li> <li>• E-connectivity</li> <li>• AMC for computer lab maintenance</li> <li>• Monitoring and Support by officers at various levels.</li> </ul>	<ul style="list-style-type: none"> <li>• Teachers use their IT skills from Induction Training 1 to guide students to learn after developing basic skills of e-learning in them.</li> <li>• Students help each other with learning</li> <li>• Students use skills of using pre-loaded laptops, surf for information in websites, edit, and share, retrieve e-content.</li> <li>• BSNL ensures e-connectivity</li> <li>• DSERT ensures maintenance problems are solved.</li> <li>• Officers engage in M&amp;S of computer labs in schools/ colleges.</li> </ul>	<ul style="list-style-type: none"> <li>• Students have acquired basic e-skills (IT skills).</li> <li>• Teachers are competent to guide them.</li> <li>• Achievement levels-learning pace increased.</li> <li>• Excellence in achieving progress.</li> <li>• Slow learner's quantity decreases.</li> <li>• Satisfaction levels, zeal of students appreciates.</li> <li>• No connectivity problem</li> <li>• No hardware problem</li> <li>• Officers e-skills increase</li> </ul>	<p style="text-align: center;">2030 c)</p> <p style="text-align: center;">India</p> <p style="text-align: center;">↓</p> <p style="text-align: center;">Digital Society</p> <p style="text-align: center;">↓</p> <p style="text-align: center;">80% Internet users, strong economy, peaceful society</p>

Cont....

<b>B. EDUSAT</b>		
<ul style="list-style-type: none"> <li>• TV lessons from DSERT</li> <li>• Hardware to schools (elementary)</li> <li>• Tele-connectivity</li> </ul>	<ul style="list-style-type: none"> <li>• Teachers prepare students to learn EDUSAT lessons</li> </ul>	<p>Students' performance in examinations improve.</p> <ul style="list-style-type: none"> <li>• Teachers review learning of EDUSAT lessons with regular classroom syllabus lessons</li> </ul>
<b>C. SATS</b>		
<ul style="list-style-type: none"> <li>• Achievement testing by KSQAAC.</li> <li>• Training of HTs/ Principals/ DIETs for analytical skills</li> </ul>	<ul style="list-style-type: none"> <li>• HT organizes SATS testing at schools</li> <li>• HTs or teachers process the SATS basic results of the school. Sex wise, social category wise, subject wise, standard wise analysis is made by them to use it for remediation.</li> <li>• DIETs engage in sub district- cluster/block analyses of SATS data and use it for remediation guidance.</li> </ul>	<ul style="list-style-type: none"> <li>• Remediation is facilitated.</li> </ul>
<b>D. MIS</b>		
<ul style="list-style-type: none"> <li>• Training of HTs</li> <li>• Hardware to schools</li> </ul>	<ul style="list-style-type: none"> <li>• Schools/ colleges have MIS skills to engage in e-governance, record school management, intra-school communication, inter-departmental communication. Schools maintain attendance students/ teachers, other records.</li> </ul>	<ul style="list-style-type: none"> <li>• School/ college administration gets smarter, faster and more efficient.</li> </ul>

Note: CAL (Computer Assisted Learning) in CALC (Computer Assisted Learning Centres), one form/ mode of ICT, in Elementary Schools, was discontinued in 2014 by SSA.

### **3.4 STAKEHOLDERS UNDER TALP**

There are 2 types of stakeholders under TALP

- A. Primary stakeholders
- B. Supportive (Secondary) stakeholders

#### **3.4.1 Primary stakeholders:**

- Parents of Students of high school-8th/9th/10th standards, EDUSAT as well as PUC-11th/12th standards are primary stakeholders. They are the end beneficiaries of TALP
- Teachers in schools/lecturers in colleges are also primary stakeholders. They are at the grassroots of implementation-first level of mediatory functionaries of TALP
- Head teachers/ Principals are primary stakeholders No.3. They are in charge of governance of TALP at the ground level including SATS, MIS and EDUSAT
- DIETS are primary stakeholders. They are in charge of organization and conduct of training programmes- Induction I (completed), II and III and Refresher Training. They are also the M & S functionaries of TALP in the districts. They visit schools for M& S and send reports upwards.
- DSERT is the chief agency, as a primary stakeholder, of planning, programming and implementation of TALP in the state. Likewise, PU Board is also in charge of TALP in PU Colleges

#### **3.4.2 Other Stakeholders and their Interactive Relationships**

##### **1. Central Institute of Educational Technology- CIET/NCERT/MHRD**

CIET is responsible for training of teachers/lecturers/IT Coordinators- school/district. Induction 1, 2, 3 content is developed by CIET as per CIET/ National Curriculum for Teacher Educators. MRPs/ SRPs of DoE/ PU Board given training, Induction 1, for 10 days. Mentors are given 2-day online Refresher Course beyond Induction 1 training. Alternatively, 5 days face to face training plus 20 assignments is also given by CIET. DIET faculty are also trained using same models. MOODLE (Modular Object-Oriented Dynamic Learning Environment) platform is used for evaluation of assignments- customized for schools/ colleges. MOODLE is needed for Certification of teachers on their training. A cloud-based portal/ alternative to MOODLE, developed by CIET is also used.

Even DIET/DSERT faculty apart from Subject Teachers, Tele-Education (Govt. High School) teachers are also trained. SRP training of 11 days is completed (as RIE Bhopal) who in turn train MRPS as DSERT and Bangalore Rural DIET.



Feedback from teachers, MRPS, SRPS, Mentors, DIET/DSERT faculty as reflectors in classroom contexts will be of value to CIET/DSERT/DIETs.

## **2. PMCU (Programme Management Consultancy Unit/TALP Project)**

PMCU collaborates with DSERT on all aspects of TALP implementation. PMCU also assists in online tracking of impact of training in classroom contexts. Formats developed herein are used by DIETs (Google forms are used as formats). Assignments submitted by teachers (online) are completed after school hours through interactive sessions. NISH Hyderabad assisted DSERT in setting up PMCU.

Feedback will help DIETs, MRPs, PMCU/ TALP in better Programme Management.

## **3. Major/Chief Stakeholders- DSERT/DIETs/DoE/RMSA/SSA/ED**

DSERT is the academic power house of the Education Department (School Education). It is responsible for the planning and management of TALP activities. It is supported in this work by SSA at Elementary level and by RMSA at High School level. Through the SSA/RMSA, it submits and gets approval of the MHRD for annual plans of TALP. 30 DIETs of the State with jurisdiction for 34 educational districts are the wings of the DSERT for TALP. DIETs are responsible for implementation, guidance and monitoring of TALP. Together, they will all benefit from evaluation and feedback of the TALP programme.

DSERT is also the nodal agency for Infrastructure Provisions, compilation and integration of Digital Learning Resources (DLR) and supply to schools (through DIETs), Organization of Need Analysis Workshops, e-resource mapping and development (for English/Social Studies), for development and distribution of e-question banks.

## **4. PU Board**

The PU Board is responsible for implementation of TALP in PU colleges- XI and XII standards. All over the advanced world and in several States of India (E.g.: Tamil Nadu), XI and XII standards part of school education. They constitute the senior secondary stage in a school structure of 5+3+2+2, 5 years of lower primary, 3 years of higher primary, 2 years of Junior Secondary and final 2 years of Senior Secondary. However due to historical reasons, +2 Senior Secondary is treated at Pre-University/College course.

TALP at +2 stage is implemented by the PU Board, Lecturers/ College IT Coordinator/ District IT Coordinator are given Level 1/2/3 training for the purpose. Pre-

loaded cassettes are supplied to colleges. Students are facilitated to use them under CAI, Computer Assisted Instruction.

Feedback from classroom contexts would help PU Board in better management of TALP.

## **5. BSNL**

BSNL provides fiber optic data connectivity (FTTH) as 2G connectivity through 'Towers' will not be effective in remote rural areas, BSNL/FTTH gives Broadband Connection under a monthly plan, with 8 MBPS speed.

Feedback on connectivity and computer lab functioning will help BSNL for mid-course corrections.

## **6. Centre for E-Governance**

CeG set up in 2005 as a part of the National E-Governance Initiative works with State Data Centre (SDC) set up in 2005-2006 for e-governance in the State. The SDC provides connectivity to schools through Taluk PoP (Point of Presence) links and use KSWAN (Karnataka State Wide Area Network) for the purpose. SDC will have tie-ups with BSNL for better connectivity.

Feedback from schools will have corrective implications.

With the support of SDC/NIC (National Information Centre), the Education Department is managing SATS- Students Achievement Tracking System (managed by KSQAAC- Karnataka State Quality Accreditation and Assessment surveys) and MIS (Management Information System) of schools. One minor example of MIS is information management of MDM- Mid Day Meal attendance in schools.

## **7. SSA/RMSA: Sarva Siksha Abhiyan**

CALC programme in elementary schools is implemented by SSA in collaboration with DSERT/DIETs. Feedback on CALC will benefit SSA.

## **8. District Review Committee/ CEO of ZP:**

The CEO/ZP as a part of District review of development, a routine maintenance exercise, reviews problems of implementation of TALP. DDPI of the district, DDPU, DIET Principal, DIO/NIC, will be present at the meeting.

### **9. PMU: Programme Management Unit**

DDPI/SADPI will review implementation of TALP in the district and send periodical reports to Director, DSERT.

### **10. Steering Committee**

Headed by SPD- Sarva Siksha Abhiyan- SSAA/RMSA, review TALP periodically and resolves inter-agency issues.

### **11. Empowered Committee**

Chaired by ACS conducts. TALP meeting regularly, provide approvals for new initiatives, mid-course corrections, budget reallocations as well as guidance for resolution of problems of implementation.

**12.** There are a few NGOs who are also stakeholders in TALP programme. Infosys Foundation, APF, Amrita Vidyapeetham, Kerala, IBM Bengaluru are connected to TALP programme.

**13.** Most significant/ primary stakeholders are the standards/schools (parents). Evaluation study of TALP and recommendations flowing out from the findings of the study will eventually benefit these stakeholders.

## **3.5. EVALUATION QUESTIONS AND SUB-QUESTIONS**

Note: These questions are from the ToR. They are redefined by building specific questions in the Evaluation Matrix.

### **3.5.1 RELATED TO THE TALP PROGRAMME**

1. Critically review the progress achieved in terms of:
  - a) Budget allocation
  - b) Expenditure
  - c) Coverage of schools and PUCs and beneficiaries over the time period based on secondary data.
2. Flow of funds – adequacy- regularity and mode of transfer
3. Performance and attainment of objectives of the TALP programme across the State. Critically examine the processes (in various stages) and their effectiveness in the actual implementation of the TALP programme. Examine them across the divisions. Districts/Rural and Urban areas.

4. To analyze the supply of IT infrastructure and its operational status as well as utilization of funds in terms of purchase of contingency and other materials and bring out its impact on implementation and output delivery across different regions.

### **3.5.2 IMPLEMENTAION OF THE TALP PROGRAMME**

1. Examine the functioning and efficiency of monitoring mechanism under the TALP programme at various levels.
2. Examine the following TALP programme process from the point of adequacy, regularity, quality and reinforcements

#### **a) Teacher Training- at the completed level/ levels**

Teacher Training: Selection of teachers- knowledge, access, willingness of teachers

1. E-content created by the trained teachers for delivery of lessons through ICT.
2. Contribution of the trained teachers to the central E-Content repository
3. Involvement in conducting ICT curriculum to students

#### **b) E-Content**

1. E-content availability and utilization (pre-loaded e-content on the school laptop)
2. Readiness assessment of students for ICT curriculum.
3. Involvement of other teachers (not trained under TALP) in ICT based teaching.

#### **c) IT Infrastructure**

1. Availability and utilization of laptop, projector and internet (internet dongle- SIM based)
2. Availability and utilization of all-in-one systems in the school computer lab.
3. Availability and utilization of EDUSAT equipment (wherever applicable)

#### **d) Internet Connectivity**

1. Availability and utilization of broadband internet connection in the school computer lab.

#### **e) Maintenance**

1. Up-time and down-time of all the IT infrastructure.
2. Up-time and down-time of EDUSAT equipment (wherever applicable).
3. Up-time and down-time of broadband internet connection in the school computer lab.

4. Formation of ET Cell at the school and its functions as per the guidelines provided to the schools.
5. Availability and updating of all Asset Management registers as per the guidelines provided to the schools.
6. Identification and disposal process of e-waste as per the guidelines provided to the schools.

**f) SATS and MIS**

1. Availability and live updating of desired data on the dashboard
2. Users of the software applications required for Academic and Administrative purposes.
3. Daily attendance capture of students
4. Daily attendance capture of teachers
5. Updating the data as required by the applications on desired periodicity.

**3.5.3 IMPACT OF THE PROGRAMME**

1. Analyze the impact on teaching activity, in the school in terms of time spent by the teachers HM during school hours on attending TALP Teacher Training programmes across regions and gender.
2. Assess the quality of e-content. What is its impact on interactive learning process?
3. Assess the quality of EDUSAT content and its impact on the teaching learning process.
4. Examine the change in teaching methods and approach to children before and after TALP implementation.
5. Impact analysis of TALP programme on the academic performance of the students in schools at different levels of learning (Comparative analysis of students' average marks of the last 3 years (pre and post TALP implementation) across regions, social groups and gender. Compare the results with the control group.
6. Assess the impact on students at pre-University level. (Comparative analysis of students' average marks of the last 3 years (pre and post TALP implementation) across regions social groups and gender. Compare the results with the control group.
7. What has been the change in the following (analysis on both primary and secondary data) - Categories of students, gender and across the regions.
  - a. Enrolment at high schools
  - b. Attendance at high schools

- c. Transition rate- Government High School
  - d. Dropout rate at high school
8. Students' feedback on the TALP interventions in the schools:
- a. Frequency of ICT classes per week
  - b. ICT curriculum
  - c. Ratio of theory to practical sessions
  - d. Computer to student ratio in computer lab
  - e. Frequency of ICT based teaching/ learning for subjects per week (e-content)
  - f. Learning experience through e-content for subjects.
9. Assess the opinion of teachers regarding the programme. What is the change observed by them in their teaching skills and learning environment in the class room?

### **3.5.4 OTHER ISSUES**

1. Document the best practices in the implementation of the TALP programme at all levels.
2. Examine the School Audit reports of the TALP programme and their findings.
3. Make some case studies about TALP implementation at all levels-  
Cases where non-availability of Electricity, Broadband Internet, theft cases, teachers not trained under TALP, non-availability of IT infrastructure are reported/ not reported and action taken on these issues- resolved/ unresolved, time taken to address these issues.
4. Examine whether the SoP are followed strictly in the schools. Examine the duties discharged by the concerned officials as per SoP.
5. Give concrete suggestions for improvement of the TALP programme for enhancing the outcomes at various levels- teacher training, e-content, monitoring and other components of the programme.
6. Review the models adopted in other States and the possibilities of their application to Karnataka state.

### 3.6. INDICATORS (KPI)

Here are the key performance indicators for the Evaluation Study.

#### 3.6.1 IT @ SCHOOLS / PU COLLEGES COMPONENT:

##### **a. Students**

- Students learning achievement of students, percentages of marks in school subjects increases from 2016-17 as base year by 2018-19, as revealed from Marks Register.
- Proportion of students in attendance/ average attendance/ ranges from lower to higher ranges, increases; total in absenteeism decreases.
- Students can demonstrate the following competencies- switch on and off laptops systematically; surf on the laptops (icons) to locate needed (specified) information, websites, apps, can surf information, download, edit, transfer, share, retrieve, give print order or subjects related contents.
- Prepare PowerPoint presentations for assignments/ project work- individual/ group projects
- Work on excel sheets
- Can send, receive emails and have an email account.
- Type contents using soft key-board
- Develop a website of their own or for the school.
- Do animations or graphics
- Use internet for school subjects. Like this, students can demonstrate mastery of variety of IT skills. Checking will facilitate identification of degree of mastery which may vary across schools/ PU colleges.

##### **b. Teachers:**

- Give a positive feedback on the Induction 1 training received by them
- They successfully guide students in Computer Education syllabus specified skills as well as advanced skills.
- Teachers themselves possess these skills (as per their self-report).
- Students can learn school subjects from web-links provided to them, use laptops for completion of assignments or projects- teachers can correct and provide online feedback.
- Give special attention to slow-learners.

**c. HT/Principal:**

- Maintain admission, attendance, stock, school activities, SATS data, bank transactions and other registers online.
- Correspond with the departments online.

**d. Officers and DIET Faculty:**

- Engage in MIS exercises online.
- Use SATS data with graphical representation skills
- Give training to teachers on computer skills- feedback from teachers.

**3.6.2 EDUSAT**

- There is a timetable in schools for EDUSAT lessons and it is meticulously followed.
- ROT is functioning
- Lessons are taken according to schedule
- Teachers prepare students for EDUSAT lessons and review learning exercises through feedback from students
- Give special attention to slow-learners

**3.6.3 SATS**

- Schools maintain and display SATS data analysis - descriptive and graphical techniques (observations).
- Use SATS data for recommendation
- DIETS engage in sub-district analysis of SATS data- use it for guiding field staff (circulars).

**3.6.4 MIS**

- Registers/ records are available online (cross- checking)



### **3.7 Objectives of the Study**

Any large scale programme will have a large number and variety of interactive variables. Severally and in interactive relationships they contribute the efficiency, effectiveness and success of the programme. The dynamics of this interactive framework of action is REALITY. Objectives of an evaluation study will be rooted within this reality. This is true of TALP evaluation study also. Objectives of this evaluation study as mandated in the ToR of KEA/DoE are restated here.

- To Conduct the Sample Field Survey to obtain the vital information pertaining to the TALP to assess the approach towards planning, allocation and utilization of funds under TALP components.
- To analyze and report after comparison, the extent to which the Objectives of the TALP Programme supported and matched with the objectives of the centrally sponsored programmes (whether the right projects which conformed to the objectives actually supported).
- To assess if the TALP programme activities are in alignment to the effective implementation of the TALP components and in the direction of attaining programme objectives.
- To suggest corrective measures, if any, in the implementation process of the TALP components.
- To develop indicators (process, output, outcome and risks) so as to assess the effectiveness of the TALP programme at all stages; from planning to implementation; for use at different levels of administration viz., School, District and State.
- To document achievements and analyze to what extent the outputs/ outcomes (evidenced from objectively verifiable data) fulfill the objectives of the programme.
- To document the financial performance of the programme in relation to the approved cumulative budget outlays provided.
- To examine TALP implementation status through field survey and give a feedback for planning, allocation and utilization of funds on various TALP components.
- To examine integration of TALP with on-going Central sponsored programmes in education.
- To examine relevance of discrete TALP activities in the context of TALP programme objectives.

- To examine corrective measures needed for improving the efficiency of implementation of TALP.
- To develop indicators that facilitate assessment of the effectiveness of the TALP programme at various levels of management of TALP, in an Input-Process – output - outcome framework.
- to review the contribution of observed outputs to the fulfillment of programme objectives, and finally
- To examine financial performance in the light of approved cumulative budget for TALP.

This study will focus on all these objectives specified in the ToR.

### 3.8. LOG FRAME OR THEORY OF CHANGE

There are several models of designing an Inception Report. Models by World Bank, WHO, UNESCO and ILO are illustrations. The ILO model is followed in this IR.

Perspective: The ILO stipulates that the Inception report needs to envision a Conceptual Framework. This framework should be in the form of a Results Based Management (RBM). The theory of change in this framework should satisfy the following 5 criteria. These criteria need to be adhered to in designing/ formulating the conceptual framework, referred to as the ‘Log frame Theory of Change’.

#### **CRITERIA: Relevance, Efficiency, Effectiveness, Sustainability, Impact**

Indicators of these criteria in the Log Frame Theory are as follows:

<b>Relevance</b>	<ul style="list-style-type: none"> <li>• Teachers and students find the e-content suitable/ relevant for easy navigation (Connection, Comprehension, Content enrichment) for their syllabus-respective standards.</li> </ul>
	<ul style="list-style-type: none"> <li>• Using SATS data, schools have engaged in Remedial Teaching exercises.</li> </ul>
<b>Efficiency</b>	<ul style="list-style-type: none"> <li>• HTs/ Principals are competent to manage MIS documents/ records/ registers of schools/ colleges.</li> </ul>
	<ul style="list-style-type: none"> <li>• HTs of schools are competent to manage C-SATS of their schools.</li> </ul>
	<ul style="list-style-type: none"> <li>• Schools use EDUSAT facilities with timeslots allotted in the weekly time-table.</li> </ul>
	<ul style="list-style-type: none"> <li>• Schools have stored SATS results in computers/ laptops.</li> </ul>
	<ul style="list-style-type: none"> <li>• Using SATS data, schools have engaged in Remedial Teaching exercises.</li> </ul>

<b>Effectiveness</b>	<ul style="list-style-type: none"> <li>• Students have the capacity to learn school subjects using laptops, surf for information, navigate in DIKSHA software, download/ edit/ save/ transfer/ share/ print outsourced digital learning resource (DLR) from website links provided to them/available as open sources</li> </ul>
	<ul style="list-style-type: none"> <li>• PU students have capacity to use systems for accessing DLRs.</li> </ul>
	<ul style="list-style-type: none"> <li>• Using SATS data, schools have engaged in Remedial Teaching exercises.</li> </ul>
<b>Sustainability</b>	<ul style="list-style-type: none"> <li>• HTs of schools are competent to manage C-SATS of their schools.</li> </ul>
	<ul style="list-style-type: none"> <li>• PU lecturers are able to guide students to learn using computers/ laptops/ tablets.</li> </ul>
	<ul style="list-style-type: none"> <li>• Schools have stored SATS results in computers/ laptops</li> </ul>
	<ul style="list-style-type: none"> <li>• DIETs have done similar exercises for all schools in the district.</li> </ul>
	<ul style="list-style-type: none"> <li>• Using SATS data, schools have engaged in Remedial Teaching exercises.</li> </ul>
<b>Impact</b>	<ul style="list-style-type: none"> <li>• Students have the capacity to learn school subjects using laptops, surf for information, navigate in DIKSHA software, download/ edit/ save/ transfer/ share/ print outsourced digital learning resource (DLR) from website links provided to them/available as open sources</li> </ul>
	<ul style="list-style-type: none"> <li>• PU students have capacity to use systems for accessing DLRs.</li> </ul>
	<ul style="list-style-type: none"> <li>• Students are learning school subjects through integration of classroom learning with EDUSAT lessons.</li> </ul>
	<ul style="list-style-type: none"> <li>• Teachers have capacity to utilize EDUSAT for their teaching- learning transactions.</li> </ul>
	<ul style="list-style-type: none"> <li>• They can retrieve results of student/students/ class/ subject/ standard/ year, with proper commands.</li> </ul>
	<ul style="list-style-type: none"> <li>• Schools have analyzed SATS data- standard-wise, subject-wise and maintained tabular/ graphical representations of performance and progress.</li> </ul>

Notes: The analysis of responses from Questionnaire- to schools, colleges, teachers, students, under IT@Schools/ Colleges and EDUSAT programmes, as well as Training of teachers/ Lecturers programme has been engaged in using these 5 criteria.

**Following parameters are incorporated and integrated into a theory of change using the ILO criteria: relevance, efficiency, effectiveness, sustainability and Impact. They are identified under indicators**

### **3.9 TALP Programme Implementation Details:**

\* Computers were given to high schools in three batches: 11 Computers to 369 small size schools; 15 computers to 273 medium size schools and 21 computers to 358 large size schools. A total of 1000 schools were given desktops/laptops during 2016-17 to 2019-20. A total of 15945 computers were given by the DSERT/DoE including 273 systems to offices/DIETs. Again, 6330 systems were given in 2020-21. 15478 out of 15945 computers, 97 per cent issued during 2016-17 are reported to be functional. 467 dysfunctional laptops have not been replaced.

\* 3221 projectors are supplied during 2016-17 to 2020-21 to 3221 out of 3851 TALP schools. 630 TALP schools, 16.36 per cent, are managing TALP without projectors.

\* 242 out of 3221 TALP schools, 6.29 per cent, are given SMART Boards.

\* Laptops/Desktops/Tablets are pre-loaded with CDs/DVDs of lessons in school subjects. CDs/DVDs are not given separately.

\* Out of 3851 TALP schools of 2016-17, 131 schools (only 3.4 per cent), have Internet facility. Many others use Bluetooth.

\* During the years 2016-17 to 2020-21, DIETs/DSERT have trained, given Induction Training Level I in TALP, 37795 out of targeted 41715 teachers, 91 per cent of target. There are 1,45,711 high school teachers in the State across all subjects in 2019-20. TALP has initially covered Science, Mathematics, Social Studies and English.

If 80 per cent coverage of training of targeted teachers treated as 'Excellent, then it is observed that 32 out of 34 DIETs is 95 to 99 per cent target coverage category.

Capacity building data of teachers includes both Induction and Refresher Training. Induction Training facilitates TALP transaction of school subjects in classroom/computer lab contexts. Refresher Training facilitates to build a team of IT coordinators, Mentors who guide/help/monitor/other teachers.

### **3.10 EVALUATION METHODS AND TECHNIQUES**

**Documentary analysis, descriptive survey, observation, interviews/ FGDs/ IDIs, case studies will be used.**

#### **3.10.1 DOCUMENTARY ANALYSIS**

1. Data collected from DSERT, PU Board, Education Department (DIETs) schools/ PU colleges are subjected to secondary analysis/ documentary analysis
2. Relevance of e-content, pre-loaded laptop content has been examined at E-content Review Workshop using Face/ Content validity techniques (See Freeman: “Essentials of Psychological Testing). Syllabus and textbook constitute the BENCHMARK for examination of RELEVANCE of e-content.

#### **3.10.2 DATA FROM STUDENTS**

1. Schools/ PU colleges, teachers, lecturers, HTs/ Principals, officers, DIET faculty has been collected through questionnaires/ Interviews/FGDs/IDIs using Descriptive Surveys.
2. The questionnaire has been designed with objective questions in conformance with the specific questions addressed in the evaluation matrix. Findings and insights from other studies, review of literature/research studies were used as guides in drafting the questionnaires and hypotheses of the study.
3. Note: CAL, Computer Assisted Learning, is integral to TALP. Several questions of CAL are under TALP questionnaires.

It is noted/ recalled that there was a formal programme called ‘CAL’ in CALC- Computer Assisted Learning Centres. They were under ‘ICT Phases I/ II/ III’, titled in this way. It was in HPS, Higher Primary Schools of the State, standards 6th, 7th, 8th. (Some HPS were 1st to 8th standard schools). It has been discontinued since 2014. Hence, programme of CAL/ ICT under TALP is being studied.

#### **3.10.3 OBSERVATION**

Supervisors/ FIs used observation schedules to gather specified, observable data from schools/colleges.

#### **3.10.4 Scope of Evaluation:**

TALP initiatives from 2016-17 to 2020-21, a five year span including pandemic period constitute the scope of the study.

Diverse perspectives, angles of vision of TALP are captured within the scope of the study – Head Teachers, Teachers, Students, Parents, Education Officers at various levels are taken.

Government schools implementing TALP, Government schools not implementing TALP (control groups), Government PU Colleges implementing TALP plus other Government PU Colleges (Central group) without TALP schools implementing EDUSAT constitute the scope of the study.

As such, TALP in high schools – IT @ schools programme, TALP in PU Colleges, EDUSAT implementing institutions – 05 districts identified in ToR plus other districts which implemented EDUSAT during Pandemic times are within the scope of this study. In sum – (ToR specified 815 institutions) are covered in the study.

Analysis of both State level secondary data on TALP and field level primary data plus case studies constitute the scope of this study. State level analysis along with division-wise analysis and wherever essential, district-level analysis are within the scope of this study.

All the initiatives under TALP/EDUSAT – infrastructure provision, capacity building, M and S activities, SATS, MIS, quality of e-content, Teaching-learning processes, Assessment Practices, Concerns and issues of governance of TALP in schools/colleges, budget allocations/needs for TALP are within the scope of this study.

### **3.10.5 Stakeholders under TALP**

Students of high schools, PU Colleges, elementary schools, teachers/lecturers, HTs/Principals, DIETs/DSERT/DoE, CIET/NCERT/ MHRD, PMCU (Programme Management Consultancy Unit)/TALP, RMSA/ SSA (Samgra Siksha Abhiyan), PU Board, Department of Planning/KEA/GoK, BSNL, Centre for e-governance, GP/TP/ZP – EO/CEO, PMU/DSERT, Steering Committee/ED, Empowered Committee/ED/GoK, NGOs are the variety of stakeholders involved in TALP programme. Their interactive relationship with TALP has been covered in this study.

### **3.10.6 Data from Students**

Data from Schools/ PU colleges, teachers, lecturers, HTs/ Principals, officers, DIET faculty are collected through questionnaires/ Interviews/FGDs/IDIs using Descriptive Surveys.

The questionnaire has been designed with objective questions in conformance with the specific questions addressed in the evaluation matrix. Findings and insights from other studies, review of literature/research studies were used as guides in drafting the questionnaires and hypotheses of the study.

Note: CAL, Computer Assisted Learning, is integral to TALP. Several questions of CAL are under TALP questionnaires.

It is noted/ recalled that there was a formal programme called ‘CAL’ in CALC-Computer Assisted Learning Centres. They were under ‘ICT Phases I/ II/ III’, titled in this way. It was in HPS, Higher Primary Schools of the State, standards 6th, 7th, 8th. (Some HPS were 1st to 8th standard schools). It has been discontinued since 2014. Hence, programme of CAL/ ICT under TALP is being studied.

### 3.10.7 Case Studies

Case studies of Best practices, problem schools/colleges have been taken up in after preliminary draft analysis of fieldwork data.

**3.10.8 Sampling** (as per ToR): Detail sampling plan is given in Annexure 3. Here, only an outline is given, in Tabular form.

Table No. 3 : Outline of Sample size

[A] High School

Institutions	HTs	Teachers	Students	Control group Students	Parents
650	650	3250	6500	136	1300

[B] PU Colleges

Institutions	Principals	Lecturers	Students	Parents
150	150	450	1500	150

[C] Elementary Schools [EDUSAT]

Institutions	HTs	Teachers	Students	Parents
50	50	250	500	50

[D] EDUCATION OFFICERS: 70

### **3.11 HYPOTHESES FOR THE STUDY**

Note: Hypothesis of the study is arrived at on the basis of:

- Objectives of the TALP programme,
- Insights from review of research studies
- Hypotheses are reflected in the questions as well as specific questions in the evaluation matrix
- Related to log frame theory of change.
- Tools of the study and sampling design are integrated with the hypotheses for the study
- Hypotheses are stated in assertive/ positive formats. They are not in null format. Findings may confirm the hypotheses if data and analyses reveal so. Otherwise, they may get rejected

#### **3.11.1 HYPOTHESES (IT@SCHOOLS/COLLEGES)**

Chief hypotheses of the study are:

- **TALP e-content** is relevant to the objectives of TALP- It matches with the syllabus of computer education in schools (as of now 8<sup>th</sup> standard);
- This e content is comprehensive in the sense it covers the entire syllabus,
- E-content is easy to comprehend by all students, that is boys/girls, all social categories
- E-content facilitates smooth learning among slow learners
- E-content reinforces classroom teaching by subject teachers
- Language of e-content is easy to understand by the learners
- E-content increases the efficiency of learning with all these qualities/ characteristics, as felt by students.
- E-content will be sustainable in stabilizing learning among students.
- E-content will be effective and contributes to the impact of TALP as felt by teachers and reflected in grades obtained by students.

**Induction training 1** is relevant to the objectives of TALP, that is the syllabus matches with the competencies needed by teachers to manage IT@Schools (HS/HSC) as outlined in the National policy on ICT in school education, 2012 (MHRD). That is, after the training

- Teachers are satisfied with the induction training (as reflected in their feelings of computer operation skills they have developed) – sustainability
- Subject teachers own up TALP programme through their teaching-learning transaction, (efficiency)



- Teachers are familiar with open sources software, which is reflected in their guidance for students (efficiency)/(impact)

Schools selected for supply of TALP hardware satisfy eligibility norms, (efficiency in implementation), as reflected in the following parameters:

All the selected schools

- Have electricity connection
- Have steady supply of electricity
- Have broadband network facility
- Preloaded laptops are functional
- Schools are supplied with UPS (adequate as reported by HTs) are supplied with projectors
- Have AMC facility/ of DSERT
- M and S of TALP is running with regularity in visits to schools and feedback for follow up efficiency, sustainability, effectiveness
- M & S at school level is efficient as reflected in periodical supervision of HTs/Subject teachers/mentors

TALP has made an impact in the school learning environment as reflected in the following:

- Students show /reveal an average of 5 percent increase in (Marks) performance, average percentage marks;
- This is true of all subjects
- This is true of boys/girls/social categories, slow learners' incidence has come down (as reported by teachers)
- TALP has been effective in its implementation, as reflected in
  - Students give positive feedback on utility of preloaded laptops
  - Teachers report that their teaching style has changed (towards activity learning)

### **3.11.2 HYPOTHESES (EDUSAT)**

- Content of TV lessons matches with syllabus of schools' subjects (Relevance),
- Students have been attentive in classroom transactions (effectiveness),
- There are no problems in following EDUSAT time table with school time table (efficiency) learning/performance of students has improved in EDUSAT schools (Impact).
- Students remember classroom lessons better (as reported by students/teachers), sustainability.

### **3.12 DATA AND INFORMATION SOURCES**

- Primary data is collected from schools/colleges/various offices/ students/ teachers/ lecturers
- Induction Training 1 data, e-content, computer education syllabus, hardware supply, monitoring formats, AMC agreement, minutes of Steering Committee, Empowered Committee Meetings, EDUSAT programme has been collected from DIETs/DSERT/PU Board.
- Feedback on Induction Training has been collected from Teachers/Lecturers/Principals/ HTs/Officers.
- Feedback on end use of TALP trainings, e-content, functioning of pre-loaded/regular laptops, UPS, projectors, guidance from teachers has been collected from students.
- Data on utilization problems and performance of SATS programme has been collected from KSQAAC, DSERT, Schools, Colleges.
- Data on MIS use has been collected from schools/colleges/DIETs/DSERT/ Education Department and other offices; has also been collected through observation.
- Case studies data has been collected from selected schools/colleges.

#### **3.12.1 Method of Data Analysis:**

Analysis is both qualitative and quantitative. There is district-wise and division-wise analysis of data relating to all Evaluation Questions in the ToR and Evaluation Matrix specific questions. Evaluation has the following Components: -

#### **Activity Evaluation (Inputs):**

- Evaluation of IT at schools
  - Planning/Management/M & S/ Reviews / Feedback / Corrective Mechanism reporting
- Analysis of Variance is adopted to examine changes in enrolments, changes in academic performance.

#### **Process Evaluation:**

- In schools/colleges -ongoing programmes - Efficiency, Regularity, Equity in access, Involvement of students
- Project /assignments, Computer Skills; inclusiveness in skills; academic supervision

#### **Output Evaluation:**

- Students learning outcomes analysis
- Attendance/Dropout analysis

## 4. TALP Curriculum Materials

**1. CONTEXT:** ICT in school education has a global history of over six decades. ICT in India began in 1975-76 with the SITE programme. The National Policy on ICT in school education was adopted in 2012. TALP was launched in Karnataka in 2016-17 as a five year programme on a try-out basis, from 2016-17 to 2020-21. 2020-21 being a pandemic year, several instant initiatives were taken. This is not the place for a detailed review of all initiatives during and before TALP programme including pandemic year.

Content development for schools and PU Colleges is one of the (Six) objectives of TALP programme since 2016-17. Web-based soft-ware support for U-DISE, SATS and MIS for schools/colleges is another objective. These 2 objectives have relevance to this workshop.

### 2. Scope of this workshop:

[I] IT@Schools began under TALP in 2016-17; PU Colleges are also covered. NCF 2010 rolled out by the DSERT from classes 8 to 12 is treated as the reference for content development and review.

It is noted that till 2020-21, TALP did not develop its own e-content. TALP developed DLR-Digital Learning Resources. DLR is e-content consolidation and integration from a variety of open sources. They are customized to high school syllabus as per NCF-2010 syllabus. Illustrative sources are:

#### [A]

- (i). Khan Academy,
- (ii). STF-Subject Teachers' Forum materials devised under RMSA during 2012-13 for IX syllabus in core subjects-Science, Mathematics and Social Studies,
- (iii). OLABS-an app for online school laboratory experiments pioneered by Amritha VV, Kerala and CDAC, Mumbai
- (iv). OLABS from CREATE, Kerala (124 experiments)
- (v). CALC program/SSA
- (vi). Agasthya Foundation (Science Subjects only)
- (vii). BYJUs Classes,
- (viii). Allens
- (ix). Academic Earth

- (x). Code academy
- (xi). W3 schools
- (xii). K-12 curriculum and other sources, if any which is familiar to reviewers

**[ II ] Other content materials that are used under TALP are:**

- [B]** (i) EDUSAT lessons  
(ii) Tel.Ed lessons [CIET], Telesat Education project.

**[C]** Radio Lessons (Content)

**[D]** SATS and MIS software.

**[ III ]** During 2020-21, under the aegis of DSERT, Content materials were developed for TALP, on-line education. Details are as follows:

- Materials are available in
  - a. [www.ktbs.kar.nic.in](http://www.ktbs.kar.nic.in) and
  - b. [www.dsert.kar.nic.in](http://www.dsert.kar.nic.in)
- These materials are for self –learning and video-conferencing. Zoom/CISCO/Google Classrooms facilitate use of these materials.
- Video lessons are produced, curated and used under SAMVEDA programme. They are beamed/broadcasted from CHANDANA Television channel. These programmes are under JNANA DEEPA of DSERT. They can be received on YouTube of Smart phones/Laptops/on tablets/computers also.

SAMVEDA began on 17.08.2020. Weekly time table of lessons are published and publicized well in advance.

**Important Note:** Samveda is a supplement to VIDYAGAMA programme of the Department of Education [DoE/CPI].

Vidyagama is a **BLENDED LEARNING** programme of the DoE, for VI to IX standards and regular classes for I to V standards.

**Important note for Reviewers:**

SAMVEDA materials/Video lessons are integral to the scope of the workshop. However, they are to be accorded a lower priority as they are produced and used during 2020-21. Focus of this evaluation is primarily to content used during 2016-19 [2019-20 included]. Samveda initiative cannot be ignored. There is a need for an overview of Samveda video-lessons also.

### **Details of Samveda Lessons**

#### **[A]**

- 8<sup>th</sup> /9<sup>th</sup> /10<sup>th</sup> classes are addressed.
- Lessons are in both Kannada and English Media.
- All Subjects in syllabus are covered.
- 240 lessons each of half-an-hour duration for 8<sup>th</sup> and 9<sup>th</sup> as well as 320 lessons for 10<sup>th</sup> are covered.
- 3 core subjects are given 140 lessons each, while languages L1, L2, Sanskrit, Urdu, and Hindi are accorded 60 periods. Kannada is given 80 periods.
- Classes for 5 days a week for 20 weeks.
- In sum, there are 800 periods for Kannada Medium.
- There is a repeat time run for 5 weeks for Kannada Medium, all subjects together.
- English Medium classes are for 6 weeks, only for 10<sup>th</sup> Standard.

#### **B]**

- Radio programmes for 1 & 2 as well as 3 and 4 classes, “Naliyutha Kaliyona” are beamed through 13 stations of AIR, Prasar Bharathi and YouTube. ‘Makkala Vani’ programme covers this in Chandana for 1 to 10 classes. There is ‘Pariksha Vani’ for 10<sup>th</sup> also.

#### **C] VIDEO Lessons are prepared by**

- (i). SISLEP, Dharwad (Marathi Medium) for 1 to 10 standards;
- (ii). by CPI, Kalburgi for (Urdu Medium), for 4 to 10 standards and
- (iii). By CPI, Dharwad for lessons on PE, VE, Music, Fine Arts and Drama.

#### **For reviewers: In review, Priorities are:**

- (a). IT@Schools for high schools and PU Colleges
  - Integration of open Source software lessons by the DSERT
- (b). EDUSAT lessons
- (c). Radio Lessons
- (d). Video lessons of 2020-21
- (e). Open source software outside DSERT identified sources, as per perceptions of reviewers

#### **3) Objectives of the workshop**

- Content Analysis of DLR for IT@Schools/PU Colleges is the Chief objective of this workshop.

- Additional objectives include, review of EDUSAT lessons, brief review of Radio lessons, review of video lessons of 2020-21 and review of open sources for school learning.
- Efficacy (suitability) of SATS and MIS software for school/college needs is also under review.

**Note: DSERT will share integrated content outline/materials of DLR, SAMVEDA syllabus and video websites as well as other materials needed for review.**

#### **4) Parameters for review [IT@Schools /DLR]**

**[A]**

- a). Efficacy of content materials – suitability/appropriateness/relevance in the background of NCR 2010 syllabus.  
Statements for 8<sup>th</sup> /9<sup>th</sup> /10<sup>th</sup> /11<sup>th</sup>/12<sup>th</sup> are desired.
- b). Comprehensiveness in overage. Subject-wise topics covered vis-à-vis syllabus needs, standard-wise perceptions of reviewers, in ranges of coverage-< 60 percent, 60 to 69 percent, 70 to 79 percent, 80-89percent, 90 to 100 percent [5 ranges]
- c). Language friendliness-Simple, easily comprehensible, No winding sentences, correct grammatical usages, voice in videos is appealing, Intonation in voice is satisfactory. Audibility is clear.
- d). Quality of integration is good-between syllabus and DLR
  - Across open source softwares
  - Across DLR and syllabus
  - Standard wise statements are desired.

#### **[B] EDUSAT lessons**

Parameters a,b,c,d, of 4 [A] apply here also

**[C]**

- Audibility in Radio lessons
- language, clarity in presentation, Activity orientation are to be reviewed

**[D].** Video lessons of 2020-21; only a sample of videos can be covered.

Subject/standard wise statements can be made. Comprehensive analysis is not expected.

**[E].** SATS/MIS review from angle of school/student needs can be made.

**e-Content Workshop, 9<sup>th</sup>/10<sup>th</sup> March at DSERT**

**PARAMETERS FOR REVIEW**

- Language Friendliness
- Efficiency of Content – 8<sup>th</sup> to 12<sup>th</sup> Standards
- Comprehensiveness
- Quality of Integration of syllabus with e-Lessons
- Audibility
- Video Quality

**Kannada: Qualitative Report by the Group**

**DIKSHA/EDUSAT**

**Good Points** Main points in bold letters

Begin lesson with thematic apperceptions  
Clarity in lesson/identification  
Use of drawings in lesson notes  
Appropriate pictures/drawings  
Good Introduction/Objectives  
Use of technology in learning transactions  
Poems with rhythm, meter and feelings  
Nali-kali facilitative  
Facilitative of differential learning capacity  
Harmony of lessons with e-techniques  
Age appropriate use of language.

**Corrections Needed**

Clarify the names of authors  
Use of punctuation marks  
Correct question forms  
Improvements in Pronunciation  
Use of Kannada words always  
Emphasis on language use in Video lessons  
Time management in PPT/Video lessons

**Plus Additional Needs**

User guidelines for DIKSHA

Use of single folder for audio/video of each lesson

Explanatory notes to be improved

Resource enrichment for 3<sup>rd</sup> language Kannada

Workshop on PPT preparation for RPs; Use of e-techniques

Attention to language skills in teaching Kannada

Printing Mistakes in T B /e-lessons

Enrich Resource Materials (advanced)

**PUC**

Need for supplementary materials for lessons

Need for use of Smart Board in Video lessons

**Kannada**

Rating Scale Analysis

	<u>Scores</u>	
60 and < 60%	1	
61 to 70	2	
71 to 80	3	<b>Scale Values</b>
81 to 90	4	
91 to 100	5	



**KANNADA****Table 04: Rating Scale Value for Language subject, KANNADA****[A] Language**

Expert	Class		Total Items	Responses	NR	Obtained Score	Maximum Score
E <sub>1</sub>	Prose	Overall	07	07	-	28	35
E <sub>1</sub>	Poetry	- Do -	07	07	-	28	*35
E <sub>2</sub>	Prose	- Do -	07	07	-	17	35
E <sub>2</sub>	Poetry	- Do -	07	07	-	12	35
E <sub>3</sub>	Prose	- Do -	07	07	-	23	35
E <sub>3</sub>	Poetry	- Do -	07	07	-	24	35
E <sub>4</sub>	Prose	- Do -	07	07	-	30	35
E <sub>4</sub>	Poetry	- Do -	07	07	-	30	35
	Total		56	56	-	192	280

$$192 \div 280 = 69\%$$

Note: Rating Scale Value for Language subject, KANNADA is 69%.

**Table 4.1 Rating Scale Value for Content Efficacy in Kannada****[B] Content Efficacy [Kannada]**

Expert	Subject	Class	Total Items	Responses	NR	Score	Maximum
E <sub>1</sub>	Prose	10 <sup>th</sup>	1	1	-	04	05
E <sub>1</sub>	Poetry	10 <sup>th</sup>	1	1	-	04	05
E <sub>2</sub>	8/9/10	Prose	3	3	-	05	15
E <sub>2</sub>		10 <sup>th</sup> Poem	1	1	-	02	05
E <sub>3</sub>	9 <sup>th</sup>	Pr	1	1	-	04	05
E <sub>3</sub>	9 <sup>th</sup>	Pr	1	1	-	04	05
E <sub>4</sub>	8 <sup>th</sup>	Pr	1	1	-	04	05
E <sub>4</sub>	8 <sup>th</sup>	Poem	1	1	-	04	05
	Total		10	10	-	31	50

$$31 \div 50 = 62\%$$

Note: Rating Scale Value for Content Efficiency in Kannada is 62%.

Table 4.2: Rating Scale value for comprehensiveness of lessons in Kannada

**[C] Comprehensiveness [Kannada]**

Expert	Subject and Classes	Class	Total Items	Responses	NR	Score	Maximum
E <sub>1</sub>	Prose	10 <sup>th</sup>	1	1	-	05	05
E <sub>1</sub>	Poetry	10 <sup>th</sup>	1	1	-	05	05
E <sub>2</sub>	Prose	8/9/10	03	03	-	03	15
E <sub>2</sub>	Poetry	10 <sup>th</sup>	01	01	-	02	05
E <sub>3</sub>	Prose	9 <sup>th</sup>	01	01	-	03	05
E <sub>3</sub>	Poetry	9 <sup>th</sup>	01	01	-	04	05
E <sub>4</sub>	Prose	8 <sup>th</sup>	01	01	-	05	05
E <sub>4</sub>	Poetry	8 <sup>th</sup>	01	01	-	05	05
	Total		10	10		32	50

**(64%)**

**Note:** Rating Scale value for comprehensiveness of lessons in Kannada is 64%.

Table 4.3: Rating Scale Value for integration of Kannada lessons with syllabus (School stage)

**[D] Integration with Syllabus**

Expert	Subject	Class	Total Items	Responses	NR	Obtained Score	Maximum
E <sub>1</sub>	Prose	10 <sup>th</sup>	04	04	-	18	20
E <sub>1</sub>	Poetry	10 <sup>th</sup>	04	04	-	18	20
E <sub>2</sub>	Prose	8/9/10	09	09	-	15	45
E <sub>2</sub>	Poetry	10 <sup>th</sup>	05	05	-	09	25
E <sub>3</sub>	Prose	9 <sup>th</sup>	05	02	03	08	10
E <sub>3</sub>	Poetry	9 <sup>th</sup>	05	02	03	08	10
E <sub>4</sub>	Prose	8 <sup>th</sup>	05	02	03	10	10
E <sub>4</sub>	Poetry	8 <sup>th</sup>	05	02	03	10	10
	Total		42	30	12	96	150

**96 ÷ 150 = 64%**

**Note:** Rating Scale Value for integration of Kannada lessons with syllabus (School stage) is 64%.

Table 4.4: Rating Scale Value for assignments and other concerns in Kannada subject

**[E & F] Assignments, Questions, Problems, Key Answers etc.**

Expert	Subject	Class	Total Items	Responses	NA/NR	Obtained Score	Maximum Score
E <sub>1</sub>	Prose	Overall	10	04	06	16	20
E <sub>1</sub>	Poetry	Overall	10	04	06	16	20
E <sub>2</sub>	Prose	Overall	10	04	06	05	20
E <sub>2</sub>	Poetry	Overall	04	04	00	05	20
E <sub>3</sub>	Prose	Overall	04	04	01	11	20
E <sub>3</sub>	Poetry	Overall	04	03	01	11	20
E <sub>4</sub>	Prose	Overall	04	04	00	20	20
E <sub>4</sub>	Poetry	Overall	04	04	00	20	20
		Total	50	30	20	104	160

$$104 \div 160 = 65$$

(65%)

Note: Rating Scale Value for assignments and other concerns in Kannada subject is 63%.

Table 4.5: Technical Quality of lessons in Kannada

**[G] Technical Efficacy**

Expert	Class		Total Items	Total Responses	NR	Obtained Score	Maximum Score
E <sub>1</sub>	Prose	Overall	09	08	01	32	40
E <sub>1</sub>	Poetry	- Do -	09	08	01	32	40
E <sub>2</sub>	Prose	- Do -	09	08	01	08	40
E <sub>2</sub>	Poetry	- Do -	09	09	-	11	45
E <sub>3</sub>	Prose	- Do -	09	09	-	38	45
E <sub>3</sub>	Poetry	- Do -	09	09	-	37	45
E <sub>4</sub>	Prose	- Do -	09	08	01	35	40
E <sub>4</sub>	Poetry	- Do -	09	08	01	35	40
	Total		72	67	05	228	335

$$228 \div 335 = 68\%$$

Note: Technical Quality of lessons in Kannada is rated to be of 68% value.

**Table 4.6: ABSTRACT OF RESULTS OF RATING SCALE**

**No. of Experts 04 X 02**

**KANNADA**

**(High School)**

**(Prose + Poetry)**

	PARAMETERS	Total Items	Total Response	NR	Obtained Score	Maximum Score	% Score
[A]	Language	56	56	-	192	280	69%
[B]	Efficiency of Content	10	10	-	31	50	62%
[C]	Comprehensiveness	10	10	-	32	50	64%
[D]	Integration	42	30	12	96	150	64%
[E + F]	Assignments/Others	50	30	20	104	160	63%
[G]	Technical Efficiency	72	67	05	228	335	68%
	Total	240	203	37	683	1025	67%

**NOTES:**

- There are 4 evaluators/experts for Kannada e-lessons. All of them responded to **A** – Language; **E + F** – Assignments, General Quality – Key Answers, Transition from one unit to next unit, animations, photos, etc.; **G** – Technical Efficiency. A, E + F, G, are common to all lessons, except items like simplicity of experiments which are not applicable to languages.
- In case of **[B]** – Efficacy of content, **[C]** Comprehensiveness of coverage of language skills, **[D]** Integration of video lessons with syllabus; there was variation across experts. They addressed concerns for prose as well as poetry for different standards. Hence, number of items also vary.
- No responses and Not Applicable (NR, NA) items are not considered for scoring.
- There being 5 options for every item, maximum score per item is 05. It is multiplied by total number of items.
- Total score on e-content in Kannada is summated through obtained scores on A, B, C, D, E + F and G and divided by the maximum score. Percentage of dividend is taken.
- **E-content score for Kannada as per experts review is placed at 67 per cent value.**

**ENGLISH****No. of Experts – 05****Comments/Notes/Observations by the Group**

DIKSHA for 4, 5, 6, 8, 3, 9, 10 Standards.

**General Impressions**

- Bilingual Method used occasionally – Translation method
- Speed of presentation needs to be reduced.
- Use plain background, animations needed, Fluency in presentation needs improvement.
- Glossary to be provided during narration on RHS along with pictures.
- Accent is good in Karnataka Videos as compared to Kerala Videos.
- Comprehension given higher importance, Expression and Appreciation neglected.
- Use direct method.

**RATING SCALE****Table 5: Rating Scale Value for Language subject, English**

[A] Language (Inputs taken from only 03 experts. Inputs from 02 experts incomplete, not counted)

Experts [All Classes)	Total Items	Responses	NR	Obtained Score	Maximum Score
E <sub>1</sub>	07	07	-	24	35
E <sub>2</sub>	07	07	-	24	35
E <sub>3</sub>	07	07	-	25	35
Total	21	21	-	73	105

$$73 \div 105 = 70\%$$

**Table 5.1: ABSTRACT OF RESULTS OF RATING SCALE**

**ENGLISH**

**No. of Experts:**

**03 X 01 = 03**

**(All Standards)**

	PARAMETERS	Total Items	Total Response	NR	Obtained Score	Maximum Score	% Score
[A]	Language	21	21	-	24	35	70%
[B]	Content Efficiency	09	09	-	45	45	100%
[C]	Comprehensiveness	09	09	-	39	45	87%
[D]	Integration	18	18	-	75	90	83%
[E + F]	Assignments + Others	09	09	-	29	45	64%
[G]	Technical Efficiency	27	21	06	26	135	20%
	Total	93	87	06	238	395	60%

**NOTES:**

- There are 03 evaluators/experts. All of them responded and covered all standards of school education – 3, 4, 5, 6, 8, 9, 10 (except 7); addressed all parameters. Many of the items are not applicable to English language. They are left out of analysis.
- No responses are not considered for scoring.
- Total summated score on all relevant items of all parameters is 238 while maximum is 395.
- **E-content review of English lessons is placed at 60 per cent value.** Technical quality of lessons (low quality) has pulled down the overall value, from 81 per cent to 60 per cent.

## SCIENCE

### General Impressions by the Group

Physics + Chemistry + Biology – Mix of all Reviewed – DIKSHA, SAMVEDA, EDUSATS,  
OLABS, TELE LESSONS

### Observations:

#### (1) DIKSHA

- Content is well organized, teaching points are neatly presented, language is good, and quality of photos/videos is very good.
- 8<sup>th</sup>/9<sup>th</sup> content is good. 10<sup>th</sup> Biology is inadequate.
- Video lessons – good for all topics, customized to differentiated learning abilities.
- Chapter-wise information is clear.
- Practice questions need improvisation – not upto Board pattern. Spelling mistakes observed.

#### (2) SAMVEDA

- Qualities of Lessons are good.

#### (3) EDUSAT

- Child Centered,
- Language usage is good,
- Easily comprehensible,
- Balance across subjects not maintained,
- Subject-wise categorization is needed,
- Length of Videos needs to be reduced and adjusted to mental age of children.

#### (4) O-LABS

- Outstanding presentation on Content
- Well planned and Systematic organization
- Simulator component – Very Effective

#### (5) TELE LESSONS

- Excellent presentation – simple manner, easily comprehensible,
- Examples from Daily life,
- Animation is very good.

### RATING SCALE

Table 6: PARAMETER - SCIENCE

Sl. No.	Experts	Standard and Subject	No. of Items	No. of Responses	N.R.	Obtained Score	Maximum Score
1.	E <sub>1</sub>	9 <sup>th</sup> Physics	07	07	-	35	35
2.	E <sub>2</sub>	8 <sup>th</sup> Physics	07	07	-	35	35
3.	E <sub>3</sub>	Chemistry	07	07	-	35	35
4.	E <sub>4</sub>	Science	07	07	-	35	35
5.	E <sub>5</sub>	Science	07	07	-	35	35
6.	E <sub>6</sub>	Chemistry	07	07	-	35	35
7.	E <sub>7</sub>	Biology	07	07	-	35	35
8.	E <sub>8</sub>	Science	07	07	-	35	35
9.	E <sub>9</sub>	Science	07	07	-	35	35
10.	E <sub>10</sub>	Biology	07	07	-	35	35
11.	E <sub>11</sub>	Science (Biology)	07	07	-	35	35
12.	E <sub>12</sub>	Science	07	07	-	35	35
Total			84	84		420	420

$$420 \div 420 > \% = 100\%$$

Table 6.1: ABSTRACT OF RESULTS OF RATING SCALE: SCIENCE

SCIENCE	Total Items	Total Responses	NR	Obtained Score	Maximum Score	% Score
<b>PARAMETERS</b>						
(A) Language	84	84	-	420	420	100
(B) Content Efficacy	25	25	-	121	125	97
(C) Comprehensiveness	27	27	-	132	135	98
(D) Integration	52	47	05	230	235	98
(E+F) Assignments + Others	120	68	52	333	335	99
(g) Technical Efficiency	108	81	27	396	405	98
<b>TOTAL</b>	<b>416</b>	<b>332</b>	<b>84</b>	<b>1632</b>	<b>1655</b>	<b>98.6</b>
						<b>99%</b>



**NOTES:**

- There are 12 experts/evaluators. They have reviewed lessons in Physics, Chemistry, Biology and Science (lower standards). All standards are covered, mainly 8<sup>th</sup>, 9<sup>th</sup> and 10<sup>th</sup> standards covered.
- Lessons across DIKSHA, SAMVEDA, EDUSAT, O-LABS and TELE EDUCATION are reviewed.
- Only those items in the rating scale as are applicable to the subjects/experts are considered for analysis.
- No responses are not considered for scoring.
- Total summated score of all experts, of all subjects, in the area of science, is 1632. Maximum score for items considered is 1655. Per cent rating of all e-lessons of all types, of all standards, of all subjects is 99 per cent. It is also qualitatively described as 'EXCELLENT'.

## **MATHEMATICS**

### **e-Content Review**

#### **General Observations by the Group**

##### **Software Under Review**

Khan Academy, Diksha, Samveda, Parikshavani, Edusat, Tele Education.

- Relevance/Efficiency of Content  
All are good.
- Comprehensiveness: All are good except that of Khan Academy. All software's have addressed needs of syllabi.
- Language: Audibility and accent of Khan Academy not satisfactory. Same is true of DIKSHA. Samveda is good. Same is true of Parikshavani. EDUSAT is good. Tele Education is good.
- Integration of all formats is good.
- Evaluation concerns – Khan Academy/Edusat/Tele Education – Excellent; Diksha – Good; Samveda – needs improvement.
- Video quality – Good in all of them.
- Lesson Plan – Diksha, Samveda, Parikshavani – Good; others – no comments, perhaps missing; same is true of question banks.
- MCQ/VSA/SA in the 3 of programmes referred here – Good
- Tele Education – gives activities.
- Concept Mapping – is there everywhere except Khan Academy.
- Source Materials → all the 6 softwares give them.
- No editing options anywhere; Easily downloadable – all
- Scope for project work only in Edusat / Tele Education
- Application to daily life - Yes - everywhere except Khan Academy
- Context reviewed – 8<sup>th</sup> / 9<sup>th</sup> / 10<sup>th</sup> standards

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## RATING SCALE

## PARAMETERS

Table 7: Rating Scale Value for Mathematics

Experts	Standards and Subject	Total Items	Total Responses	NR	Obtained Score	Maximum Scores
E <sub>1</sub>	Khan Academy	07	07	-	35	35
E <sub>1</sub>	SAMVEDA	07	07	-	35	35
E <sub>1</sub>	EDUSAT 8 <sup>th</sup>	07	07	-	35	35
E <sub>1</sub>	Tele Education 9 <sup>th</sup>	07	07	-	35	35
E <sub>1</sub>	DIKSHA	07	07	-	35	35
E <sub>1</sub>	Tele Education	07	07	-	35	35
E <sub>2</sub>	EDUSAT	07	07	-	33	35
E <sub>2</sub>	Telesat 8 <sup>th</sup>	07	07	-	35	35
E <sub>2</sub>	DIKSHA	07	07	-	22	35
E <sub>2</sub>	SAMVEDA	07	07	-	35	35
E <sub>2</sub>	Khan Academy	07	07	-	18	35
E <sub>2</sub>	EDUSAT	07	07	-	31	35
TOTAL E <sub>1</sub> + E <sub>2</sub>		84	84	-	384	420
E <sub>3</sub>	SAMVEDA (EM)	07	07	-	35	35
E <sub>3</sub>	Khan Academy 8 <sup>th</sup>	07	07	-	27	35
E <sub>3</sub>	SAMVEDA 10 <sup>th</sup> Trigonometry	07	07	-	35	35
E <sub>3</sub>	SAMVEDA 9 <sup>th</sup>	07	07	-	32	35
E <sub>3</sub>	10 <sup>th</sup> Parikshavani	07	07	-	35	35
E <sub>3</sub>	EDUSAT Commercial Maths	07	07	-	35	35
E <sub>3</sub>	8 <sup>th</sup> Overall	07	07	-	35	35
TABLE TOTAL		49	49	-	234	245
TOTAL SCORES		133	133	-		
TOTAL		[384 + 234] [420 + 245]		÷		

$$618 \div 665 = 93\%$$

**Table 7.1: ABSTRACT OF RESULTS OF RATING SCALE**

**MATHEMATIACS**

MATHEMATICS PARAMETERS	TOTAL ITEMS	TOTAL RESPONSES	NR	Obtained Score	Maximum Score	% Score
[A] Language	133	133	-	234	245	93
[B] Efficacy of Content	21	21	-	103	105	98
[C] Comprehensiveness	21	21	-	102	105	97
[D] Integration	118	103	15	484	515	94
[E+F] Assignments + Others	190	128	62	552	650	85
[G] Technical Quality	171	155	16	684	785	87
TOTAL	654	561	93	2159	2405	-

$$2159 \div 2405 > \%$$

$$= 90\%$$

**NOTES:**

- There were 03 evaluators/experts who reviewed 19 lessons among them. Lessons were taken from DIKSHA, EDUSAT, SAMVEDA, PARIKSHAVANI, TELE EDUCATION and Khan Academy. Lessons belonged to all standards, mainly from 8<sup>th</sup>/9<sup>th</sup>/10<sup>th</sup> standards

- Among them, they have responded to 561 out of a total of 654 test items while there are 93 items for which there was no response. Most of the no response items were not applicable to the lessons considered by the evaluators for review.

- Very high appreciations have been reported for Mathematics lessons across all software's. In decreasing order of ratings, efficiency/suitability/relevance of e-content has been noted at 98 per cent of quality. This is followed by comprehensiveness of coverage, rated at 97 per cent of quality; while integration of e-content with school syllabus is rated at 94 per cent efficiency. Language friendliness is rated at 93 per cent quality. Technical quality is placed at 87 per cent value while attention given to assignments / patterns / key answers / tables / graphs etc., is placed at 85 per cent quality.

- Overall quality of e-content in Mathematics is placed at 90 per cent value.

## **SOCIAL SCIENCES**

### **General Observations by the Group**

#### **EDUSAT:**

- e-content in EDISAT is only from Class 4 to Class 8.
- E-content is very good as lessons are explained / presented through drama, role-play, story narration and dialogues. Language used is very simple, more suitable for rural children. Graphic imagination, visualization and comprehension concerns are well addressed.
- Content integration (within the lesson) with photos, pictures and notes is good. Language of violence, abuse, discrimination is not there. Assessment is not accorded special attention. Oral questions during lesson presentation are included.
- There is a need to upgrade EDUSAT lessons to 9<sup>th</sup> and 10<sup>th</sup> standards also.

#### **DLR/TALP for 9<sup>th</sup> and 10<sup>th</sup>**

##### **DIKSHA:**

- Coverage of topics is comprehensive; presentation is good. Pictorial representations are good. Mind mapping is adopted for concept development. Audio quality is good, with few exceptions where voice modulation needs improvement. Kannada medium lessons are comprehensive of syllabus, English medium is not so.
- Assessment for many topics is in the form of worksheets, MCQs, puzzles, quiz, etc. This is very good. However, key answers are missing in a few topics/units. Lesson plans/summary of lessons are given.
- Language use is free from vulgarity, violence, abuse. It is student friendly. Language used is simple and comprehensible.
- 5, 6, 7 lessons are very good.
- Kannada medium lessons are better than those of English medium. English medium lessons are lengthy.
- Overall, DIKSHA lessons are good and useful for both students and teachers.

**RATING SCALE VALUES**

**SOCIAL SCIENCES**

There are 04 inputs from only one expert for Social Science. Following units/standards are covered:

8<sup>th</sup> Standard – Atmosphere,

9<sup>th</sup> Standard – Moghuls and Marathas,

10<sup>th</sup> Standard – First War of Independence in India, 1857.

6<sup>th</sup> Grade – Introduction to History

PARAMETERS [Software not mentioned]

Table 8: Rating Scale Value of Social Science

Sl. No.	Experts	Total No. of Items	Total Responses	NR	Obtained Score	Maximum Score
1.	E <sub>1</sub>	07	07	-	34	35
2.	E <sub>1</sub>	07	07	-	27	35
3.	E <sub>1</sub>	07	07	-	32	35
4.	E <sub>1</sub>	07	07	-	35	35
Total		28	28	-	128	140

Table 8.1: ABSTRACT OF RESULTS OF RATING SCALE: SOCIAL SCIENCE

		Total No. of Items	Total Responses	NR	Obtained Score	Maximum Score	% Value
[A]	Language	28	28	-	128	140	91%
[B]	Efficacy	04	04	-	20	20	100%
[C]	Comprehensiveness	06	03	03	13	15	87%
[D]	Integration	24	05	19	25	25	100%
[E + F]	Assignments + Others	36	16	20	72	90	80%
[G]	Technical Quality	36	33	03	101	170	59%
	Total	134	89	45	359	460	

$$359 \div 460 > \% \\ = 78\%$$

**NOTES:**

- Only one expert evaluator attended the Workshop for Social Science subject. She reviewed 4 lessons, 2 from DIKSHA and 2 from EDUSAT. Lessons belonged to 8<sup>th</sup>/9<sup>th</sup>/10<sup>th</sup> standards. Overall review of e-content in Social Science is also made by the reviewer. Rating Scale is only for 4 lessons review. Hence, the observations/ review of the expert are considered valuable in a limited sense.

- E-content in Social Science is highly appreciated for its relevance/efficacy and integration with school syllabus, valued at 100 per cent. Language used is rated to be of 91 per cent quality. Comprehensiveness in regard to school syllabi is rated to be at 87 per cent value. Assignments and other concerns are rated to be at 80 per cent value. Technical Quality of lessons is considered to be quite sub-optimal and placed at 59 per cent quality.

- Overall quality of e-content in Social Science is placed at 78 per cent value. Technical quality has pulled down overall quality of lessons.

## REPORT FROM PU TEAM

### General Observations from the Group:

- There are 6 experts/evaluators across PU subjects – Physics, Chemistry, Biology, Mathematics, Kannada and English. Their unanimous, consolidated views are reported here – regarding e-content of PU stage. Both I/II PU are considered by the reviewers. Lessons have been reviewed at the PU stage.
- Pre-loaded laptops are provided to PU colleges. PU lessons are pre-loaded. This is under TALP Programme.
- During Covid-19 period, online video classes through you-tube, model question papers, subject-wise Question Banks are created and shared with all colleges. They are not reviewed here.
- TALP for PCBM began in 2016-17. English and Economics were added in 2018-19.
- Language of TALP lessons shared with TALP colleges is '**satisfactory**'. Content is within syllabus. It is Comprehensive. Integration is satisfactory. Assignments are given.

Many parameters are not consistently followed. All parameters are not applicable to all lessons.

**Table 9: ABSTRACT OF RESULTS OF RATING SCALE - PRE-UNIVERSITY COURSE**

#### e-Content Review

#### PARAMETERS

(All Subjects)

PUC	Total Items	Total Responses	NR	Obtained Score	Maximum Score	% Value
[A] Language	98	95	03	374	475	79%
[B] Efficacy	19	19	-	86	95	91%
[C] Comprehensiveness	15	15	-	68	75	91%
[D] Integration	84	50	34	136	250	54%
[E+F] Assignments and Others	140	92	48	215	470	46%
[g] Technical Quality	126	88	38	233	440	53%
<b>TOTAL</b>	<b>482</b>	<b>359</b>	<b>123</b>	<b>1112</b>	<b>1805</b>	<b>62%</b>

$$1112 \div 1805 > \% = 62\%$$



NOTES:

- 07 experts/evaluators reviewed PU lessons across various science subjects and 02 languages – English and Kannada plus Mathematics. [Physics + Chemistry + Biology + Mathematics + English + Kannada]. They have responded to 359 out of 482 total items, depending upon their subject relevance. For example, tables, graphs are not relevant for languages. Experiments are not relevant for mathematics and languages. They are not considered for scoring/rating. 14 lessons have been evaluated.
- E-content relevance and comprehensiveness of coverage of syllabus of Video lessons, TALP pre-loaded lessons in laptops supplied to PU Colleges, are very well received as per reviewers' assessment. Each of them is rated at 91 per cent quality.
- Language of presentation is rated at 79 per cent quality. Integration of lessons with prescribed syllabus, attention to assignments, key questions, answers etc., as well as technical quality of lessons have received poor ratings at 54 per cent, 46 per cent and 53 per cent respectively.
- **The general finding is that while e-content for high school is of good quality, that of PU stage is not satisfactory.**
- Overall rating of PU stage e-content is placed **at 62** per cent quality.

## **SUBJECT-WISE REVIEW OF e-CONTENT FOR IT SCHOOLS AND PU PRE-LOADED LESSONS – TALP PROGRAMME**

There are 05 subjects in which e-content is given to schools by the DSERT/DoE. They cover syllabus of 8<sup>th</sup>, 9<sup>th</sup>, 10<sup>th</sup> standards. In addition, EDUSAT and Telesat/Tele Education cover subjects in lower standards also.

A detailed subject-wise review of all subjects has already been made across parameters, namely (a) Language friendliness, (b) Efficacy/Suitability/relevance of e-content to NCF-10 syllabus, (c) Comprehensiveness of DLR [Digital Learning Resources] to school syllabi, (d) Integration of e-content across diverse open sources compiled within DLR, (e) Assignments plus other concerns like tables, graphs, key answers to problems etc.; and (f) Technical Quality of software compiled under DLR like surfing facilitation, dashboard organization for units/lessons in syllabus, editing options, etc. Consolidated values of rating of e-content on all these parameters as well as the subject as a whole is computed/ calculated in the form of percentages. While consolidating e-content ratings on each one of the parameters as well as the subject as whole, average ratings of each expert/evaluator is taken. Actual scores are considered for drawing average scores. Mean averages are not taken. That will be incorrect statistics. Same method is followed even for developing subject-wise values from the Rating Scale. [NR in tables means No Response or Not Applicable].

Subjects considered for TALP at school stage [including mainly IT @ schools] are: Kannada, English, Science, Mathematics and Social Science. An overall, consolidated, holistic rating value/score is arrived at across all subjects for e-content under TALP, again using actual scores and **not** average per cent scores/values.

At the PU stage, for reviewing e-content of pre-loaded videos cassettes for lessons, subjects are not considered. A wholesome score/value for all subjects is arrived at. Subjects included are: Kannada, English, Physics, Chemistry, Biology and Mathematics; science stream of I and II Pre-University stage, 11<sup>th</sup> and 12<sup>th</sup> standards. Consolidated abstracts of both school/PU stages follow.

Table 10: ABSTRACT of Review of e-Content at School Stage under TALP (School Stage)

## [I] SCHOOL STAGE

Subjects	Total Items Reviewed	Total Responses	NR	Obtained Score	Maximum Score	Average Score (%)
Kannada	240	203	37	683	1025	67
English	93	87	06	238	395	60
Science	416	332	84	1632	1655	99
Mathematics	654	561	93	2159	2405	90
Social Science	134	89	45	359	460	78
<b>TOTAL</b>	<b>1537</b>	<b>1272</b>	<b>265</b>	<b>5071</b>	<b>5940</b>	<b>85</b>

Notes: [A] \* There are only 50 items in the Rating Scale, overall, across all subjects. Total items reviewed and indicated in this table vary due to the following reasons:

- Number of experts/evaluators is not the same for all subjects,
- Items are not uniformly relevant across all subjects. For example, graphs/tables, are not applicable for language subjects,
- When a reviewer visits Video lessons in 8<sup>th</sup> or 9<sup>th</sup> or 10 standards, she/he will respond only to 8<sup>th</sup>/9<sup>th</sup>/10<sup>th</sup> and leave out response to other standards in the rating scale. It will be considered as 'No Response' (NR) item.

Notes: [B] \* e-content review/analysis reveals that the quality of e-content across subjects, in descending order is: Science – 99 per cent, Mathematics – 90 per cent, Social Science – 78 per cent, Kannada – 67 per cent and English – 60 per cent.

**\* Overall quality of e-content under TALP, across all subjects is revealed to be 85 per cent [School Stage]**

\* e-content is excellent in Science, very good in Mathematics. Improvements are needed in Social Science and very much needed in Kannada and English, the languages.

Table 10.1: Abstract of Review of e-Content at School Stage under TALP (PU Stage)

[II] PU Stage

Subjects	Total Items	Total Responses	NR	Obtained Score	Maximum Score	Average Score (%)
Kannada	68	26	42	91	130	70
English	68	60	08	224	300	75
Physics	71	67	04	159	335	47
Chemistry	68	60	08	196	310	63
Biology	138	84	54	290	420	69
Mathematics	69	62	07	152	310	49
TOTAL	482	359	123	1112	1805	62

Notes:

- Quality of e-content of pre-loaded lessons and given to PU College under TALP programme appears to be of average quality. Percentages of quality logged in by various subjects, in descending order is: English – 75 per cent (highest rating), Kannada – 70 per cent, Biology – 69 per cent, Chemistry – 63 per cent, Mathematics – 49% and Physics – 47 per cent (lowest rating).
- **Overall rating of all lessons of all subjects given under TALP is placed at 62 per cent value [PU stage].**
- **In contrast to TALP lessons of high school stage (DLR), PU lessons are far from satisfactory. Overall rating of school stage (8<sup>th</sup>/9<sup>th</sup>/10<sup>th</sup>) lessons is 85 per cent while that of PU lessons is 62 per cent.**
- Improvements are needed in school stage lessons while a thorough revision is needed for PU lessons.

Note: Detailed review of TALP lessons is annexed to this report

State TALP is progressive. Its focus is on development including all stake holders. Its egalitarian with zero cost to its clients.

Quality is its priority. Highly qualified faculties are the basis of the programme. Content and presentation is in tune with the culture of the state.

Byjus...it's a high stake business. Not for all. Focus is directly the student as a customer. All can't take it. The instructors (not teachers) present the subject matter mechanically.

Allen focus is only on competitive exams. Time and money are equated. It's an input, output model.

Sl. No.	Features	Khan Academy	Byju's
1	Created in the year	2008	2011
2	Founder	Sal Khan	Byju Raveendran, Divya Gokulnath
3	Head Quarter	California, US	Bengaluru, India
3	Goal	Preparing online tools that help educate students	education tutoring app
		Supplementary practice exercises and materials for educators.	Educational content for students from classes 4 to 12 and in 2019 an early learning program has started for classes 1 to 3. <a href="#">IIT-JEE</a> , <a href="#">NEET</a> , <a href="#">CAT</a> , IAS Training
4	Achievement	8,000 video lessons	4 <a href="#">crore</a> (40 million) users overall 30 <a href="#">lakh</a> (3 million) annual paid subscribers App in regional Indian languages
5	Subjects Focused	Science, Mathematics	All subjects
6	Nature of the resources	Available free	free access to content limited for 15 days after the registration
7	Funding	By donations	Self
8	Awards	2016-Shorty award	ET iconic brand award 2021

**ALLEN Career Institute** a pioneer and the most reliable coaching institute in its field was founded by Shri Rajesh Maheshwari on **18th April 1988** with a mission that **every student of ALLEN - becomes a success story**. ALLEN is named in the memory of Late Shri Laxmi Narayan Maheshwari, father of four directors- Shri Govind Maheshwari, Shri Rajesh Maheshwari, Shri Naveen Maheshwari and Shri Brajesh Maheshwari.

ALLEN is a student-oriented organization where each and every student is considered as an important asset of the institution. The Institute understands the accountability of bringing the finest mentor and building an excellent knowledge pool because in current cut-throat competitive environment individual has to be aware of the latest examination patterns

and is required to put efforts in a proper direction. With such commitment, ALLEN has grown into a large group of **10015+** members as on date, with the trust of **12 Lac** + classroom students (Since 1988) and **5 Lac** + DLP students (Since 1997).

ALLEN is an extraordinary combination of **spiritual values and modern technology**. Our endeavours here ensure preparing the students for life by developing in them, an analytical mind, the right attitude and a spirit of goodness backed by academic excellence.

**ALLEN is running various courses through Classroom, Distance and E-Learning platforms:**

1. JEE (Main)
2. JEE (Main + Advanced)
3. Pre-Medical (NEET-UG/AIIMS)
4. Pre-Nurture & Career Foundation (VI-X), National & International Olympiads

The institute is having its own academic and administrative system which covers **classroom session, experienced faculty; doubt removal counters, study material, periodic test & result, periodic test awards, personal consultation programme, open session, medical consultation, feedback system, expert counseling, communicative support and departmental workshop.**

ALLEN Career Institute has developed as the most genuine career institute amongst the students' community as a result of our dedication, devotion and determination. Our pioneering approach has proven track records which act as chief motivating force behind aspirants.

After a commendable success in the previous years, ALLEN Career Institute created history when our Classroom Coaching Students bagged the All India First Ranks in both the prestigious examinations of India, JEE Advanced 2014 and AIPMT 2014 respectively. In 2016, ALLEN broke its own stupendous records of previous year results by becoming the first ever Institute of the country to produce All India Ranks 1,2,3 in both JEE Advanced and NEET- UG from classroom.

## **5. ANALYSIS AND INTERPRETATION OF SECONDARY DATA**

### **5.1 Analysis of Secondary Data: TALP Performance in Pre-University Colleges in State from 2016-17 to 2020-21**

**Pre-View:** Technical Assisted Learning Programme (TALP) was launched by the EDUCATION DEPARTMENT in 2016-17. During the first year, it was confined to only the high school stage. It was extended to PU Colleges in 2017-18. However, this extension appears to be ‘Cosmetic’ in implementation. Computer units, [11, 15, 21] systems were given to high schools depending on their size (school size – number of students). For PU Colleges, only Pre-Loaded Laptops were given. High Schools could set up Computer Laboratories. PU Lecturers were given pre-loaded laptops for use in classroom transactions.

Induction Training began for high school teachers at DIETs in the districts during 2016-17. It was begun in 2017-18, at DIETs, for PU College lectures. Only Government PU Colleges are covered under TALP programme.

#### **5.1.1 Coverage of PU Colleges for Distribution of Laptops**

250 pre-loaded laptops were given to 250 PU colleges during 2017-18. Again 500 pre-loaded laptops were given to 500 PU colleges during 2019-20. In total, 750 such laptops were supplied to 750 PU colleges during the 5 years 2016-17 to 2020-21.

Number of Government PU colleges stood steady at 1231 during the 5 years period. The coverage of PU colleges under the pre-loaded laptop distribution scheme is nearly 61 per cent [750 out of 1231].

**5.1.2 Ratio of Laptops to (number of) Students:** This ratio is not considered as the teaching-learning transactions are for the whole class.

Same number, 750 colleges are also given projectors for links with the laptops and projection of drawings, pictures, photographs, graphs, chemical reactions, activities, experiments, maps etc.

Pre-loaded laptops are loaded with lessons in Physics, Chemistry, Biology, Mathematics, Economics, Accountancy, and Business Studies. All subjects are not covered. Subjects which are useful for NEET examination are covered. [Languages – Kannada, Urdu, English etc., and Social Studies are not covered.]

Number of beneficiary colleges is already given, 61 per cent. Number of beneficiary students; it is difficult to arrive at this figure because, among the PU Colleges in the State there are purely arts subjects colleges/ students purely commerce colleges/ students, arts/science colleges, arts/commerce colleges, arts/science/commerce colleges. Arts subjects except Economics are not covered under TALP.

Total number of PU students in the State, in Government PU Colleges, on an average for 5 years, 2016 to 2021, is 3.34 lakhs, which includes both I and II year PU Collages. The range during the 5 years is 3.20 lakhs to 3.58 lakhs.

**5.1.3 Internet Facility:** Pre-loaded laptops do not need internet facility. However, it is noted that none of the TALP, PU Colleges has internet facility. Dongles are also not issued to any PU College by the Department.

It is noted that even while pre-loaded laptops are given along with projectors to 750 colleges, not a single College has been given SMART BOARDS. CDs/DVDs are also not given. Implementation of TALP would have been complete if Smart Boards, CDs/DVDs would have been given, even while all colleges are not covered. It is not clear whether, out of the 481 colleges left out of TALP umbrella [750 out of 1231 covered], how many are Arts/Commerce colleges, whether any science PU College has been left out or not. Data do not show this.

**Inference:** Implementation of TALP that is provision of pre-loaded laptops and projectors to 750 out of 1231 colleges is a welcome measure. All subjects, all colleges could be covered. Laptops are given at the rate of **one laptop per college**, irrespective of size of the college (strength – number of students, sections) and subjects to be transacted. Smart Boards are not given. On-going efforts need upscaling, enrichment and comprehensive coverage.

#### **5.1.4 Training of Teachers**

Induction Training is given by DIETs to PU College Lecturers. This is a training of 10 days duration. Training was given during the years 2017-18 and 2019-20. There was not training in 2016-17, 2018-19 and 2020-21. A total of 937 lecturers were trained during 2017-18, while the figure for 2018-19 is 2842. A total of 3779 lecturers of PU Colleges working in 750 colleges are given Induction Training. This is a basic/foundation course which is common for all subject teachers.



**5.1.5 Inter-district Performance:** Analysis of inter-district performance across 30 DIETs of 32 revenue districts and serve 34 educational districts has limitations. First limitation is the service area – total number of PU Colleges and total number of PU Lecturers who can use pre-loaded laptops. Number covered in DIETs for Induction Training 1 (Foundation Course) needs to be standardized against this figure, which is not possible – no data. Hence only total number covered by IDETs for training is only analyzed. This will provide a crude picture of performance.

Number of Lecturers given Induction Training under TALP, 2016 to 2021, (PUC) by District DIETs is given in the following table.

**Table 11: PERFORMANCE OF DIETS: [PUC] RANGES**  
[No. of Lecturers Trained in brackets]

[A] 200 and >	[B] 150 to 199	[C] 100 to 149	[D] 50 to 99	[E]<50
Mysore (330)	Mandya (180)	Chikmagalur (149)	BNG North (94)	Raichur (45)
Tumkur (248)	Shimoga (178)	Uttara Kannada (147)	BNG South (92)	Bidar (43)
Hassan (224)	Udupi (172)	Kolar (123)	Bagalkote (88)	Gadag (37)
Dakshina Kannada (222)	Davanagere (171)	Chamarajanagar (121)	Chikballapur (86)	Kodagu (34)
-	Chitradurga (163)	Belagavi (108)	Haveri (82)	Yadgir (28)
-	-	Ballari (105)	Ramanagara (79)	-
-	-	BNG Rural (100)	Dharwad (78)	-
-	-	-	Koppal (75)	-
-	-	-	Bijapur (69)	-
-	-	-	Kalburgi (55)	-
-	-	-	Chikkodi (53)	-

Source: State PU Directorate

- Districts are classified under 5 ranges as A, B, C, D and E depending upon the number of PU Lecturers trained by the DIETs. It is a descending order.  
A = 200 and > Lecturers; B = 150 to 199; C = 100 to 149; D = 50 to 99 and E = < 50.
- Districts under A Category are Mysore, Tumkur, Hassan and Dakshina Kannada.
- Districts under E Category are Raichur, Bidar, Gadag, Kodagu and Yadgir.
- For information on districts under B, C, D, refers to the Table.

- Madhugiri and Sirsi districts are not in the calculus, not counted, as they do not have independent DIETs. They are served by DIETs in Tumkur and Uttara Kannada respectively.
- Mysore DIET has trained 339 lecturers during the 5 year period, 2016 to 2021. Lowest record is at Yadgir DIET which has trained 28 lecturers.

**A Note of Caution:** The comparative results of analysis of data on performance of DIETs are not an indicator of efforts/efficiency of DIETs. It is only **INDICATIVE**. There are several variables which influence performance. The vacancies/faculty strength in DIETs, vacancies in PU colleges in the district which affects deputation of teachers for training, calendar of work of colleges, are also significant in this context. Hence, training performance data of DIETs needs to be received with caution.

## 5.2 Secondary data analysis –High Schools

### 5.2.1 Effect of TALP on Enrolments, Attendance and Transition in High schools of the State.

**Table 12: Enrolments in State 2016-17 to 2020-21 [Govt. High Schools Only]**

[In Lakhs, Rounded off to the 4<sup>th</sup> digit]

<b>ENROLMENTS</b>					
Standards	2016-17	2017-18	2018-19	2019-20	2020-21
8 <sup>th</sup> Std.	46.34	45.21	45.75	46.15	48.22
Gain/Loss %	-	-2.4	+1.20	+0.87	+4.49
9 <sup>th</sup> Std.	42.21	41.73	43.05	43.32	47.31
Gain/Loss %	-	-1.14	+3.16	+0.63	+9.21
10 <sup>th</sup> Std.	41.57	39.80	38.09	38.52	43.81
Gain/Loss %	-	-4.25	-4.30	+1.13	+13.73
<b>ATTENDENCE IN STATE</b>					
Standards	2016-17	2017-18	2018-19	2019-20	2020-21
8 <sup>th</sup> Std.	31.46	31.27	31.58	31.61	34.56
Gain/Loss %	-	-0.60	+0.99	+0.09	+9.33
9 <sup>th</sup> Std.	28.71	28.54	29.52	29.52	32.81
Gain/Loss %	-	-0.59	+3.43	0	+11.14
10 <sup>th</sup> Std.	28.43	27.33	25.90	26.12	30.70
Gain/Loss %	-	-3.87	-5.23	+0.84	+17.53
<b>TRANSITION LOSSES IN STATE</b>					
Standards	2016-17	2017-18	2018-19	2019-20	2020-21
8 <sup>th</sup> Enrolment	46.34	45.21	45.75	46.15	48.22
9 <sup>th</sup> Enrolment	-	41.73	43.05	43.32	47.31
8 <sup>th</sup> to 9 <sup>th</sup> Gain/loss	-	-4.61	-2.16	-2.43	+1.16
Gain/Loss %	-	-9.9	-4.8	-5.31	+2.68
10 <sup>th</sup> Enrolment	-	37.80	38.09	38.52	43.81
Gain/Loss %	-	-	-8.7	-10.52	+0.49
					+1.13

Source: DSERT, GoK

**Table 12.1: 2016-17 to 2020-21 Abstract of Transition losses/gains (In Percentage)**

<b>Transition Loss (percentages)</b>		
	<b>8<sup>th</sup> to 9<sup>th</sup></b>	<b>9<sup>th</sup> to 10<sup>th</sup></b>
2016-17 to 2017-18	-9.9	-
2017-18 to 2018-19	-4.8	-8.7
2018-19 to 2019-20	-5.3	-10.52
2019-20 to 2020-21	+2.7	+1.13

Source: DSERT, GoK

- At the outset, it needs to be noted that the reference period for analysis of secondary data on enrolments, attendance and transition in the State is 2016 to 2020-21. This includes the pandemic years 2019-2021.
- TALP was introduced in the year 2018-19. Enrolment trends during the previous years at 8<sup>th</sup>, 9<sup>th</sup> and 10<sup>th</sup> standards showed a negative growth, losses. But since 2018-19, there is an observed gain in enrolments in all standards. The gains by 2020-21 across 8<sup>th</sup>, 9<sup>th</sup> and 10<sup>th</sup> standards are as high as +4.49 percent, +9.21 percent and +13.73 percent respectively. It can be inferred that TALP has contributed significantly for enrolments at 8<sup>th</sup>, 9<sup>th</sup> and 10<sup>th</sup> standards, by 2020-21, in government high schools of the State.
- TALP has contributed significantly to improvements in attendance in the State at 8<sup>th</sup>, 9<sup>th</sup> and 10<sup>th</sup> standards. From negative values during 2016-17 and 2017-18, attendance gains are observed to be 9.33, 11.14 and 17.53 percent at 8<sup>th</sup>, 9<sup>th</sup> and 10<sup>th</sup> standards by 2020-21.
- However, transition losses from 8<sup>th</sup> to 9<sup>th</sup> and 9<sup>th</sup> to 10<sup>th</sup> standards persisted from 2016-17 to 2019-20, In spite of TALP programme. Losses got converted into gains, may be marginal gains by 2020-21. Gains from 8<sup>th</sup> to 9<sup>th</sup> and 9<sup>th</sup> to 10<sup>th</sup> by 2020-2021 are 2.68 and 1.13 percent respectively. The significant fact is that the trends of transition losses got reversed to gain in a span of 03 years from 2018-19 to 2020-21, due to TALP programme.
- In sum, it is observed that TALP has contributed to enrolments, attendance and transition gains during the years 2018-19 to 2020-21. There is sufficient justification for extension/expansion and systematization of TALP from these perspectives.

### **5.2.2 Effect of TALP on enrolments, attendance and transition rates in PU Colleges:**

Enrolments in PU Colleges (1231) has oscillated between (11<sup>th</sup> and 12<sup>th</sup>) 3.58 lakhs in 2016-17 and 3.41 lakhs in 2020-21, with an average of 3.34 lakhs, lowest being 3.20 lakhs in 2018-19. TALP does not appear to have influenced PU enrolments. PU enrolments also depend on SSLC results (percentage) of the corresponding year.

Average attendance had dropped from 92.22 per cent (11<sup>th</sup> and 12<sup>th</sup>) in 2016-17 to 85 per cent in 2018-19. Pre-loaded laptops were given to PU colleges under TALP in 2018-19. Average attendance picked up during 2019-20 and 2020-21 to 91.35 per cent and 94.43 per cent respectively. It is **surmised** that appreciation of attendance at PU Colleges is due to TALP initiatives.

Transition loss is calculated across the years 2016-17, 11<sup>th</sup> enrolments and 2017-18, 12<sup>th</sup> enrolments. This technique is adopted for the succeeding years. Transition losses across 2016-17 to 2020-21 are observed to be 22.73, 18.39, 21.12 and 6.63 per cent during the reference period. **Loss is receding.** This may be an effect of TALP initiatives.

Transition loss is always calculated across 2 years, say from 2016-17 to 2017-18. Hence, between 2016-17 to 2020-21, there will be 04 values only.

**In sum, it is observed that even while TALP had no effect on enrolments, it contributes to better attendance and transition rates.**

### **5.3 BUDGET for TALP: PU Colleges**

Allocation for TALP in PU Colleges has increased from Rs.48 lakhs in 2018-19 to Rs.1,339 lakhs in 2020-21. There was supply of laptops and projectors to 250 and 500 colleges during 2018-19 and 2020-21. These equipments were not supplied in 2019-20 even while budget provision was there. The given expenditures must have been used for training purposes.

Expenditure under TALP activities was Rs.48 lakhs, Rs.128 lakhs and Rs.1,037 lakhs during 2018-19, 2019-20 and 2020-21. In terms of proportions of expenditures against allocations it is recorded as 100 per cent, 35 per cent and 77 per cent during the reference years. Overall budget performance, expenditure vs. allocation during 2018-19 to 2020-21 is 66 per cent.

PU Directorate needs to better monitor its Budget Performance under TALP. Monthly progress review meetings/Video Conferences of TALP with the districts would be of value. TALP can be an agenda item at such **web meetings.**

**SECONDARY DATA ANALYSIS:** State level data of high schools obtained from DSERT and of PU Colleges from PU Directorate are subjected to secondary data analysis. Effect of TALP on enrolments, attendance rates, transition rates, Induction and Refresher training for teachers/lecturers, district DIETs-wise comparative performance therein which includes ranking of districts, performance in regard to distribution of equipments to PU colleges – pre-loaded laptops and projectors, budget performance using allocations and expenditure data comprise the secondary data analysis.

Reference period is 2016-17 to 2020-21.

## **5.4 Budget for TALP, High Schools:**

Even while TALP programme began in 2016-17, the ED (Education Department) released funds/allocations to the DSERT, the nodal agency for management of TALP in high schools, only during 2019-20 and 2020-21. A total of Rs.25.31 crores (2,531 lakhs) was released in 2 installments of Rs.15.31 crores in 2019-20 and Rs.10.00 crores in 2020-21.

The DSERT utilized the total amount of Rs.15.31 crores released in 2019-20. It is in the process of utilization of Rs.10.00 crores released in 2020-21.

### **5.4.1 Budget Utilization Details**

TALP budget was used by the Department/DSERT to supply the following accessories to high schools under TALP programme: [Government Schools only].

Computers were supplied (Laptops) to schools as follows: 11 computers for small size schools (369); 15 computers for medium size schools (273); and 21 computers to large size schools (358). A total of 1000 schools were given the laptops. Including 273 extra laptops to offices, a total of 15,945 laptops were distributed during 2016-17 (payments made in 2019-20). Again, 6330 systems (laptops) were issued in 2020-21.

Out of 15,945 laptops supplied since 2016-17, 15,478 laptops, 97 per cent are functional/working. All the 6,330 laptops supplied during 2020-21 are working. 467 laptops, nearly 3 per cent of total 15,945 supplied since 2016-17 are not functional. They have not been replaced. [Dysfunctional as reported to DSERT by schools].

The DSERT has supplied 3,221 projectors among 3,851 TALP schools (2016-17 to 2020-21). Still 630 TALP schools, 16.36 per cent, are managing TALP without projectors.

Only 242 out of 3,221 TALP schools are provided with SMART Boards; this works out to 6.29 per cent coverage.

CDs/DVDs are not supplied to any school.

Out of 3,851 schools, only 131 schools, 3.4 per cent schools have Internet facility (Wi-Fi). There is no information on how many schools are using Dongles.

#### **5.4.2 Thefts/Damages of Laptops:**

17 schools, out of 3,851 TALP schools [Total 4,687 Government High Schools in State; TALP coverage: 82.16 per cent], have reported (to DSERT) regarding thefts of laptops in their schools. All of them have filed FIR with police and the matter is under investigation. All the schools have compound (walls).

4 schools have reported that laptops in their schools were damaged due to floods during 2020-21. These schools have reported this matter to CEO/ZP of their districts.

DSERT has not replaced laptops lost due to floods or theft.

#### **5.4.3 TALP Trainings for High Schools [2016-17 to 2020-21]**

##### **Introduction:**

There are 34 DIETs serving 30 revenue districts in the State. Apart from several other duties, the DoE entrusted training of TALP Teachers of High Schools to DIETs of the State under the guidance and supervision of the DSERT, the academic wing of the DoE, in 2016-17, the year of launching TALP.

DIETs provided 2 types of training to TALP Teachers: Induction Training of 10 days duration, basics of teaching learning transaction through digital mode and Refresher training of same duration. In addition, teachers trained at DIETs were expected to provide orientation to their colleagues. Persons who received Refresher Training functioned as IT Co-ordinators. Refresher training was given in 2018-19 and 2019-20 while Induction Training was given every year during 2016-17 to 2020-21.

DIETs provided Induction Training to PU College Lecturers which has been discussed separately.

## **5.5 Performance of DIETs – High Schools:**

Basic data on number of teachers trained every year by each DIET in the State is given by the DSERT, in terms of Targets and Achievements. Percent of achievement against targets gives performance of DIETs. DIETs are ranked for their performance on both Induction Training and Refresher Training. They are classified into ranges of performance like 80 to 84 percent, 85 to 89 percent, 90 to 94 percent and the like, both upwards and downwards, going down up to less than 50 percent performance.

Average rank of DIETs on total TALP training performance that is an average of the sum of ranks on Induction and Refresher Training is taken. DIETs are classified into 4 groups on the basis of their cumulative performance – performance (percent teachers trained against targets set) on both Induction and Refresher Training. Classified list is given below. Obtained rank is indicated in brackets. Detailed analysis of percentage of achievement in Induction Training and Refresher Training by all the 34 DIETs, including discussion of findings is given in Annexure No. 04.

### **5.5.1 Performance Ranking of DIETs on TALP Trainings:**

**[A] 1 to 5 Ranks:** 90 to 99% performance

Udupi (1), Chamarajanagara (2), Dakshina Kannada (3), Uttara Kannada/Kumta) (4), Tumkuru (5). **[6 districts].**

(Note: With same percent achievements, districts will get same rank).

**[B] 6 to 10 Ranks:** 80 to 89% performance

Mysore/Bengaluru Rural/Ramanagara (6), Chitradurga/ Dharwada (7), Haveri/Chikkodi (8), Haasana/Kodagu (Kudige) (9), Vijayapura (10). **[10 districts].**

**[C] 11 to 15 Ranks:** 70 to 79% performance

Uttara Kannada/Sirsi, Belagavi, Chikmagalur, Bengaluru Urban (11), Chikballapura/Bidar/ Davanagere (12), Bellary/Madhugiri (13), Yadgir/Kolar (14), Gadag (15). **(12 Districts).**

**[D] 16 to 20 Ranks:** 60 to 69% performance

Raichur/Bagalkote (16), Mandya/Koppal (17), Bengaluru North (18), Kalburgi (19).

(6 districts) Total 34 Districts.

< 60 % No districts



Due to converging performances [percent achievement, number of teachers given induction training, against set targets], 34 DIETs have obtained 19 ranks, from 1 to 19 numbers. Top 5 districts in terms of performance are: Udupi, Chamarajanagar, Dakshina Kannada and Shimoga, as well as Tumkur. Bottom 6 districts are Raichur, Bagalkote, Koppal, Bengaluru North and Kalburgi (last rank).

State average performance in Induction Training is 91 percent while it is 81 percent in Refresher Training.



## **6. FINDINGS AND DISCUSSIONS**

### **6.1 IMPLEMENTATION OF TALP AT HIGH SCHOOLS**

#### **6.1.1 Personal Profile of Head Teachers:**

As per the ToR, 650 high schools implementing TALP is the sample. As such there are 650 Head Teachers subject to analytical treatment in this section. 94 per cent of Head Teachers [HT] have 10 years of experience and more than that in the Department. Only 1 per cent have 3 and <3 years of experience. There is no such HT in Mysore division. However, only 22 per cent out of 650 are working in the present school for 10 and 10+ years. Another 22 per cent have 7 to 10 years of experience in the present school. 39 per cent have 3 and <3 years of experience. More the experience betters the perceptions of the system.

Out of the 650 schools, 91 per cent are co-educational and 7 per cent are exclusively girls schools. 68 per cent schools had been established well before 2000 AD. Only 4 per cent schools belong to pre-independence era. 430 out of 650, 66 per cent, are exclusively Kannada Medium schools. There is a spread of Kannada plus English (23 per cent) and other medium: Urdu, Kannada and Telugu, Kannada and Marathi medium schools. 94 per cent schools are beyond 10 kms from the Taluk HQ. 89 per cent schools have access to public bus facility. 11 per cent schools, 70 out of 650, do not have 8<sup>th</sup> standard. They begin from 9<sup>th</sup>.

There is a balanced spread of schools in the sample with regard to medium of instruction in school (heavy tilt towards Kannada Medium expected, planned), experience of the HT (beyond 10 years), year of establishment (majority before 2000 AD), have access to public transport, are co-educational in setting, and carry 8<sup>th</sup>/9<sup>th</sup>/10<sup>th</sup> standards. As sample is representative, data is expected to be representative of realities in regard to TALP in the State.

#### **6.1.2 Infrastructure Facilities in TALP Schools:**

645/650, over 99 per cent, schools are run in own buildings. All schools are in own buildings in Bengaluru/Kalburgi divisions. Over 50 per cent schools, 333/650, are run in more than one building. Organization of Computer Education becomes relatively difficult, if school is housed in more than one building. The 650 schools have around 7600 rooms at an average of 12 rooms per school. 47 per cent rooms are used for classroom instruction. Other rooms are used for HT, Staff, computer laboratory, Library/Sports/RR etc. 12 per cent

schools have no exclusive HT room, 15 per cent – no exclusive staff room, 78 per cent – no ladies room.

77 per cent schools have a dedicated science laboratory while 94 per cent schools have a dedicated computer laboratory, 65 per cent schools have an exclusive library room.

In addition, 24 per cent schools also have a Reading Room – newspapers, magazines, leisure hours reading are possible in the Reading Room. There are 39 per cent schools with an auditorium for school assembly, literary/cultural activities.

### **Toilet Facilities**

Many schools have common toilets for both boys and girls. It is recalled that 589/650, 91 per cent schools in this sample are co-educational. Common toilet is a toilet in one big enclosure which has a partition for boys and girls, students and staff.

Table 13: Toilet Facilities in Schools

Division	Bengaluru	Mysore	Belagavi	Kalburgi	STATE
No. of Schools	210	153	172	115	650
Boys Toilets (No.)	608	467	419	283	1777
Average Provision	2.89	3.05	2.44	2.46	2.73
Girls Toilets (No.)	713	578	465	357	2133
Average Provision	3.40	3.78	2.70	3.10	3.25
Common Toilets (No.)	272	203	191	173	839
Average Provision	1.30	1.33	1.11	1.50	1.29
HT Toilets	28	26	29	23	106
% Provision	13.33	17.00	16.86	20.00	16.30
Staff Toilets	125	99	69	48	341
% Provision	59.52	64.70	40.12	41.73	52.46
Women Toilets	111	76	70	54	311
% Provision	52.86	49.67	40.70	47.00	47.85

Source: Primary data.

Availability of toilets does not conform to norms (RMSA) in schools of the State. Position in regard to girls' toilets is better at an average access to 325 toilets for every 100 schools. Position in regard to provision of boys/ girls/common toilets is relatively better in Mysore division. It is relatively poor in Belagavi division.

Only 16.30 per cent schools have a separate toilet for Head Teachers. Position is relatively better in Kalburgi Division with 20 per cent provision. In 47.54 per cent schools, staff/teachers have to depend upon students' toilets. There is no privacy for them. Position is relatively bad in both the divisions of Northern Karnataka, Belagavi (only 40.12 per cent staff toilets) and Kalburgi (only 41.73 per cent provision) divisions. 47.85 per cent schools have women's toilets. Position is slightly better in Bengaluru division. 168/650 schools, 26 per cent schools have provided for CWSN friendly toilets. Belagavi division falls behind in this provision.

### **Water Facility in Toilets**

In 94.15 per cent (618/650) schools, there is water facility in toilets. 614/650 schools, 94.46 per cent, drinking water facility is there. Clearly around 6 per cent schools face water problem, both for toilets and drinking. They may adopt shift arrangements.

### **Other Facilities as per Samagra Shikshana /Samagra Shiksha Karnataka Norms**

508/650 schools, 78 per cent, have RAMPS for the use of CWSN kids. Out of the 508 schools, 163 schools have RAILINGS along with Ramps (25 per cent of total schools). 159 out of 163 schools (almost all of them have also provided Landing Space after the climb. 329/650, 51 per cent schools, have a compound wall that provides safety of children and security for the schools.

### **Timings of the Schools**

Only 73 schools, 11.2 per cent, keep the school open one hour before official time in the morning and one hour after prescribed school hours. This is very good as the children can use Reading Room, do library work, carry on academic activities in the morning and engage in sports/games/library/cultural and other co-curricular activities. On the other hand, 362 out of 646 schools, 56 per cent open and close the school just like a Government Office. They are time-bound schools. In Belagavi division 65 per cent schools open only during officially notified time/hours.

### **6.1.3 Summative Observations on TALP Schools: Basic Infrastructure Facilities:**

There is a balanced spread of schools in the sample (selected by KEA/DSERT/PAN India). 91 per cent are co-educational, HTs are experienced (minimum 10 years), 68 per cent established before 2000 AD, well connected with public transport, 99 per cent run in own buildings.

50 per cent schools are run in more than one building which makes organization of Computer Laboratory difficult. There is an average of 12 rooms per school.

77 per cent TALP schools (650 sample schools) have a dedicated science laboratory and a separate library room (65 per cent). Position in regard to toilet facilities, drinking water, CWSN friendly facilities, is relatively satisfactory. 65 per cent TALP schools (650 sample) open and close schools as per official schooling time. Children have access to Computer Lab only during prescribed school hours.

#### **6.1.4 COMPUTER LABORATORIES in TALP SCHOOLS**

A dedicated Computer Laboratory (CL) is essential for efficient and effective management of TALP. 4 subjects viz., Mathematics, Science, Social Studies and English for students of 3 standards viz., 8<sup>th</sup>, 9<sup>th</sup> and 10<sup>th</sup> are covered under TALP. A minimum of 8 to 12 periods of work per week will be there at the Computer lab if the school has only one section in each standard. If the school has 2 sections, it will be 24 periods out of a total of 45 periods in a week. Normally Government schools are large. There will be full work for a Computer Laboratory. TALP has classified schools under 3 categories for distribution of computers at the rate of 11, 16 and 21 units. Computer laboratory provision is of significance in understanding TALP implementation in schools.

#### **CL set up in Schools**

Table 14: Supply of Systems (Desktops/Laptops/Tablets) to TALP Schools by DSERT

Divisions	Bengaluru	Mysore	Belagavi	Kalburgi	State
Desktops	2385	1762	1973	1538	7658
Laptops	483	329	275	134	1221
Tablets	80	79	56	24	239
No. of Schools	210	153	172	115	650

Source: Primary data.

DSERT had supplied 7658 Desktops, 1221 Laptops and 239 Tables to all the TALP schools in the State (1000 schools). Out of them 650 TALP schools are considered as sample of this study. This table pertains to all the schools, not just sample schools.

An average of 11 desktops to Bengaluru and Belagavi division schools, 12 to Mysore division and 13 to Kalburgi division schools have been supplied. State average is 12 desktops per school. In addition, an average of 2.3 and 2.2 laptops are supplied to Bengaluru and Belagavi division schools. It is 1.6 and 1.2 laptops, on an average to Mysore and

Kalburgi division schools. [2.3 average means 23 laptops across 100 schools. Some schools get them while others may not.] State average supply is 19 laptops for 100 schools. Tablets have also been supplied to 239 schools. Ratio of desktops to laptops to tablets across 650 schools is 84 : 13 : 03. It means that for every 84 desktops supplied to schools, 13 laptops and 03 tablets are supplied.

Laptops are sleek, portable, easy to share among more students and pleasant to operate. Desktops are fixed, not amenable to sharing among more students, need more space and need wiring connections. Tablets are student friendly but not school organization (of CL) friendly to Computer Education classes unless each student has a tablet which will not be the case, given the large number of students in schools. Kalburgi division schools have been supplied relatively more desktops when they become dysfunctional.

Tablets are cheapest, followed by desktops (less cheaper) and then laptops. Desktops/laptops have a shelf-life. Keeping in view the shelf-life of desktops, the DSERT needs to switchover to distribution of Laptops, exclusively Laptops, to all the schools in future and also to replacement of existing, already distributed desktops when they become dysfunctional.

### **The schools have set up Computer Laboratories**

Table 14.1: Status in regard to Computer Laboratories

Divisions	Bengaluru	Mysore	Belagavi	Kalburgi	State
Yes	193	143	148	113	597
Total No. of Schools	210	153	172	115	650
% Yes	91.9	93.5	86.0	98.3	91.8

Source: Primary data.

91.8 per cent, 597 schools out of 650 sample schools have set up a Computer Lab. Lowest provision, 86.0 per cent, is in Belagavi division and highest in the bunch, 98.3 per cent is in Kalburgi division. 53 schools (out of 650) do not have a Computer Lab. Computer Education motivates the students for higher confidence and attainment levels. The Department should insist on/facilitate the setting up of Computer Lab in all the TALP schools.

### **Type of Computers Available**

Table 14.2: Types of Computers available in TALP Schools

All in one (AIO)	Bengaluru	Mysore	Belagavi	Kalburgi	State
Desktops	145	118	129	93	485
%	69.0	77.1	75.0	80.9	74.6
AIO Laptops	142	110	108	63	423
%	67.6	71.9	62.8	54.8	65.1
AIO Tablets	04	01	02	02	09
%	-	-	-	-	1.4

Source: Primary data.

As expected, Kalburgi division sample schools have the highest proportion of desktops, 80.9 per cent, 93 out of 113 schools, and Bengaluru division sample schools, 145 out of 193 schools have the lowest proportion, 69.00 per cent. State average position is 74.6 per cent schools. 485 out of 597 schools, have desktops.

Alternatively, in the same group of 650 schools, 65.1 per cent schools, 485 out of 597 schools have laptops. Highest proportion of supply (71.9 per cent) is to schools in Mysore division. Lowest proportion of supply of laptops is to Kalburgi division schools, 54.8 per cent. Kalburgi is a backward division.

It is noted that the desktops and the laptops supplied by the Department are All-In-One systems, AIO.

All-in-one Desktops, Computers, combine the display screen [a touch screen], and the computer in one package. Other regular desktop has a Computer Case plus a separate monitor.

### **Number of Computers Tables in Computer Laboratory (CL)**

Table 14.3: Number of Computer Tables in Computer Laboratory (CL)

Divisions	Bengaluru	Mysore	Belagavi	Kalburgi	State
No. of Schools with CL	193	143	148	113	597
CE Tables 15 and < 15	137	106	101	96	440
%	71	74	68	85	74
16 to 20	33	24	30	11	98
%	17	17	20	10	16
21 and >	23	13	17	06	59
%	12	09	11	05	10
Total	193	143	148	113	597

Source: Primary data

Note: There is no Computer Laboratory in 53 schools.



In majority of schools, 74 per cent, the Computer Lab is of small size. They can hold/accommodate only 15 and < 15 tables. Kalburgi Division schools have 85 per cent of small size Computer Labs. Around 10 per cent schools have large Computer Labs in all divisions except in Kalburgi division (only 05 per cent). They can accommodate 21 and > computer tables.

### **Type of Tables in Computer Laboratory (CL)**

Table 14.4: Type of tables available in Computer Laboratory (CL)

Divisions	Bengaluru	Mysore	Belagavi	Kalburgi	State
No. of Schools with CL	193	143	148	113	597
Computer Tables	158	120	118	97	493
%	82	84	80	86	83
Regular Tables	21	10	15	10	56
%	11	07	10	09	09
Both	14	13	15	06	48
%	07	09	10	05	08

Source: Primary data

83 per cent schools have commissioned Computer Tables to Computer Labs while 09 per cent schools are satisfied with regular tables.

It is recalled that (see 1.3.2) 84 per cent schools (out of 650) have been supplied Desktops by the Department. Desktops always need Computer tables for their placement/location. 83 per cent schools in the State have it. There is not much difference in this practice across the divisions.

Purchase of furniture for Computer Labs in the State is satisfactory.

### **Seating Arrangement for Students**

Table 14.5: Seating Arrangement for Students

Divisions	Bengaluru	Mysore	Belagavi	Kalburgi	State
Benches	0	02	01	02	05
%	0	-	-	-	01
Chairs	191	140	144	109	584
%	99	98	97	96	98
Both	02	01	03	02	08
%	-	-	-	-	01
No. of Schools	193	143	148	113	597

Source: Primary data

Note: 53 schools do not have Computer Lab.

Seating arrangement for students, that is type of seating – chairs or benches, is ‘good’ across the schools of the State. 98 per cent schools provide chairs for students to sit and work in the Computer Lab. Those schools that make students to sit on benches and work with Computers are exceptions.

**Number of Students that can be accommodated in the Computer Lab**

Table 14.6: Number of Students that can be accommodated in the Computer Lab

Divisions	Bengaluru	Mysore	Belagavi	Kalburgi	State
1 to 20	103	77	68	54	302
%	53	54	46	48	51
21 to 30	67	46	50	42	205
%	35	32	34	37	34
31 to 40	21	17	24	13	75
%	11	12	16	12	13
> 40	02	03	06	04	15
%	-	-	-	-	03
No. of Schools	193	143	148	113	597

Source: Primary data

51 per cent schools are of small size, 34 per cent are of medium size and 16 per cent are of large size. They can accommodate 20 and < 21 to 30 and more than 30 students respectively. Large size computer laboratory, those who can accommodate more than 30 students at a time are relatively more in Belagavi division while they are least in Kalburgi division. Small and medium size Computer Lab is the norm in the State in regard to seating capacity for students.

**Summative Observations on Computer Laboratories in the State**

The DSERT has supplied desktops to schools. Ratio of supply of desktops to laptops to tablets across 1000 TALP schools in 2016-17 is 84: 13: 03. Computers have a short shelf life of 4 to 5 years. In future, while distributing systems to new TALP schools or for replacing worn out systems in existing TALP schools, the Department/DSERT needs to switch over only to Laptops which are sleek, portable, easy to share among student groups and pleasant to operate.

### **Position of Schools in regard to Printers**

Printers are essential appendage to Computers. Plenty of printing activity will be there for the students who engage in individual/group project work, completion of assignments, surf for advanced learning materials, and the like. Many a times they may also need a Scanner within the printer to get copies of drawings, maps, pictures, photographs (Geometry, Geography, History, Biology/Botany, Zoology, Chemistry, Physics; that is almost all subjects) so as to get clarity of concepts. The table below shows the position of schools in regard to availability of printers and printers with scanners.

Table 14.7: Types of Printers available in TALP Schools

Divisions	Printers				
	Facility	Colour	B and W	Total	Scanner in Printer
Bengaluru	34	176	210	66	210
%	16	84	100	31	-
Mysore	37	116	153	58	153
%	24	76	100	38	-
Belagavi	33	139	172	70	172
%	19	81	100	41	-
Kalburgi	21	94	115	27	115
%	18	82	100	23	-
State	125	525	650	221	650
%	19	81	100	34	-

Source: Primary data

All the 650 schools, without a single exception, have provided for printers in the computer lab. However, there are differences in the type of printers across the divisions. Only 19 per cent schools have provided for colour printers. Mysore division is relatively better in this respect as 24 per cent schools provide colour printers in computer lab. 34 per cent schools provide for scanner also. Schools of Belagavi (41 per cent) and Mysore (38 per cent) are relatively better in regard to provision of scanners.

Students are required to complete individual/group projects. They need colour printers many a times for striking impressive effects when they incorporate drawings, pictures, photographs, maps in their projects. Black and White (B and W) printers will not give that effect. They are good only for running matter, for essays, compositions and basic

mathematics. Further, scanner is also needed to get print out many 1/2/3 page documents from textbooks, resource books and similar learning materials – charts, maps etc. Children will be handicapped without colour printers and scanners.

Department of Education/DSERT has not provided printers to TALP schools (see ToR 2.12, IV, p.2). They must have purchased printers from contingency or other sources. A policy of uniformly supplying all the accessories needed for a computer lab should be adopted by the Department. It should be a package comprising of a state of the art AIO Laptops, a LED projector (may be more than one depending upon the strength of the school), a colour printer with scanner, pen drives, computer tables with chairs (as per norms), UPS facility, SMART Boards with writing pens, contingency fund for purchase of cartridges, printing paper, maintenance, service and repairs, wi-fi monthly telephone bills, installation costs etc. TALP implementation should be wholesome (all items of a package), comprehensive (all schools) and systematic. The standard response of the Department will be that there is a problem of funding [see the write up under ToR 2.1.2 TALP components, No. IV, p.2].

The TALP finance ball is getting tossed across State Government, Union Government, Department of Public Instruction/DSERT, RMSA/MHRD, ZP/TP/Schools. Finally the students fail to reach the TALP ball. No single agency is willing to accept full responsibility for development of digital skills, digital learning and technology friendly schooling/education of children. But every Statesman in the larger society envisions the movement of India towards a Digital Society.

**Electricity Supply to Computer Laboratory from Morning to Evening – Status of Schools**

Table 15: Status in regard to Supply of Electricity

Division	Bengaluru	Mysore	Belagavi	Kalburgi	State
Yes	141	88	117	74	420
%	67	58	68	64	65
Total Schools	210	153	172	115	650

Source: Primary data

Table 15.1: UPS Facility for Schools with Intermittent Failure of Electricity

Division	Bengaluru	Mysore	Belagavi	Kalburgi	State
No. of Schools with Problems	69	65	55	41	230
UPS facility	47	43	39	41	170
No UPS	22	22	16	00	60
% with Persisting Problems	10	14	09	00	09
Total Schools	210	153	172	115	650

Source: Primary data

Table 15.2: Capacity of UPS

Division→ Capacity↓	Bengaluru	Mysore	Belagavi	Kalburgi	State
2 Hours	27	14	24	10	75
%	58	33	61	24	44
4 Hours	11	17	09	11	48
%	23	40	23	27	28
6 and > hours	09	12	06	20	47
%	19	27	16	49	28
Total Schools with UPS	47	43	39	41	170

Source: Primary data

65 per cent of 650 TALP sample schools of this study report that they get uninterrupted electricity, from morning till evening, which phenomenon facilitates the running of computer lab without any hindrances. This position is comparable across all divisions in a similar status except in Mysore division schools where 58 per cent schools report that they get uninterrupted power supply.

Normally, schools with power (electricity) problems think of a backup facility like UPS (or generator). No school in this sample has a generator. Among those 230 schools in the State who experience power problems, 170 schools have UPS facility, 74 per cent schools out of 230 schools. 26 per cent schools have to put up with vagaries of power supply and still run the computer lab. It means that 09 per cent of total 650 schools in the State, 60 schools are in distress due to power problems and absence of backup facility.

56 per cent schools who have UPS, among 170 schools who face problems of power, can manage power through UPS for at least 4 hours and many of them up to 6 hours. UPS facility is relatively quite low in Mysore and Kalburgi divisions.

A norm based contingency can be earmarked to all TALP schools by the Department for UPS facility in regions where there is **power** problem.

### **Internet Access in TALP Schools**

Internet access is very important for technology assisted learning programs. Alternatively, Dongle equipment is used for Bluetooth Connectivity. Position of 650 TALP schools in regard to Internet facility through Wi-Fi or Bluetooth is given here. [Wi-Fi is the radio signal sent from a wireless router to a nearby device, which translates the signal into desired data. Wi-Fi full form is Wireless Fidelity].

Table 16: Internet or Dongle Use in TALP Schools

Divisions	Internet		Dongle		None		State Total Schools
	Yes	%	Yes	%	Yes	%	
Bengaluru	57	27	75	36	78	37	210
Mysore	44	29	52	34	57	37	153
Belagavi	27	16	60	35	85	49	172
Kalburgi	11	10	21	18	83	72	115
Total	139	21	208	32	303	47	650

Source: Primary data

47 per cent TALP schools in this sample do not have either Internet facility or use Dongles. [Dongle is a small plug that can be inserted to a (USB – Universal Serial Bus, an equipment to connect to an external internet service provider like Jio, Airtel, Apple etc.; on payment/fixed fees for a fixed period) USB. Dongle is also a variant of Adapter, Bluetooth]. Students of these schools can only learn from preloaded CDs and DVDs on topics/lessons of school syllabi, supplied to the schools by the Department. They cannot surf for information from Google, Amazon and other knowledge, advanced information sources, cannot download content, cannot print, edit, retrieve, download project related assignments. They can have only one-way interaction. Internet/Dongle can make the computer interactive. Children of 47 per cent schools are deprived of this advantage/facility.

Position in regard to deprivation/absence of interactive facility is worse in Kalburgi division schools where children of 72 per cent TALP schools do not have internet/Dongle (Bluetooth) facility. The position is relatively better in Bengaluru and Mysore division schools where children of 63 per cent schools have access to internet/Bluetooth facility.

Wi-Fi is better suited for operating full scale networks as it enables a faster connection, better range from the base station and better wireless security as compared to dongle/ Bluetooth. 139/650 schools, 21 per cent, have wi-fi facility in the total sample TALP schools. Again this position is relatively good in Bengaluru with 57 per cent facility and in wi-fi Mysore division with 44 per cent wi-fi facility schools. It is totally bad in Kalburgi division only 11 per cent wi-fi schools.

208 out of 650 schools use Dongle, 32 per cent schools. This practice is uniformly in equal proportion across Bengaluru, Mysore, Kalburgi division schools. It is again in low usage, 18 per cent schools, in Kalburgi division schools. Further it is observed that the average number of dongles used in the four divisions viz., Bengaluru, Mysore, Belagavi and Mysore is 1.08, 1.30, 1.15 and 1.00 respectively. It is almost 1 dongle per school. There are 81, 68, 69, 21 dongles in each of the four divisions which use dongles in 75, 52, 60, 21 schools respectively.

### **Status of Possession of Projectors in TALP Schools**

Projectors are highly essential for Technology Assisted Learning. Screens on desktops and laptops are small. The size ranges from 19 to 34 inches measured diagonally. Average size is 22 to 24 inches. Laptop screen sizes range from 11 to 17 inches. The size of a Projector screen is 100 to 120 inches.

Viewing a picture, graph, map, chart, photo, drawing, equipment, an activity, a conversation, a question/answer session, and the like which are integral to school syllabus/topics/lessons on a projector triggers the graphic imagination of students. It lends clarity to the students, facilitates better concept formation, improves cognitive skills, assists in colour differentiation, promotes attention span, concentration and eventually contributes to better learning among students. Projector should be an essential input in a TALP package. Here is a discussion of the position of schools in regard to possession of projectors. Normally, in TALP schools there needs to be one projector in each section of each standard (8<sup>th</sup>/9<sup>th</sup>/10<sup>th</sup>) wherein it is used for classroom teaching with the help of laptops/desktops/tables.

Table 17: Projectors available in TALP Schools

Division	Bengaluru	Mysore	Belagavi	Kalburgi	State
Projector is there	188	140	152	109	589
No. of Schools	210	153	172	115	650
% Provision	90	92	88	95	91

Source: Primary data

91 per cent TALP schools in the State have projectors. Provision of projectors across schools of the 4 divisions range from 88 per cent (Belagavi) to 95 per cent (Kalburgi division schools). There is not much variation across the divisions. Proper use of laptops, efficient TALP lessons are given through the use of projectors in TALP schools. Wi-Fi/Bluetooth availability is another issue. Even without them, CDs/DVDs, pre-loaded cassettes can be used effectively.

There are 3 types of projectors – DLP, LCD and LED. LCD is Liquid Crystal Projector. It can provide a wide range of colors and shades in the projected image as pixels in the projector (dots/points that make up a picture) can be made pliable, to get colour combinations of screen. However, LED projectors are better. They have a longer lifespan, deliver better colors, have lower power consumption, and brighter in looks; virtually zero maintenance costs. They are smaller and generate less heat. In sum, LED is better than LCD. DLP (Digital Light Processing) projectors use micro mirrors for projection. The colour display in DLP is not as good as in LCD projectors. LCD has better picture quality and sharper images. In sum, LCD is better than DLP.

Table 17.1: Status of possession of LCD projectors in TALP Schools

Divisions	No. of Schools with Projectors	Number LCD	% LCD	Access to MODEM Yes	Total Schools
Bengaluru	188	153	81	25	210
Mysore	140	119	85	14	153
Belagavi	152	129	85	11	172
Kalburgi	109	86	79	07	115
State	589	487	83	57	650

Source: Primary data

83 per cent schools, among those 589 schools who have reported that they have projectors in their schools, have LCD projectors. 17 per cent schools use DLP projectors, Percent schools who use LCD projectors range from 79 per cent in Kalburgi division to 85



per cent each in Bengaluru and Mysore divisions. In Belagavi division, the usage of LCD projectors is at 81 per cent.

57 out of 650 schools, 09 per cent have MODEM facility. A modem is a small box that connects a device (Computer) to the internet without the support of wi-fi. Modem uses a wan network (wide area network). It is beyond LAN, (Local Area network). Servers are connected to Modems or LANS or WANS.

## **6.2 Summative Observations on Organization and Management of TALP in 650 Sample TALP Schools**

91.8 per cent, 597 out of 650 schools, have set up a Computer Lab. Lowest provision, 86 per cent, is in Belagavi division.

74.6 per cent schools in the State manage computer labs with desktops. Lowest proportion of computer labs with desktops, 69.00 per cent, is in Bengaluru division while highest proportion, 80.9 per cent, is in Kalburgi division. Desktops and Laptops supplied by the Department/DSERT are All-in-one systems.

In majority of schools, 74 per cent, computer lab is of small size. They can accommodate 15 and <15 tables. In Kalburgi division, 85 per cent schools have small size computer lab. 83 per cent schools in the State have provided Computer tables to computer labs. 98 per cent schools provide chairs for students to sit and work in the computer lab. Position in regard to purchase of furniture by schools in the State across all the divisions is ‘satisfactory’.

50 per cent TALP schools are of small size, 34 per cent are of medium size and 16 per cent are of large size. They can accommodate 20 and <20, 21 to 30, 31 and more than 31 students. Large size computer laboratory is relatively more in Belgaum division and less in Kalburgi division schools.

All the 650 TALP schools, without exception, have provided for printers in the computer labs. However, only 19 per cent schools have provided for colour printers. 34 per cent schools in State have provided for printers with scanners. Printers are not provided by the Department.

The Department needs to plan for supply of a **PACKAGE** of computer laboratory materials, a **Computer Laboratory Kit** to all TALP schools, at present, and all schools that will be under TALP in future. The Kit should comprise of a LED projector (may be more than one depending upon the strength of the school), a colour printer with scanner, pen drives, SMART BOARDS with Pens, computer tables with chairs (as per norms), UPS facility, contingency fund for purchase of cartridges, printing paper, maintenance, service and repairs, wi-fi monthly telephone bills, installation costs etc. TALP implementation should be wholesome (all schools) (all items of a package), comprehensive and systematic. It should not be partial, piecemeal and half-hearted. The standard response of the Department will be that there is a problem of funding. Supply of a TALP Kit to schools is one of the basic steps to move towards a '**DIGITAL SOCIETY**'.

65 per cent TALP schools in the State get 24 bar 7 (24/7) uninterrupted electricity, which is essential for computer lab. No school in the State has a generator. Among the 35 per cent schools that face power problems, 26 per cent schools (out of 650) have UPS facility. Computer labs in 09 per cent schools (out of 650) are at the mercy of the power God. Among schools with UPS (26 per cent schools), UPS capacity is for 4 and > 4 hours. UPS facility is quite low in schools of the Kalburgi division.

47 per cent TALP schools neither have Internet nor Bluetooth facility. They can only learn from pre-loaded DVDs/CDs listen to/view lessons. There is no possibility of advanced operations and interactive facility with the systems. Position in Kalburgi division is relatively worse, where 72 per cent children do not have access to Internet/Blue tooth.

91 per cent TALP schools in State (650 sample schools) have projectors. There is not much variation across the divisions. Among the schools who have projectors (589 out of 650), 83 per cent schools have LCD projectors. 17 per cent use DLP projectors. No school in the State has LED screen/projector. 09 per cent TALP schools in the State also have a MODEM facility.

### **6.2.1 Organization of Computer Education in Schools: TALP is the Computer Education Component in Schools**

Table 18: Standards at which TALP classes Begins

Divisions	8 <sup>th</sup>		9 <sup>th</sup>		10 <sup>th</sup>		NA		No. of Schools
	No.	%	No.	%	No.	%	No.	%	
Bengaluru	173	82	19	09	02	-	16	08	210
Mysore	136	89	06	04	03	-	08	05	153
Belagavi	155	90	03	02	01	-	13	08	172
Kalburgi	70	61	34	30	01	-	10	09	115
State	534	82	62	10	07	01	47	07	650

Source: Primary data

82 per cent TALP schools in the State (650 sample schools) begin Computer Education at 8<sup>th</sup> standard. This figure reaches nearly 90 per cent in Mysore and Belagavi divisions while it is so only in 61 per cent schools in Kalburgi division. There are several schools which maintain 1 to 8 Ups stage, 9 to 10 secondary and 11<sup>th</sup> and 12<sup>th</sup> higher secondary. In such schools, high school begins with 9<sup>th</sup>. Hence, nearly 10 per cent schools begin TALP from 9<sup>th</sup> standard. However, it is wondered as to why 07 schools, 1 per cent begin TALP from 10<sup>th</sup> standard. TALP should begin at 8<sup>th</sup> as per design. Kalburgi division schools need intensive monitoring in this regard. [11 per cent schools, 70 out of 650, do not have 8th standard. They begin from 9<sup>th</sup> standard; 53 schools do not have computer lab.

#### **Adjustment to TALP lessons from 8<sup>th</sup> Standard Students – Status**

228 out of 650 schools did not respond to this question. They have no idea. This is 35 per cent schools. 270 TALP schools, 42 per cent, report that less than 30 per cent students had exposure to Computer Education. There are 30 per cent UPS schools in the State where computer education was given through supply of Computers under a programme called Computer Assisted Learning Centres (CALC). This was exclusively a programme under SSA, Sarva Shiksha Abhiyana. Perhaps, students had exposure to Computer Education under CALC. A total of 391 out of 650 schools (leaving out 35 per cent schools who have no idea at all), that is 60 per cent schools report that students of their schools had exposure to Computer Education before they come to 8<sup>th</sup> standard in at least 30 to 60 per cent cases of students, minimum 30 per cent, maximum 60 per cent. In rest of the 5 per cent cases of schools, it is more than 60 per cent students with Computer Education exposure.

HTs report that in a significant (but small) proportion of cases, they find it difficult to transact TALP when students (at least 50 per cent students) did not have exposure to Computer Education at UPS stage.

A great majority of students had a little exposure to Computer Education/CALC experience, before they entered 8<sup>th</sup> standard of TALP high school. This is of advantage to TALP implementation.

Table 19: Students learning through Computers at the same pace

Divisions	Bengaluru	Mysore	Belagavi	Kalburgi	State
Yes (No.)	168	126	134	95	523
%	80	82	78	83	80
No. of Schools	210	153	172	115	650

Source: Primary Data

80 per cent of TALP schools in the State, report that students in their schools learn at the same pace in TALP classes (learn TALP lessons). This position is similar across all divisions. Of the rest, 17 per cent schools report that the pace of learning under TALP is not uniform, while 03 per cent have not given a response.

### **Proportion of Students who are slow in learning**

345 out of 650 schools, 53 per cent report that more than 20 per cent of students in the school/classes are slow in learning through Computers. Out of rest of the 305 schools, 90 gave no response. In the residual 215 schools, slow learners are within 20 per cent of students.

The bottom line is that there are slow learners, as reported by HTs, in 86 per cent TALP schools. Proportion of slow learners who are more than 20 per cent in schools are 46, 54, 56 and 60 across Bengaluru, Mysore, Belagavi and Kalburgi divisions respectively. It is highest at 60 per cent in Kalburgi division.

### **e-learning of School Subjects**

The DSERT/Department supplied pre-loaded cassettes as well as CDs/DVDs to schools.

### **Schools which provide only Pre-Loaded Computers to Students**

103 schools have not responded to this question (NR category). Of the rest, 293 out of 650 schools, 45 per cent give only pre-loaded laptops, fixed lessons, to students under the TALP. This practice is highest at 51 per cent in Belagavi division and lowest at 39 per cent in Kalburgi division.

### **Use of CDs/DVDs by Students**

There is No Response among 545 schools. This means that HTs do not (know what students do/do not) keep track of this practice. In 105 schools students use CDs/DVDs, advanced learning, apart from fixed learning through pre-loaded laptops, that is, in 16 per cent schools. This is a uniform practice (not identical) across all division schools.

### **Habit of Visiting Websites:**

Websites of learning (like Google, Amazon, Alexa) are useful for advanced information, knowledge, data, for school students (for everybody). Do students visit open source web-sites? What is the practice among students of 650 TALP schools?

198 HTs have preferred NR. Another 198 HTs have reported that students do not visit websites. 254 HTs, 39 per cent report that students in their schools visit websites. This is **good**. Students may not visit websites for learning for 03 reasons:

There is no internet/Bluetooth facility for them at school. Internet/Bluetooth is there in 53 per cent schools. It means that among 53 per cent, in 39 per cent schools, students use websites and in 14 per cent schools who have internet/Bluetooth facility, students do not use websites for advanced learning. Other 2 reasons may be possible.

- Students in the 14 per cent schools are not aware of such websites; or
- They do not have the skills to use these applications. Google/Amazon can be used by any student (any person) with Smart laptops/mobiles. This is not the case with use of Alexa. Super soft gadgets are needed for this purpose.

**Table 20: Status of Possession of CD/DVD Library in the TALP schools**

Divisions	Bengaluru	Mysore	Belagavi	Kalburgi	State
Yes, it is there	22	19	21	08	70
%	10	12	12	07	11
No. of Schools	210	153	172	115	650

Source: Primary data

Only 11 per cent schools have a CD/DVD library in the State (650 TALP schools). It is lowest at 07 per cent in Kalburgi division.

### **Number of CDs/DVDs in Schools**

Even without a library for CDs/DVDs, there can be CDs/DVDs, lessons on school subjects, in schools.

Table 20.1: No. of CDs/DVDs available in TALP Schools

Divisions	<50	%	51 to 100	%	101 to >	%	NR	%	Total Schools
Bengaluru	19	09	03	01	01	01	187	89	210
Mysore	24	16	02	01	00	00	127	83	153
Belagavi	24	14	04	02	00	00	144	84	172
Kalburgi	08	07	03	03	00	00	104	90	115
State	75	12	12	02	01	00	562	86	650

Source: Primary data

There are 88 schools, 14 per cent, who maintain a repository of CDs/DVDs on lessons in school subjects. Out of them 12 per cent, 75 schools (12 out of 14 per cent), have less than 50 CDs/DVDs across 4 subjects promoted under TALP. Only 02 per cent schools have CDs/DVDs in the range of 50 to 100 numbers. Position of Kalburgi division schools is relatively poor even in this respect.

### **Computer Education Notebook Maintenance of Students**

Recapitulation of lessons, ready reference, and type of lessons covered across school subjects, recording and remembering main points will all be easy for students when they maintain an exclusive notebook for Computer Education classes. This practice will facilitate better and more stabilized learning. Normally, students keep a notebook for each one of the school subjects. There is a possibility of students treating Computer Education classes as additionality and ignoring the need for maintaining a notebook for Computer Education classes. If schools insist on this, students may maintain Computer Education notebooks.

Table 21: Practice of Maintenance of computer education Notebooks/Exercise Books by Students: Report from HTs

Divisions	Yes, they Keep notebooks	%	No	%	NR	%	Total
Bengaluru	168	80	15	07	27	13	210
Mysore	124	81	13	08	16	10	153
Belagavi	128	74	15	09	29	17	172
Kalburgi	100	87	08	07	07	06	115
State	520	80	51	08	79	12	650

Source: Primary data

In 80 per cent TALP schools in the State, students keep exercise/note books for Computer classes. This percentage ranges from 74 per cent schools in Belagavi division to 87 per cent in Kalburgi division. 08 per cent schools in State have clearly reported that there is no such expectation from students, as a school policy. In 12 per cent schools, HTs are not aware whether students do it or not. They have given NR.

Table 21.1: Students record their learning in TALP Classes (Computer Education)

Divisions	Yes	%	No	%	NR	Total Schools
Bengaluru	162	77	06	03	42	210
Mysore	122	80	02	01	29	153
Belagavi	126	73	02	01	44	172
Kalburgi	99	86	01	01	15	115
State	509	78	11	02	130	650

Source: Primary data

In 520 schools, students are expected to maintain computer education notebook. In 509 out of 520 schools, 78 per cent, schools check and insist on regular recording of computer education lessons. This practice is at 73 per cent in Belagavi division schools and at 86 per cent in Kalburgi division schools. Retrieval of learning would be easier with a computer education notebook and recording thereon.

### **Mid-term/Annual/Periodical Examination in Computer Education, in TALP Schools:**

Computer Education is a subject in Board examination at X standard. Schools may not conduct computer education examination/tests in school examinations. Here is a reality check on this concern.

Table 21.2: Status of Computer Education Examination conducted in TALP Schools.

Divisions	Yes	%	No	%	NR	%	Total Schools
Bengaluru	51	24	120	57	39	19	210
Mysore	53	35	82	54	18	12	153
Belagavi	44	26	93	54	35	20	172
Kalburgi	30	26	69	60	16	14	115
State	178	27	364	56	108	17	650

Source: Primary data

Computer Education examination is conducted with other school subject examinations in 27 per cent schools. 56 per cent schools in State report that they do not conduct it. 17 per cent HTs have given no response. Proportion who conduct Computer Education examination is slightly higher at 35 per cent in Mysore Division.

### **Computer Education Examination Marks in Marks Card – Practice in TALP Schools**

160 out of 178 schools who conduct Computer Education examination, 90 per cent of such schools, do record the marks obtained in computer education in the marks card. All the schools in Belagavi division do so.

### **Computer Education Assignments/Project Work**

258 out of 650 schools give assignments to students, engage them in project work involving use of CDs/DVDs, advanced learning materials available in websites. They evaluate this work and give marks/grade points for such work. Proportion of such schools is 40 per cent. This is a uniform practice across all divisions. This practice may be in lieu of examination in Computer Education.

### **6.2.2 MIS Training for HTs**

The Karnataka State Accreditation and Assessment Council, KSQAAC has developed software **for digital governance of** schools, known as MIS, Monitoring and Information System. It is expected that TALP schools should be the first in line for adoption of MIS. The DSERT has provided training to HTs through the DIETs for adoption of MIS.



178 out of 650 HTs, 27 per cent have received MIS training. Such training is highest in Mysore division at 35 per cent and lowest at 21 per cent in Belagavi division.

### **6.2.3 SATS Management in TALP Schools**

Student Attainments Tracking System (SATS) is student-centric software developed by the KSQAAC/Department of Education. It was launched in 2016 and covers 3<sup>rd</sup> to 9<sup>th</sup> standards of schooling of children. Children's learning ability is tested every year, in each standard; tests are independent of school examinations. All children in school system, except private unaided schools, are tested; that is, all those who study in State Board schools. Annual report on children's learning progress, learning style, difficulty spots across subjects and standards in the system and follow up actions thereon eventually helps in effecting correctives, remedial action and improvement of the system. All schools are mandated to adopt SATS and guidelines thereon. Here is the data on incorporation of SATS in TALP Schools.

Table 22: Adoption of SATS in 650 TALP Schools

Divisions	Bengaluru	Mysore	Belagavi	Kalburgi	State
Yes, adopted	208	153	169	113	643
%	99	100	98	98	99
No. of Schools	210	153	172	115	650

Source: Primary data

Adoption of SATS is reported by 643 out of 650, 99 per cent schools of the State. Only 07 schools, as per their submission, have not adopted so far. They may be private aided schools. Reasons are not given. Break-up of 07 schools is: Bengaluru – 02, Belagavi – 03, Kalburgi – 02.

Table 23: Acceptance of SATS in 650 TALP Schools

Divisions	Bengaluru	Mysore	Belagavi	Kalburgi	State
Yes, Useful	199	149	161	109	618
% Yes/SATS	95	97	94	95	95
No. of Schools	210	153	172	115	650

Source: Primary data

95 per cent schools in the State, 618 out of 643 who have adopted SATS, have reported that SATS is definitely useful for them. 07 schools, 1 per cent schools have not adopted. Hence, they do not figure in this analysis. Another 04 per cent, 22 schools, report that, SATS is useful ‘to some extent’. There is no response from 3 schools. Satisfactory acceptance of SATS is uniformly (not identically) observed across schools of all divisions.

### **Proficiency of TALP Schools in e-schooling**

Teachers of Science, Mathematics, Social Studies and English were given Induction Training for TALP in DIETs. They were taught Basics of computer skills/operations. Many of them were also given Refresher/Advanced Skills training. They were also familiarized with the skills of developing e-lessons in their subjects. It is to be checked as to how many teachers have used the skills to develop e-lessons in their subjects. They were also advised to share their e-lessons with DIETs who would subject the lessons to quality check and later share it as Common Property Resource (CPR) for all schools. Here is the data on this feat by schools.

### **Production of e-lessons in TALP Schools**

Table 23.1: Development of e-lessons by 650 TALP Schools

Divisions	Bengaluru	Mysore	Belagavi	Kalburgi	State
Yes, developed	118	77	115	67	377
%	56	50	67	58	58
No. of Schools	210	153	172	115	650

Source: Primary data

Subject teachers have developed e-lessons in 377 out of 650, 58 per cent schools. Proportions of schools that have developed e-lessons across divisions are: Bengaluru (56 per cent, even being an IT City); Mysore (50 per cent); Belagavi (67 per cent, highest in the bunch) and Kalburgi (58 per cent, good show by a backward division).

Production of e-lessons was a solo performance by individual teachers or it was a collaborative effort either with colleagues or with students

### **Method of Production**

Table 24: Independent or Collaborative Effort for developing e-lessons

Divisions	Bengaluru	Mysore	Belagavi	Kalburgi	State
Independent	33	20	45	29	132
%	32	26	39	43	35
With Colleagues	68	54	58	31	211
% age	58	70	50	46	56
With Students	12	03	12	07	34
%	10	04	11	11	09
Total % to Columns	118	77	115	67	377

Source: Primary data

35 per cent subject teachers in the State, 132/377, have developed e-lessons as a solo effort. This is good. 56 per cent have done it as a collaborative effort with their colleagues. This may be due to paucity of skills for solo effort or because they wanted to validate the contents, concepts and method of delivery to students. Collaborative development is always the best method. 09 per cent teachers have involved students. This is also good as students get exposure to the skills.

Collaborative effort is highest, with colleagues, at 70 per cent in Mysore division and lowest at 46 per cent in Kalburgi division. Collaborative production, with both colleagues and students should be encouraged by the Department.

### **Sharing of e-lessons by Schools with DIETs**

Pro-active schools and also those who are confident of the quality of e-lessons they produce, normally share their e-lessons with their district DIETs for purposes of quality checks and for sharing with other schools/subject teachers.

Table 25: Sharing of e-lessons with DIETs

Divisions	Bengaluru	Mysore	Belagavi	Kalburgi	State
Yes shared	59	29	67	34	189
% shared	50	38	58	51	50
No, not shared	59	48	48	33	188
Total Schools	118	77	115	67	377

Source: Primary data

50 per cent of 377 TALP schools, who produce e-lessons, have shared their e-lessons with their district DIETs. Bengaluru and Kalburgi division schools fall in line with the State average practice. Sharing is from 58 per cent schools in Belagavi division, highest in the bunch, and from 38 per cent schools in Mysore division, lowest in the bunch.

#### **6.2.4 CASCADE Effects of TALP Trainings**

Given the fixed and limited resources for capacity building of teachers in TALP schools to engage in e-learning transactions in their schools, teachers who were given TALP training/Induction training/training in Basic Skills, were advised to share the skills learnt by them at the time of training, with their colleagues at school, who could not get the opportunity for TALP training. It would be of value to know as to how many TALP trained teachers in TALP schools shared their skills with their colleagues. Here is the data on how many schools reported on sharing incidence and how many untrained teachers were initiated by trained teachers in TALP schools.

Table 26: Sharing of Induction I training skills with colleagues by trained teacher

Divisions	Bengaluru	Mysore	Belagavi	Kalburgi	State
Yes, shared	203	145	160	107	615
% shared	97	95	93	93	95
Total Schools	210	153	172	115	650

Source: Primary data

Sharing one's knowledge/skills with colleagues/others, is a high level culture. The State is rich in regard to sharing culture. 95 per cent of TALP schools report that TALP trained teachers shared their Induction I training skills with their colleagues. This is a highly appreciable scenario. There is not much variation in the sharing practice, cultural richness, across the 4 divisions of the State.

#### **Volume of Sharing of IT Skills**

There are 3,909 TALP trained teachers in the 650 TALP high schools, the sample schools of this study (See Tool 2). They have sensitized 2,445 colleagues/teachers, among themselves, at an average of 0.63 teachers per every TALP initially trained teachers. Here is a division-wise data on sensitization of colleagues.

Table 26.1: Sensitization of Colleagues (Number)

Divisions	Bengaluru	Mysore	Belagavi	Kalburgi	State
No. Sensitized	846	558	620	421	2445
Total TALP Trained Teachers	1297	913	1056	643	3909
AV No. Sensitized	0.65	0.61	0.59	0.65	0.63
No. per every 100 TALP trained teachers	65	61	59	65	63

Source: Primary data

**Note: AV = means average; No. = Number.**

On an average, every 100 TALP trained teachers have sensitized 63 of their colleagues. Such sensitization ranges from 59 colleagues in Belagavi division to 65 colleagues in Bengaluru and Kalburgi divisions. It is not average of one (1). It means that at least 37 per cent TALP trained teachers have not been able to sensitize any of their colleagues. 63 per cent have sensitized. These 63 per cent teachers (2,445 teachers) are spread across 615 TALP schools, 95 per cent of total TALP schools.

**Number of TALP Schools in which sensitized teachers used the IT skills and conducted e-lessons, as per HTs' report.**

Colleagues were sensitized by TALP trained teachers in 615 TALP schools. As per HTs report, in how many schools did the sensitized colleagues use the IT skills they acquired for conducting TALP lessons. As per HTs' update, the sensitized teachers conducted TALP lessons in 593/615, 96 per cent schools. **It means that sharing of skills through cascade model has been a success story**, even while, it is not a complete success as only 63 per cent TALP trained teachers sensitized their colleagues. So far, so good.

**6.2.5 Refresher Training under TALP**

The TALP programme incorporated advanced training for those TALP Induction training received teachers. This advanced training was in the second phase to develop a team of Mentors, TALP Co-coordinators (at the rate of 1 teacher per school). The trainees were given web links on school subjects and skills to use them. Web links served during Refresher Training, as per syllabus given by DSERT/ToR/KEA are: Need for ICT in education, Rationale for integration of ICT with school syllabus, history of ICT, Interface between educational technology and curriculum of schools, skills needed for use of electronic gadgets and capsule for motivation of teachers to use technology in classrooms.

**No. of Schools where TALP teachers were given Refresher Training [to be Mentors/ TALP coordinators in Schools].**

Table 27: Refresher Training received by Teachers [No. of Schools data]

Divisions	Bengaluru	Mysore	Belagavi	Kalburgi	State
Yes, given, No.	132	99	108	62	401
% given	63	65	63	54	62
No. of Schools	210	153	172	115	650

Source: Primary data

One or the other teacher has been given Refresher Training in DIETs in 62 per cent of 650 TALP schools. This proportion is lowest in Kalburgi division at 54 per cent and highest at 65 per cent in Mysore division.

Table 28: Utility of Web links given at Refresher Training

Divisions	Bengaluru	Mysore	Belagavi	Kalburgi	State
Yes, web links were useful	125	97	101	60	383
%	95	98	94	97	96
Yes, were relevant	122	96	102	60	380
%	92	97	94	97	95
Yes, were simple to comprehend	132	97	106	62	397
%	100	98	98	100	99
No. of Schools	132	99	108	62	401

Source: Primary data

Almost all the teachers/schools who received training have found that the training and the web links given to them have been useful. There are a few, very few, exceptions. This is true of all divisions. Further, all teachers who received Refresher Training from 401 schools in the State are unanimous and clear in their opinion about the websites: they are not only useful for teaching transactions, but also relevant to their syllabus and simple to comprehend.

### **6.2.6 Audit of School Budget (including Computer Laboratory Expenditures)**

There is no system of audit of expenditures of government schools. Private aided schools get their budget/expenditures/accounts audited. This is essential. However, some government schools, exceptions, may maintain budget of their contingency expenditures. They are not subject to any audit. Audit, if any, will be internal audit.

Table 29: School Budgets and Their Audit

Divisions	Bengaluru	Mysore	Belagavi	Kalburgi	State
Yes, Budget audited	72	69	68	56	265
% audited	34	45	40	49	41
No. of Schools	210	153	172	115	650

Source: Primary data

41 per cent schools/HTs in the State report that they have got their school/CL budget audited. This report ranges from 34 per cent in Bengaluru division schools, through 40 per cent schools in Belagavi division, 45 per cent schools in Mysore division to 49 per cent in Kalburgi division. Audit sense is relatively high in Kalburgi division schools.

### **6.2.7 Use of DIKSHA Portal by Schools:**

DIKSHA – Digital Infrastructure for Knowledge Sharing is a nation-wide open access (free for all) platform for the benefit of NPT (National Platform for Teachers) and students of all Boards (CBSE/STATE/.....) which provides digital lessons on topics/subjects of the school/college curriculum. It was launched by the NCERT/MHRD in September 2017. It is especially useful during pandemic times (as always even without any pandemic). It has been adopted all over the country. It provides OER – Open Educational Resources to NPT. A great majority of the sample schools use DIKSHA.

Table 30: No. of Schools using DIKSHA Portal

Divisions	Bengaluru	Mysore	Belagavi	Kalburgi	State
Number Using	194	137	151	101	583
%	92	90	88	88	90
No. of Schools	210	153	172	115	650

Source: Primary data

90 per cent of TALP schools in State use DIKSHA platform. It is to be noted that a school needs to have wi-fi or Bluetooth facility to use DIKSHA. Use of DIKSHA ranges

from 88 per cent schools in North Karnataka division to 90 per cent in Mysore division and 92 per cent in Bengaluru division schools.

**Table 31: UTILITY Perceptions of DIKSHA Portal by TALP Schools**

Divisions	Bengaluru	Mysore	Belagavi	Kalburgi	State
Useful	168	121	132	91	512
%	87	88	87	90	88
Relevant	09	06	03	02	20
%	05	04	02	02	03
Simple to Comprehend	17	10	16	08	51
%	09	07	11	08	09
Total Schools	194	137	151	101	583

Source: Primary data

88 per cent of schools report that DIKSHA is a useful platform. This report is uniform (not identical) across all division schools. However, schools feel/opine/report that DIKSHA is not directly relevant to their needs/syllabi and also DIKSHA lessons are not simple to comprehend. It is noted that DIKSHA is not a customized digital resource for the needs of individual States/regions.

**Table 32: Availability of TALP Lessons/ Computer Classes/ICT Texts in offline/print mode.**

Divisions	Bengaluru	Mysore	Belagavi	Kalburgi	State
ICT Text Given	167	125	137	100	529
%	80	82	80	87	81
No. of Schools	210	153	172	115	650

Source: Primary data

81 per cent schools in State have given ICT text to a student that is Computer Education textbook. This is done by 87 per cent schools in Kalburgi division. This will be useful to students as it serves as a Ready Reckoner.

### **CE Text/ICT Incorporated in Computers**

529 schools have given ICT TEXTS. Out of them 312 schools, 59 per cent have incorporated this text in desk/lap tops/computers. Wi-fi/Bluetooth is needed for incorporating any material to the computers. This is the uniformly (not identically) adopted practice across schools of all divisions.



### **Remedial Classes for Slow Learners**

345 out of 650 schools, 53 per cent reported that more than 20 per cent of students are slow in learning through computers [refer back Section 1.9.4]. There are slow learners in other schools, may be less than 20 per cent. Schools conduct remedial classes for students who are slow in learning through computers. This is their **DUTY**.

Table 33: Remedial Classes for slow learners in TALP Schools

Divisions	Bengaluru	Mysore	Belagavi	Kalburgi	State
Yes, we conduct Remedial Classes	184	140	154	104	582
%	88	92	90	90	90
No. of Schools	210	153	172	115	650

Source: Primary data

90 per cent TALP schools in the State conduct Remedial Classes for slow learners in Computer Education. **This is good**. There is not much difference in the proportion of schools across divisions in conduct of remedial classes.

### **Use of Computers for Remedial Classes in Computer Education, in TALP Schools**

Concept formation and Skill Development will be clear and stable when Computers are used for Computer Education classes and demonstration is given, just as it is for regular classes. How many schools adopt this practice that is, use of computers for Computer Education classes is give in the below table.

Table 34: Use of Computers for Remedial Classes

Divisions	Bengaluru	Mysore	Belagavi	Kalburgi	State
Yes, We use	125	96	110	74	405
%	68	69	71	71	70
Total Schools	184	140	154	104	582

Source: Primary data

Out of 582 schools who conduct Remedial classes for slow learners, only 70 per cent schools use Computers, also for remedial classes. This is uniformly the same practice across all divisions.

**Students as a factor in organization of TALP:** 82 per cent TALP schools in the State begin Computer Education at 8<sup>th</sup> standard. This figure reaches 90 per cent in Mysore and Belagavi divisions. Among these schools, who report like this, 42 per cent schools find it

difficult to initiate learning transactions under TALP as hardly 30 per cent students at 8<sup>th</sup> had exposure to computers before 8<sup>th</sup>. That is majority of students had a little exposure to Computer Education under CALC programme of SSA.

The pace of learning among at least 80 per cent students, under TALP, is uniform. Problem of slower pace of learning is with 20 per cent students.

### **Computer Education and Use of CDs/DVDs for e-learning**

45 per schools give **only** pre-loaded laptops to students, fixed lessons. Proportion of schools adopting this practice varies across divisions – it is 51 per cent in Belagavi division. Further, it is observed that in 16 per cent schools, students use CDs/DVDs **also** for e-learning. In 39 per cent schools, students visit learning web-sites also even while 53 per cent schools have blue tooth/wi-fi facility. Others may not be either aware of schools related websites or not having skills to use them. 11 per cent schools maintain a CD/DVD library, very low proportion. Even without a dedicated CD/DVD library schools can maintain a repository of CDs/DVDs. 14 per cent schools maintain a repository. Out of them 12 per cent have less than 50 CDs/DVDs across 4 subjects viz., Science, Mathematics, Social Studies and English and across 3 standards viz., 8<sup>th</sup>/9<sup>th</sup> and 10<sup>th</sup>. This is a paltry possession, that too, in 11 per cent TALP schools.

Students maintain Computer Education notebooks, as expected by schools, in 80 per cent TALP schools. Schools/subject teachers, check the Computer Education notebooks of students, periodically.

Only 27 per cent of TALP schools include Computer Education as a subject/paper during mid-term and annual examinations. Among them, 90 per cent schools include Computer Education marks in report cards of students. In addition, 40 per cent schools give assignments/projects for students, evaluate them and give feedback to students. In essence, 67 per cent TALP schools treat Computer Education in formal ways for assessment.

### **MIS and SATS in TALP Schools**

TALP schools are in the forefront of Digital Schooling in the State. They are expected to adopt MIS for school governance. Only 27 per cent HTs who have received MIS training do so. Such schools are highest in Mysore division (35 per cent) and lowest (21 per cent) in Belagavi division.

**SATS:** 99 per cent schools of the State, 643/650, have adopted SATS [07 schools are private aided schools]/Out of them 95 per cent also report that SATS is a useful initiative of the DoE/GoK.

**Proficiency of TALP Schools in e-learning Initiatives:**

58 per cent of Subject teachers of TALP schools, 377/650 (04 subjects) have developed e-lessons in their subjects. Among them, 35 per cent have done it as a solo effort, [132/377]. 56 per cent, 211/377, have done it in collaboration with their colleagues. 09 per cent teachers (34/377) have involved students. Collaborative effort is always good as it ensures quality of lessons (56 per cent cases) or gives exposures to students (09 per cent cases).

50 per cent of TALP teachers who produced e-lessons (377/650) have shared them with their district DIETs for validation (quality check) and onward sharing with other schools.

**Cascade Effects of TALP Trainings:**

95 per cent of TALP schools (650), report that the teachers of their schools who received Induction I training, sensitized their colleagues. 3,909 Induction level I trained teachers of 650 sample TALP schools, reportedly trained 2,445 colleagues (sensitized). It means every 100 trained teachers sensitized 63 colleagues. This was done in 615/650 TALP schools. Out of the 615 schools, 593, 96 per cent schools, report that the sensitized teachers used the newly acquired skills to conduct TALP classes.

**Refresher Training for 650 TALP Schools Teachers**

One or other teacher has been given Refresher Training in DIETs in 62 per cent of 650 TALP schools. They were familiarized with web-sites specialized in learning of school subjects during this training. 96 per cent teachers from these schools report that these web sites are useful, 95 per cent report that they were relevant to their school subjects and 99 per cent report that lessons are simple to comprehend.

**School (Computer Laboratory) Budget Audit**

There is no system of audit in individual government schools (no external audit). Still 41 per cent schools report that they have gone for Internal Audit of Computer Laboratory expenditures in their schools.

### **Use of DIKSHA Portal in TALP Schools**

90 per cent TALP schools use DIKSHA platform. Out of them, 88 per cent report that DIKSHA platform is useful. However, hardly 03 per cent schools feel that DIKSHA lessons are relevant to their school syllabi, while 09 per cent schools opine that DIKSHA lessons are simple to comprehend.

### **ICT/Computer Education Texts given to Students**

81 per cent schools provide textbook of Computer Education lessons that are used under TALP (529/650). Out of 529 schools, 312 schools (59 per cent) have also incorporated Computer Education lessons in the laptops/desktops (Computers).

### **Remedial Classes for slow Learners in Computer Education**

53 per cent schools had reported on at least 20 per cent slow learners in Computer Education in their schools. In other schools (47 per cent schools) there are also slow learners, may be less than 20 per cent. 90 per cent TALP schools conduct Remedial classes in Computer Education for slow learners (582 schools). Out of these 582 schools, 70 per cent schools (405 schools) use Computers even for Remedial Classes in Computer Education.

### **Final Insights**

If one believes in the saying: “Something is better than nothing”, then TALP is a good initiative. However, if one likes to improve upon a good initiative and move towards a position of complete, systematic, wholesome, meaningful digital schooling (something which is a little short of perfection) over a period time, following observations are offered based on the survey of school level data (Tool 1) as reported by HTs of TALP schools.

A wholesome package of digital learning requires the following accessories to a school.

AIO Laptops, LED Projectors (both as per norms), colour printer with scanner, pen drives, computer tables with chairs (as per need), UPS, Contingency fund for Cartridges, printing paper, Smart Boards with Pens, service/maintenance and repairs, monthly telephone bills for wi-fi/Bluetooth and installation costs of computer laboratory. Some are fixed costs and others are recurring and variable costs. Department has provided only AIO Desktops/Laptops and Projectors. This level of implementation is piecemeal/partial and half-hearted. Usual justification offered by the Department (see ToR 2.1.2 No. iv, p.2) is that there is a problem of funding. This will not satisfy the demand for a

wholesome/comprehensive digital schooling. India/Karnataka State cannot reach/realize the vision of a digital society, in this state of affairs.

With a supply of pre-loaded CDs on school subjects, students can only learn/strengthen/enrich school offline teaching-learning transactions. They cannot surf for advanced information, download learning materials from learning websites, complete assignments/projects related to school subjects, edit information, retrieve information from memory, retrieve or load lessons using pen drive, cannot prepare PPT on an excel sheet, transfer documents, read/reply e-mails, do graphical representation, prepare templates and do tabular representation, use SPSS package, work on excel sheets, and like this, cannot engage in a variety of soft skills that high school students should do. A wholesome digital experience should be the target in TALP which may be reached in a long term vision.

All schools need to be under a CLOUD NET WORK to be managed by DSERT.

As of now, majority of TALP schools, over 80 per cent, are performing well, as per expectations from the Department. In many respects, Kalburgi division schools are relatively lagging behind other division schools.

M and S by DIETs/BRPs/CRPs needs to focus on schools/taluks who fall behind others using a SoP for the purpose. This study has provided the needed data and division-wise analysis for follow up action.

## **6.3 IMPLEMENTATION OF TALP AT SCHOOLS: [HIGH SCHOOLS]**

### **6.3.1 Introduction:**

Implementation of TALP in the high schools of the State began in 2016-17. In addition to provision of infrastructure facilities, another most essential, significant input of facilitation for TALP was the capacity building (initiative) of subject teachers to manage TALP. It is repeatedly noted that unlike the previous phases of Computer Education [CE] in schools, wherein a computer educated technical expert without grounding in the school subjects was transacting Computer Education lessons in subjects, now, under the TALP, subject teachers themselves, who received training in digital transaction of syllabus, would teach their subjects. For this purpose, it is essential that they need training for TALP management.

Details of trained teachers/TALP, maintenance responsibilities of Computer Education with specific reference to registers, log book, usage of computer laboratory, and disposal of e-waste are addressed under Tool 2. Along with this, MIS [Monitoring and Information System] in the school, problems and concerns in Computer Education are also covered.

Tool 2 is filled up by the Head Teacher of the school. State level highlights along with division-wise analysis, wherever it is felt necessary, are provided in this section.

The ToR had mandated coverage of 650 high schools in the TALP sampling frame. Data and analysis are spread across 650 schools.

### **6.3.2 Profile of Teachers in 650 TALP Schools:**

A high school, as per norms, with a minimum strength of 90 students, 30 students each at 8<sup>th</sup>, 9<sup>th</sup> and 10<sup>th</sup> standards, is provided with a minimum of 06 teachers [Languages 1/2/3, Science, Mathematics, Social Science]. 607 out of 650 schools, over 93 per cent schools, have a minimum of 6 teachers. 04 schools are of larger size and have 7 and more than 7 teachers. There are a few schools which has 4 and less than 4 teachers, 10 schools (1.5 per cent) to be specific. Otherwise, 29 schools have 5 teachers (4.5 per cent).

There are 5,345 teachers in the sample of 650 schools. 50.2 per cent are women (2,682 Female teachers) in the State. This ratio is 44 per cent female is to 56 per cent male in Bengaluru division.

### TALP Trained Teachers in 650 Schools

There are 3,909 TALP trained teachers in 650 schools. Their Division-wise distribution is as follows: 3909 out of 5345 means 73 per cent.

Table 35: No. of TALP Trained Teachers in 650 Schools

Place	Bengaluru	Mysore	Belagavi	Kalburgi	State
Number	1297	913	1056	643	3909
%	33.2	23.4	27.0	16.4	100.00

Source: Primary data

There are 3,909 TALP trained teachers in the 6 subjects (Including Mother Tongue Languages) 650 schools, sample schools of the study. 33.2 per cent teachers are in Bengaluru division, 11 districts, district average being 118 teachers in this division. Likewise, the division-wise proportions in Mysore, Belagavi, Kalburgi divisions are 23.4 per cent (8 districts, 114 district average, 27 per cent), 27 per cent in Belagavi division (9 districts, 117 district average) and 16.4 per cent in Kalburgi division (6 districts, 107 district average). The district-wise average number of TALP teachers trained in the 4 divisions are 118, 114, 117 and 107 respectively.

There appears to be a balance in the average number of teachers trained in TALP per district.

#### **Subject-wise tally in the number of TALP trained teachers in the sample of this study.**

Distribution of trained TALP teachers in the sample of this study is as follows: 4 subjects are covered for TALP: Science, Mathematics, Social Studies and English.

There are 2,694 TALP trained teachers in the 4 subjects (for which pre-loaded cassettes are given) as reported by 650 Head Teachers/650 schools.

Table 35.1: Subject-wise Distribution of TALP Teachers

Subjects	Science	Mathematics	Social Studies	English	Total
Number	706	1060	281	647	2694
%	26	39	11	24	-

Source: Primary data

Proportion of teachers trained in TALP, in descending order, is 39 per cent in Mathematics, 26 per cent in Science, 24 per cent in English and 11 per cent in Social Studies.

There appears to be a preference to Mathematics in TALP trainings.

### Qualification of TALP teachers as reported from 650 sample Schools (2019-20 status)

Graduation, BA/B Sc., is the minimum qualification needed to teach in High Schools. The NCTE and the NPE, 2020, have prescribed post-graduate diploma, MA/M Sc., for high school teachers. This is the norm in Central Board Schools. Some of the high school teachers have also earned research degrees like M. Phil and Ph.D. Table 35.2 shows the qualifications of TALP teachers in the 650 schools of the study, as reported by the Head Teachers (using registers).

Table 35.2: Qualifications of TALP trained Teachers from 650 Sample Schools

Subjects	Graduates	Post-Graduates	M. Phil	Ph. D	Total [N]
Science (No.)	706	649	20	06	706
%	100	92	2.83	0.85	-
Mathematics (No.)	1060	845	23	07	1060
%	100	80	2.16	0.66	-
Social Sciences (No.)	281	249	15	17	281
%	100	89	5.3	6.04	-
English (No.)	647	482	14	06	647
%	100	75	2.16	0.93	100
Total	2694	2225	72	36	2694
%	100	83	2.67	1.34	100

Source: Primary data

All the teachers are graduates as expected. It is pleasing to note that 83 per cent teachers are post-graduates. It is not clear whether they are post-graduates in the subjects that they teach or other subjects. Many science graduates also complete Masters in Sociology, History, Political Science and similar subjects through distance education. Such post-graduate degrees may not enhance their subject competence, still good in itself as it may enlarge their horizon of understanding and world view. Even M.Ed., is a post-graduate degree that enhances their professional competence and skills.

2.67 per cent have M. Phil and 1.34 per cent has a Ph.D. degree. It is good. They are research degrees which promotes 'creativity' and 'innovativeness' among teachers. Research degrees are relatively more among teachers of Social Studies.



It is not clear whether, by default, a great majority of TALP teachers are post-graduates or they are so chosen for TALP training. Anyway, it is good for TALP programme.

### Capacity Building of Teachers:

TRAINING STATUS of TALP Teachers (2019-20 status); (update from 650 schools):

**Table 35.3: Proportions/Type of Trained Teachers**

Proportions Trained	All	75 to 99%	50 to 74%	25 to 49%	Up to 24%	None	Total
B.Ed. (No.)	650	-	-	-	-	-	650
M.Ed. (No.)	3	7	16	51	237	336	650
%	-	-	-	7.8	36.5	51.7	-
Level I Induction Training	396	170	40	15	15	14	650
%	60.9	26.2	62.	2.3	2.3	2.2	-
Level II Induction Training	52	55	96	55	48	344	650
%	8.0	8.5	14.8	8.5	7.4	52.9	-
Level III Induction Training	27	19	12	12	9	571	650
%	4.2	2.9	1.9	1.9	1.4	87.9	-
Refresher Training	81	73	154	154	111	77	650
%	12.5	11.2	23.7	23.7	17.0	11.8	-
ICT Training	33	18	31	39	93	436	650
%	5.1	2.8	4.8	6.0	14.3	67.0	-
Dip. In Civil Eng.	03	05	08	06	25	603	650
%	-	-	1.2	-	3.8	92.8	-

Source: Primary data

It is mandatory to appoint high school teachers with B.Ed. training as per Government policy. All teachers of all 650 schools possess B.Ed. degree as expected. In 4 per cent schools at least 50 per cent have M.Ed. degree. In 48 per cent schools at least a few have M.Ed., degree.

In 61 per cent schools, all teachers have been given Level I Induction TALP training. Most of the teachers are TALP trained [75 per cent and more] in 87 per cent schools. TALP Hawa (Hindi word), TALP milieu can be perceived, visible in these 87 per cent schools.

It is only in 2.2 per cent (14 out of 650 sample schools) of sample schools that no teacher has been given Level I Induction Training. Still they are managing, may be without TALP training, may be with self-learning, Dip. in Computer Education, previous phase ICT training. Still it is felt that **DIETs should have ensured that there are no residual TALP schools without Induction Level training to anybody.**

In 52 out of 650 TALP schools (8 per cent), all teachers have been given Level II Induction Training. In 47.1 per cent TALP schools, at least a few teachers have been given Induction II level training.

Most of the teachers have also been provided with Refresher training. It is only in 11.8 per cent TALP schools that nobody has received Refresher training.

33 per cent schools (TALP) have teachers who had earlier participated in CALC schools (Computer Assisted Learning Centre schools) and had received training thereon.

It is to be noted that 7.2 TALP schools have at least a few teachers who on their own initiative have completed Diploma in Computer Education. This is good.

**Inference:** The bottom line in regard to quality of TALP teachers is: **TALP teachers are well qualified and adequately trained.**

### **6.3.3 Computer Education (CE) Organization in Schools**

Table 36: Time Slots for Computer Education in TALP schools

No. of Periods of CE per Week	Zero	< 3	4 to 5	6 to 8	> 8	Total
Theory	55	300	61	116	118	650
Practical Classes	58	303	57	134	98	650
Time of CE Classes	Morning		After Noon		NA	Total
Theory	387		208		55	650
Practical	114		478		58	650

Source: Primary data

A great majority of schools, over 46 per cent schools, facilitate only 3 and less than 3 Computer Education periods per week, for theory classes and almost same time for practical classes. It means that Computer Education will be organized on alternative days in a week for both theory and practical classes. This may not be adequate for teaching through TALP.

TALP/CE classes are adequately organized in 36 per cent schools only, 6 and > 6 classes per week, at the rate of at least one class per day theory and one practical class per day.

In around 9 per cent (58 schools) Computer Education classes are not held even while the Department has provided infrastructure and trained teachers.

M and S officers from DIETs/RMSA need to check the time-table of schools to ensure that TALP is given its due attention in schools.

Table 37: Types of trained Computer Education Teachers in Schools

CE Teachers	Subject Teachers with Level I Training	Self-trained Subject Teachers	Contract Teachers	Total
Number [Yes]	558	113	36	707
[No]	92	537	614	1243
Total	650	650	650	1950

Source: Primary data

In 558 out of 650 schools, 86 per cent schools, TALP is managed by regular teachers of the schools who had Level I Induction training. Alternatively there are 92 schools where all teachers are not TALP trained. In these 92 schools, there are 113 self-trained TALP teachers and 36 contract teachers. In 92 out of 650 schools, there are 113 teachers other than TALP trained teachers who manage TALP classes without Induction training. They are self-trained [in 14 per cent schools]. It means that in 86 per cent schools all subject teachers (4 subjects) are TALP trained while in 14 per cent schools there are both TALP trained and self-trained TALP teachers. It is possible that TALP trained teachers have helped their colleagues in managing TALP. This is good.

In the 14 per cent, 92 schools out of 650 schools, TALP is managed by 36 contract teachers in addition to other TALP trained, self-trained teachers. Contract teachers are paid by NGOs or the SDMC. Parents are not approached for payment to contract teachers.

**Inference: Teacher Management is good in TALP Schools:**

It is only in 14 per cent schools that Contract teachers are hired in addition to TALP/self-trained teachers. This is both good and bad. It is good because, infrastructure provided by the Department is used and students get exposure. It is bad because contract teachers may not have subject competence. This is also against TALP norms.

#### **6.3.4 Contingency Expenditures in TALP**

57 out of 650 schools, 8.76 per cent (9 per cent schools) get contingency funds for Computer Laboratory management. It is only a few schools in each division – Bengaluru 16 out of 210 (7.6 per cent), 15 out of 153 (10.5 per cent) (Mysore), 15 out of 172 in Belagavi (8.7 per cent) and 11 out of 115 (9.6 per cent) (Kalburgi), schools get contingency funds. As it is not uniformly received by all the schools, the Department/DSERT may not be paying this. Perhaps they get it from well-meaning Zilla Panchayats (Taluk Panchayats). 70 out of 650 schools (10.8 per cent) have preferred to offer ‘No Response’ to this query.

Even while only 57 schools report that they get contingency funds for computer laboratory management, a total of 66 schools report that they maintain a Computer Laboratory contingency register. The residual 9 schools may generate resources from other sources. It is surmised that, irrespective of receipt of contingency grants, every school that provides Computer Education under TALP will be necessitated to spend on Computer Education /Computer Laboratory. There is no choice. They may use school contingency grants for the purpose. Of all the schools who receive contingency grants, it is only one school in Mysore division that does not maintain a Contingency Register. **All the schools need to be provided with contingency funds by the Department, as per norms arrived at therein. Otherwise, the RDPR may advise ZPs to provide such funds to high schools as per norms.**

Laptops, UPS, Smart Boards, Dongles, Mouse, CDs/DVDs, Pen drives, Consumables – paper, printing ink etc.; constitute assets of a computer lab. Schools/Computer Lab Coordinator TALP teacher need to maintain a Computer Laboratory Assets Register.

Only 146 out of 650 schools (22.5 per cent), maintain Computer Laboratory assets registers. Systematic Computer Laboratory management needs maintenance of Computer Laboratory assets registers. This register need not be in physical form. It can be and needs to be in digital format.

**Contingency Expenditure Matrix:**

Here is provided the various of expenditures made by schools for maintenance of computer laboratory in 66 schools which maintain Computer Education/Computer Laboratory register. Sources of finance are not clear.

Table 38: Expenditure for maintenance of Computer Laboratory (Rs. in Lakhs)

Sl. No.	Items of Computer lab Expenditure	Amount	Percent to Total
1.	Maintenance and Repairs	15.77	23.56
2.	Data Cards	8.89	13.28
3.	UPS Services	8.57	12.81
4.	Telephone Bills for Wi-fi usage	4.48	6.69
5.	Cartridges		
	Black and White	11.60	17.33
	Colour	8.23	12.30
6.	Computer Sheets	7.87	11.76
7.	Others	1.51	2.26
	TOTAL	66.92 Lakhs	100

Source: Primary data

66 schools who have maintained contingency expenditures (reported by 66 schools) show an expenditure of 66.92 lakhs. This works out to be a little over Rs.1.00 lakh on an average per computer laboratory. For all the TALP high schools as of now the estimated contingency expenditure will be Rs.32.21 crores for 3,221 TALP High Schools as of 2020-21. For all the high schools in the State which are currently under TALP and get covered in future, the contingency amount to be planned will be within Rs.60 crores. It is better if contingency amount is provided to all the high schools from a single source, say, the DSERT/Department of Education/Education Department. The estimates need to be built into the Education Budget of Secondary Education. Planning Department may coordinate with the Education Department in this exercise.

Further, it is observed that 627 out of 650 TALP schools have e-connectivity (wi-fi) facility. Only 107 out of 627 schools have paid e-connectivity charges through cash. All others, 83 per cent TALP schools with e-connectivity have made digital payments.

32 TALP schools, around 56 per cent schools, (who get funds) report that the contingency fund that they receive is sufficient for them. The Department needs to develop norms of expenditure, give guidelines thereon and provide the funds.

**Disposal of e-waste:**

Disposal of e-waste of computer laboratories – used papers, used cartridges and similar wastes from a Computer Lab is a continuous concern. 87 out of 650 schools report that they dispose e-waste once in a month, (13.4% schools); 23 schools do it once in 3 months and 19 schools do it once in 6 months. Majority of schools, 521 out of 650 (80 per cent) do it once in a year.

**6.3.5 Standard Operating Procedures (SoP):**

SoP Register is used to record usage of systems. It is maintained in 474 out of 650 (73 per cent) schools.

**6.3.6 MIS Management:**

KSQAAC/CPI, Bengaluru has developed and maintains software for Student Attainment Tracking Surveys, annual survey across all standards of schooling from 3<sup>rd</sup> to 10<sup>th</sup> standard along with U-DISE Code of every child. This is commonly referred to as SATS. Further, it has also developed software for digital governance of schools known as Management Information System, MIS. Head Teachers are trained for MIS management of schools. In schools where HTs are not trained, TALP teachers help them. Here is the data on MIS management of schools as reported by Head Teachers of 650 sample schools of the study.

Table 39: Various Uses of MIS

Sl. No.	Type of Use	No. of Schools	%
1.	Students Attendance	569	87
2.	MDM Attendance	569	87
3.	Teachers Attendance	554	85
4.	CL Stock Register	514	79
5.	Assets – Fixed/Variable Register	516	79
6.	Marks Register	591	91
7.	Admission Register	591	91
8.	TC Register	609	94

Sl. No.	Type of Use	No. of Schools	%
9.	School Stock Register	543	84
10.	Government Circulars	572	88
11.	Teachers' Profiles	566	87
12.	Student Profiles	578	89
13.	Literary/Cultural Activities	534	82
14.	Prize Lists of Winners	531	82
15.	Science Lab. Experiments	542	83
16.	List of Maps	536	82
17.	List of CDs	393	60
18.	SATS Performance	619	95
19.	PTA Meetings	523	80
20.	Visit Register	526	81
21.	Others	358	55

Source: Primary data.

Nearly 80 per cent of schools have adopted digital governance in full swing using MIS. 94 per cent schools, maximum use, is for recording details of Transfer Certificates of students. Volume of work herein is very low at 8<sup>th</sup>/9<sup>th</sup> standards and it is high for those who leave after 10<sup>th</sup>. The Government rule is that TC cannot be issued to parents as a matter of routine. It has to be transmitted to institutions where students join a course after leaving this school. Exceptions are allowed.

91 per cent schools have adopted MIS for both admission register and Marks register of students. This is very good. However, the target needs to be 100 per cent compliance.

Attendance to school ensures learning of students. Truancy leads to learning loss and later to cumulative learning deficits. Likewise Teacher Absenteeism is a major concern in school administration/governance. Students Attendance data and Teacher Attendance data needs to be Pucca, reliable and systematic. 87 per cent schools maintain Students Attendance Register through MIS. 85 per cent schools maintain Teacher Attendance data through MIS. Gap for 100 per cent maintenance is quite narrow. Another good practice is that 87 per cent schools maintain MDM (Mid-Day Meal) register through MIS. This practice will ensure the blocking of pilferage of food materials, if any. It will mount MDM governance on a strong and stable footing.

Teacher profiles, student profiles, Government circulars are under MIS in over 85 per cent schools. It is noted that conduct of literary/cultural activities including lists of prize winners, list of experiments completed in science laboratories, list of maps, stock register of the school, visit register (remarks), proceedings/minutes of PTA meetings, are under MIS.

It is noted that students' scholastic attainment tracking system, SATS results, only results, is maintained by 95 per cent schools. This should reach 100 per cent.

Computer Laboratory stocks and school fixed/variable assets data is under MIS in 79 per cent schools. List of CDs is maintained under MIS in 60 per cent schools. This is a student friendly data.

**Inference:** Quite a distance has been covered by the Government schools system in the MIS marathon. Only the last mile needs to be run. DIETs need to focus, zero in on the residual schools, assist and facilitate them so as to bring them under MIS umbrella.

#### **6.3.7 SATS in Schools:**

619 schools, 95 per cent schools are under SATS umbrella. It is an annual examination for all standards conducted by the Department apart from school based tests and examinations (3 to 10 standards). Schools are expected to engage in an analysis of SATS performance in their schools. Analysis has to be sex-wise, social category-wise, average standard-wise progress in performance, subject-wise, range of performance (percentage slabs) wise which is maintained both in tabular and graphic formats. 570 out of 619 schools, 92 per cent, engage in analysis of SATS performance. Out of them 401 schools, 65 per cent (out of 619), do it standard wise. Other parameters of analysis – sex, social category, etc., are not attended to adequately.

Schools need to store question papers of previous years in digital format and share it with students. Only 528 schools, 85 per cent, engage in this good practice. Schools also need to store marks obtained by students in SATS data in digital format. 587 out of 619 schools, 95 per cent, comply with this.

**Inference:** Digital treatment of SATS performance is good but not complete. Gap needs to be filled up. Analysis of SATS data for self-improvement leaves much to be desired. It is probable that many schools have skills deficit in this regard. They need training. Web training can be adopted. Sample analysis report from schools can be monitored by DIETs. **TALP schools should not fail to comply with MIS and SATS systemic practices.**



### **6.3.8 Problems/Concerns**

Problems/Concerns of maintenance of Computer Laboratories (CL) and management of Computer Education (CE).

357 out of 650 schools, 55 per cent, report that they face problems in management of computer laboratory and Computer Education. Out of them (357), 307 schools, 86 per cent report that the system/accessories in computer laboratory get out of order. Only 125 out of 650 schools, 19 per cent schools have adopted the practice of dependence on AMC, Annual Maintenance Contract [125 out of 357] is 35 per cent. AMC is fast, attend to problems within a week, in only 68 out of 125 schools, 55 per cent schools.

IT mentor, who had level II Induction Training, can attend to systemic concerns (systems related problems) in 81 out of 125 schools, 65 per cent. Majority of schools depend on outside technicians (307 schools count). 62 schools, 21 per cent, approach local sales/service shops. Not all service centres are nearby. Some of remote schools have to travel to hobli/taluk/ district headquarters for repairs and maintenance. In 134 out of 307 schools, 44 per cent, Head Teacher goes out to service centres.

**Inference:** Maintenance of Computer Laboratory suffers from the absence of systematic attention and arrangement. Department needs to enter into a comprehensive, dedicated AMC arrangement with large scale service Centres/Agencies who have franchises throughout the State, co-ordinate (through DIETs) the process of maintenance across schools and service agencies, get periodical compliance reports from both in digital mode. It is better if Software is developed for the purpose.

### **6.3.9 Summative Observations**

TALP initiative began in 2016-17. Data of this study refers to 2019-20. Qualifications and training status of TALP teachers in 650 sample TALP schools, infrastructure management, digital management of MIS in schools, redressal of problems in computer laboratory, disposal of waste e-waste are the major concerns in this section.

TALP teachers working in 650 sample schools are equally distributed across sex categories. There is a balance in average number of teachers trained in TALP management across all districts/divisions, 34 educational districts/4 divisions.

Across the 4 subjects in which TALP training is given, viz., Science, Mathematics, Social Studies and English, preference in coverage of mathematics teachers is perceptible.

TALP teachers are well qualified and adequately trained for TALP management. 92 per cent TALP teachers have completed Level I Induction training. Others are either self-trained or trained by colleagues. There are a few schools (5.5 per cent of 650) who have engaged contract teachers too. Teacher management is good in TALP schools (650).

TALP/CE classes are adequately organized (minimum of 6 classes per week) in 36 per cent schools (of 650 schools) only.

Nearly 10 per cent schools get contingency funds for maintenance of computer lab (service and repairs). It is not given by the Department. They get it from TP/ZP/NGOs/school contingency funds. This is an essential head of expenditure for Computer Education which is not addressed by the Department. Average contingency expenditure for management/maintenance of computer lab as reported by 66 out of 650 schools is Rs.1,00,000 (Rs.1 lakh) per school. 97 per cent schools have e-connectivity. 23 per cent schools maintain computer laboratory assets register.

MIS Management/digital governance is adopted in 80 per cent of schools, overall. However, student attendance, MDM students attendance (87 per cent) is in digital mode in minimum 85 per cent schools. Digital admission register is in 91 per cent schools. Gap for 100 per cent digital management of schools, as reported from 650 TALP schools, on over 20 areas of governance, is quite narrow. Quite a distance has been covered by the Government school system in MIS marathon. Last mile needs to be addressed.

Digital management of SATS in schools is in 95 per cent schools (617 out of 650 schools). However, analysis of SATS data is engaged in by only 92 per cent schools (570 out of 617).

55 per cent TALP schools (357 out of 650) report that they face problems in management of Computer Lab/Computer Education. Nearly 35 per cent schools have entered into an AMC with local franchises (125 out of 357). Only 13.4 per cent schools dispose e-waste regularly, once in a month.

Digital governance of TALP schools need to be made more and more comprehensive and systematized.

## 6.4 TALP TEACHERS

Teachers are the most significant resource in the success of TALP programme. Their training, command of skills, interaction with students, colleagues, interest and involvement in the TALP programme matter for this success.

The ToR for the TALP study specified coverage of 3250 teachers for the IT @ schools, high schools, component of the study [see ToR, Section 3.7, p.12]. This sample is across 04 years from 2016-17 to 2019-20, and from 34 educational districts including thereon 2 taluks from each district. Teachers' data from this study is for 3250 teachers.

### **6.4.1. Profile of Teachers:**

#### **Age, Sex, Experience of Teachers**

There are 3250 teachers in the sample, 54 per cent of whom are women. Proportion of women teachers who have responded to the questionnaire are: Bengaluru (56%), Mysore (58%), Belagavi (50%) and Kalburgi (47%).

Majority of teachers are, middle aged, in 36 to 45 age range (49%) and 46 to 55 age range (37%). Rest of the 14 per cent is either young (less than 35 years) or elderly (more than 55 years). Lowest proportions (77%) of middle aged teachers are in Mysore division.

Majority of teachers, 82 per cent have **total** experience in teaching for at least 10 years. 32 per cent teachers have even more than 20 years of experience. Young teachers, less than 5 years of experience constitute 04 per cent of sample. Position in regard to age and experience of teachers across divisions does not reveal much variation.

Only 36 per cent teachers have more than 10 years of experience in the **current school** from where they have answered the questionnaire. Range of experience in current school, across divisions is 33 per cent (Bengaluru division) to 39 per cent (Belagavi division). Only 3 per cent teachers are in the current school for more than 20 years.

**In sum, teachers are middle aged, have more than 10 years experiences of which considerable proportion have more than 10 years in the current school (36 per cent). Majority are women teachers.**

#### **Medium of Instruction in the School to which teachers in the sample of this study belong to**

67 per cent of teachers in this sample work in exclusively Kannada Medium schools. Another 25 per cent work in schools which have both Kannada and English Medium. Rest of

the 8 per cent teachers, work in Urdu Medium, Urdu + other medium (5.6 per cent) Schools. There are also teachers from Marathi, Tamil, Telugu medium schools.

**There is a fair (balanced) representation of teachers from all language schools, in proportion to their presence in the State.**

#### **6.4.2. Teaching Work Load w.s.r.t. to TALP**

##### **Teach School Subjects using TALP**

All teachers (3,250) report that they teach their subjects using TALP technique. However, it is observed from another table that 3,196 out of 3,250 teachers in this sample, 98.33 per cent, had been exposed to Induction I training under TALP [Responses for Qn. 3.2 in the Tool for Teachers]. Rest of the 54 teachers had been sensitized by the TALP trained teachers.

##### **Workload for Teachers (Sample Teachers):**

Workload depends upon school size – number of sections and vacancies in school. Teachers do not use TALP for all lessons/topics/standards (8/9/10) in their subjects. Usage of TALP depends upon CDs/DVDs supplied/pre-loaded by the DSERT. All topics/lessons in school subjects are not covered under TALP. Hence, teachers are constrained to ‘cover the syllabus’ (euphemistic but popular usage) through regular classes. They may also guide students in computer laboratory /practical classes. Some teachers may also surf for advanced information/lessons in Google/Other Websites, or use DIKSHA lessons of NCERT. What they do defines the volume and nature of their Workload.

Table 40: Workload of TALP Teachers

Divisions ↓ No. of Hours →	Regular Classes (per week)				
	10 to 12	13 to 15	16 to 18	> 18	Total
Bengaluru	873	60	53	64	1050
%	83	6.0	5.0	6.0	-
Mysore	642	42	40	41	765
%	85	5	5	5	-
Belagavi	748	40	50	22	860
%	87	5	6	2	-
Kalburgi	491	22	30	32	575
%	85	4	5	6	-
State	2754	164	173	159	3250
%	85	5	5	5	-

Source: Primary data.

85 per cent teachers in the State take 10 to 12 regular classes per week. This incidence ranges from 83 per cent in Bengaluru division to 87 per cent in Belagavi division, while 5 per cent teachers have >18 periods per week, on an average in the State, this figure goes to 6 per cent in Bengaluru/Mysore divisions and as low as 2 per cent in Kalburgi division.

Table 40.1: TALP Classes (per week) conducted in 650 Schools

Divisions ↓ No. of Hours →	TALP Classes (per week)					
	10 to 12 hours	13 to 15 hours	16 to 18 hours	> 18 hours	NR	Total Teachers
Bengaluru	911	112	5	6	16	1050
%	87	11	-	-	-	-
Mysore	672	80	2	3	8	765
%	88	10	-	-	-	-
Belagavi	734	107	4	3	12	860
%	85	12	-	-	-	-
Kalburgi	473	81	7	1	13	575
%	82	14	1	-	2	-
State	2790	380	18	13	49	3250
%	86	12	-	-	2	-

Source: Primary data.

86 per cent of TALP trained teachers in the State engage 10 to 12 hours of TALP lessons (using laptops/CDs/DVDs) per week. 13 to 15 hours of workload using TALP is there for 12 per cent TALP trained teachers. Division-wise variations in this incidence are not considerable. 2 per cent teachers have not given any response.

**TALP Practical Classes:** Computer Education practical work is a part of the time-table in TALP high schools. TALP practical classes are conducted in the Computer Laboratory of the school. TALP teachers visit the computer laboratory and guide the students, give assignments, give individual/group projects, correct assignments and give feedback to the students. This is the practice expected in all good TALP schools.

Table 40.2: TALP Practical Classes conducted in 650 Schools

Divisions ↓ No. of Hours →	TALP Classes (per week)					
	10 to 12 hours	13 to 15 hours	16 to 18 hours	>18 hours	NR	Total Teachers
Bengaluru	754	17	8	1	270	1050
%	72	1.6	0.8	-	26	-
Mysore	569	7	2	0	187	765
%	74	0.9	-	-	24	-
Belagavi	612	11	2	1	234	860
%	71	1.3	-	-	27	-
Kalburgi	402	4	7	0	162	575
%	70	-	1.2	-	28	-
State	2337	39	19	2	853	3250
%	72	1.2	0.6	-	26	-

Source: Primary data.

74 per cent TALP teachers engage in guidance to students in practical work at the computer lab. It is recalled that 53 schools, 8.2 per cent do not have computer lab and many schools 47 per cent do not have either wi-fi or Bluetooth facility. Hence, there is no response to this query from 26 per cent teachers. 72 per cent teachers in State spend 10 to 12 hours in the computer lab of their schools. This is a uniform (not identical) arrangement/practice across teachers of all divisions.

### **6.4.3 Regular plus TALP in Classroom plus Practical Guidance Classes**

#### A Comparative Update

TALP in schools has 2 components.

- Use of CDs projectors (and Smart Boards) in the class itself and
- Guiding students in Practical Work – assignments, projects – individual/group, self-study, giving feedback in computer laboratory. This is complemented by regular class teaching-learning transactions in topics/ lessons for which CDs/DVDs are not available. These functions constitute major workload of teachers apart from conduct of tests/ examination, evaluation, corrections, preparation of lesson plans, supervising computer laboratory, managing Computer Education, attending meetings at school. Here is a comprehensive picture of their workload with respect to teaching-learning transactions – Regular, TALP, Practicals in computer laboratory.

Table 40.3: Workload – TALP – Comparative Picture (% only)

Divisions→ Workload↓	Bengaluru	Mysore	Belagavi	Kalburgi	State
<b>Regular</b>					
10 to 12 hrs.	83	85	87	85	85
13 to 15 hrs.	6	5	5	4	5
<b>TALP Classes</b>					
10 to 12 hrs.	87	88	85	82	86
13 to 15 hrs.	11	10	12	14	12
<b>Practical Work</b>					
10 to 12 hrs.	72	74	71	70	1.2
13 to 15 hrs.	1.6	0.9	1.3	-	72
NR	26	24	27	28	26
Total Teachers	1050	765	860	575	3250

Source: Primary data.

Workload of teachers in TALP schools is balanced across regular and TALP classes. This is true among 85/86 per cent of a total 3250 teachers in the State. But when it comes to guidance in computer lab for students, 72 per cent teachers in the State, bear workload. TALP teachers have 10 to 12 hours of regular classes, again 10 to 12 hours of TALP/Computer Education classes, and 10 to 12 hours of Practical Classes. Those teachers who have no scope to guide Computer Practical work of students due to absence of wi-fi/ blue tooth and computer lab in the school, engage regular/TALP (CD/DVD) classes for more than 15 hours, 16 to 18 and > 18 hours.

**TALP Classes, with CDs/DVDs supplied by the Department/or otherwise is going on with 50 per cent EFFICIENCY among 3,250 teachers of 650 schools in the State.**

**Projects/Assignments in Computer Education by TALP Teachers:**

In good schools with efficient teachers, students will be given assignments, expected to do individual/group projects, using computers – that is, be capable of drawings, insertion of pictures, tables, graphs, surf for advanced information, prepare PPTs, download learning materials. Teachers will guide, assist and check on their performance.

Table 41: Practice of giving Assignments in Computer Education to Students by TALP Teachers

Divisions	Bengaluru	Mysore	Belagavi	Kalburgi	State
Yes, we give	710	547	586	368	2211
Yes %	68	72	68	64	68
No, we do not give	212	146	182	141	681
No %	20	19	21	25	21
No Response	128	72	92	66	358
%	12	09	11	11	11
Total Teachers	1050	765	860	575	3250

Source: Primary data.

68 per cent teachers give assignments/project work to students in Computer Education Classes. Proportion of teachers who give assignments ranges from 64 per cent in Kalburgi division (lowest), to 72 per cent in Mysore division (highest). 21 per cent have clearly stated that they do not give assignments. There are 4 subjects under TALP: Science, Mathematics, Social Studies and English. Scope for assignments in English is relatively low. This is also true of some extent in Mathematics – Arithmetic and Algebra. 11 per cent teachers have preferred ‘No Response’ response. It is probable that they are English and Mathematics teachers. There are schools without computer laboratory, wi-fi/Bluetooth (internet) facility. Even teachers from such schools have no scope to give assignments to students who have no internet facility either at home or at school.

The bottom-line of this analysis is that there will be a significant proportion of students in the school system who are deprived of experience of challenges, excitements, sense of achievements associated with completion of assignments/projects in Computer Education classes. It is estimated that such students constitute at least 20 per cent of the total students in 8<sup>th</sup>/9<sup>th</sup>/10<sup>th</sup> standards. To this extent, **TALP will be effective only upto 80 per cent level with respect to total student body in the system.**

### **Periodicity for Assignments**

22 per cent teachers maintain a habit of giving assignments every week; 20 per cent teachers give it every fortnight; 26 per cent teachers give it once in a month. Scope for giving assignments depends upon units/lessons/ topics/subjects. Hence, periodicity also may vary. Too much of assignments may also make children weary of Computer Education classes. They may develop allergy for Computer Education classes. Hence, it is summarized



that the practice of 25 per cent teachers who give assignments at the rate of one assignment per month is good.

#### 6.4.4 TALP Training received by Teachers – A Feedback

It is already noted that (section 1.1.1) 98.33 per cent teachers received Level I Induction Training under TALP programme. 54/3250 teachers got sensitization from their colleagues.

Normally, as per design of TALP training, duration of Induction Training Level I is 10 days. For various reasons, it may get reduced by a few days or extended further. 88 per cent teachers in this study (total 3250) report that they got training for a period of 10 days. Teachers who are sensitized may mention less than 10 days. More than 10 modules have been transacted in these 10 days as per report from 78 per cent of teachers. It is possible that even while Training Design is the same for all DIETs under TALP, there may be variations in the implementation of this design due to logistic problems.

Table 41.1: Hands-on-Practice during Training – A Feedback from teachers

Divisions	More than Adequate	Adequate	Less than Adequate	Total
Bengaluru	292	592	161	1050
%	28	56	16	-
Mysore	196	499	70	765
%	26	65	09	-
Belagavi	310	423	127	860
%	36	49	15	-
Kalburgi	245	214	116	575
%	43	31	20	-
State	1048	1728	474	3250
%	32	53	15	-

Source: Primary data.

It is noted at the outset that, the counts in this table include 54 teachers who got sensitization training, their colleagues while the rest got Induction Training Level I in the district DIETs.

85 per cent teachers report that their TALP training was adequate. 32 per cent among them opine that it was more than adequate. 'Adequate/ More than adequate' feeling ranges

across divisions as follows: Mysore – 91 per cent, Belagavi – 85 per cent, Bengaluru – 84 per cent and Kalburgi – 74 per cent. In a complementary way, dissatisfaction among teachers regarding inadequate hands-on-practice is highest in Kalburgi division at 20 per cent. State count of dissatisfied teachers is 15 per cent. Hypothetically, if 49 teachers’ count who got sensitization training is netted out from this percent-recurrence of such incidence. **It is possible that even among teachers, there may be slow learners. They may need hands on additional practice.**

Table 41.2: Relevance of Level I Induction Training – Feedback from Teachers

Division	Bengaluru	Mysore	Belagavi	Kalburgi	State
Highly Relevant	146	104	134	106	490
%	14	14	16	18	15
Relevant	659	491	564	353	2067
%	63	64	66	61	64
To Some Extent	216	164	155	106	641
%	21	21	18	18	19
Not Relevant	16	05	05	06	32
%	01	-	-	01	01
Not at all Relevant	13	01	02	04	20
%	01	-	-	01	01
Total	1050	765	860	575	3250

Source: Primary data.

79 per cent of teachers are quite satisfied with the Level I training, while 64 per cent feel that it was ‘relevant’ to them, 15 per cent opine that it was ‘highly relevant’. This is a feeling which is uniformly (not identically) received from teachers across all divisions. 19 per cent feel that it was relevant ‘to some extent’. Those teachers who have offered negative feedback are highly insignificant in proportion.

**In sum, TALP Level I Induction training can be deemed to be relevant to the needs of teachers so as to manage TALP.**

#### **Utility of TALP pre-loaded Computers to Teachers – Savings for Time and Effort**

Use of CDs/DVDs, pre-loaded laptops supplied by the Department/ DSERT to schools under the TALP Programme, is expected to reduce the time and effort of teachers in their teaching-learning transactions. Blackboard work – drawings of specimens of leaves, flowers, insects, animals, life-cycle of animals, parts of the body, human physiology,

geometrical designs, chemical equations, graphs, maps (no need to carry rolling maps and hung them on the wall), DNA pattern, atomic structure, planetary positions, eclipses, chemistry experiments, problems in physics – dynamics/mechanics, electricity, and, like this, several topics can be transacted easily leading to better (good) concept formation. What do teachers feel about preloaded laptops which are used and shown on projectors? Much of the Blackboard work gets reduced. Such learning's are also strengthened/enriched through Computer Practical work.

Table 41.3: Utility of Pre-Loaded Cassettes- A feedback from teachers [Savings on Time and Effort]

Divisions:	More than 60% Utility	50 to 59% Utility	< 50% Utility	Total Teachers
Bengaluru	433	322	295	1050
% Teachers	41	31	28	-
Mysore	347	234	184	765
% Teachers	45	31	24	-
Belagavi	398	278	184	860
% Teachers	46	32	21	-
Kalburgi	271	171	133	575
% Teachers	47	30	23	-
State	1449	1005	796	3250
% Teachers	45	31	24	-

Source: Primary data.

45 per cent teachers report that the use of pre-loaded laptops for teaching (TALP) is at the least useful to the extent of 60 per cent in saving their time and effort they had to put in for teaching-learning transactions. This is quite a good/welcome contribution from TALP. Among this group of teachers, 13 per cent (out of 45 per cent) report that TALP has reduced their time and effort by 80 per cent.

Another 31 per cent teachers are happy with TALP for reducing their time and effort by 50 to 59 per cent. Those who give a feedback that TALP reduces less than 50 per cent of their time and effort constitute 24 per cent of teachers.

Among teachers who are 'not very happy' (less than 50 per cent category) Bengaluru division tops the list (28 per cent teachers) and Belagavi division teachers log in the least proportion (21 per cent teachers).

**It can be inferred that preloaded laptops are at the least useful to teachers by 50 per cent in reducing their time and effort in teaching-learning transactions. This is an update from 76 per cent teachers.**

**Teachers’ Perception of Proportion of Students who benefit from teaching-learning transactions through pre-loaded computers (TALP)**

Data on usefulness of TALP, pre-loaded computers for teaching is impressionistic. Still, that is the only data available in this direction (involving teachers) as they are the closest to the scene of action. This report from teachers will be cross checked later at the time of analysis of feedback from students.

Table 41.4: Proportion of Students who benefit from TALP – Use of Pre-loaded Laptops – Feedback from Teachers

Divisions	60% at the least	40 to 59%	20 to 39%	< 20%	Total
Bengaluru	502	390	103	55	1050
%	48	37	10	05	-
Mysore	393	260	93	19	765
%	51	34	12	03	-
Belagavi	422	338	71	29	860
%	49	39	08	04	
Kalburgi	293	205	56	21	575
%	50	36	10	04	-
State	1610	1193	323	124	3250
%	50	37	10	03	-

Source: Primary data.

Teachers perceive that 60 students benefit from TALP facilitation of classroom teaching. This proportion is uniformly (not identically) reported from teachers of all divisions.

At least 40 per cent of students benefit through TALP facilitation of learning as reported by at least 85 per cent of teachers across all divisions. This figure goes up to 86 per cent in Kalburgi division and 88 per cent teachers in Belagavi division.

Hardly 03 to 05 per cent teachers report that < 20 per cent students benefit from TALP facilitation. It is recalled that all schools do not have projectors. DSERT/Department has not given a complete (package) TALP kit to schools.

**Impact of Level I Induction Training on Teaching – Learning EFFECTIVENESS in Schools, through TALP – Feedback from Teachers.**

Table 42: Effectiveness of TALP Training in Classroom Contexts

Division	Bengaluru	Mysore	Belagavi	Kalburgi	State
Yes, Effective	980	733	839	549	3101
%	93	96	98	95	95
No, Not Effective	70	32	21	26	149
%	07	04	02	05	05
Total Teachers	1050	765	860	575	3250

Source: Primary data.

95 per cent teachers report that TALP is an ‘**Effective**’ method of teaching. It is **learning friendly**, student friendly. Only 05 per cent teachers, negligible minority, do not subscribe to this opinion. This is uniformly the case across all divisions and especially so in Belagavi division.

**Language of Instruction for Level I Induction Training – Feedback from Teachers**

49 per cent of teachers received their instruction/training in DIETs through the English language. 19 per cent received it through Kannada medium. Rest of the 32 per cent received training through a mix of English and Kannada languages. Relatively noted that English is preferred more in Bengaluru and Kalburgi divisions.

CIET, (Central Institute of Educational Technology), NCERT, New Delhi, had prepared hand-outs/lesson plans and lesson materials, in school subjects. There are 140 handouts which are distributed to the teachers (for use in High Schools) through SCERT/DSERT and DIETs. DIETs needs to ensure this. This will be supplementary/enrichment material for use under TALP. A feedback is taken from the sample of 3,250 teachers to know whether they have received these handouts.

39 per cent teachers have received these 140 handouts. 61 per cent teachers have reported non-receipt. They are not supplied uniformly to all DIETs by the DSERT. The supply ranges from: as received by proportion of teachers (feedback) from 46, 39, 37 and 32 per cent teachers in Mysore, Bengaluru, Belagavi and Kalburgi districts respectively.

Further, CIET had also produced 52 videos on teaching-learning transactions in school subjects for distribution to schools through DSERT/DIETS/DDPI/BEO by PC.

Teachers are the users of these videos. A feedback was taken from teachers of this sample to check whether they have these videos in their schools. 52 per cent teachers have reported that they are there (52 videos) in the computer lab of their schools. It is possible that more than one teacher may belong to/may be working in the same school. Lowest proportion of teachers, 46 per cent, from Kalburgi division acknowledged receipt of Video lessons. Position is better, 56 per cent teachers, in Mysore division.

**Practice of giving assignments/project work to teachers by DIETs during Level I Induction Training; Feedback from Teachers**

58 per cent teachers in the State report that they were given assignments/project work using Computers during Level I Induction Training. Obviously, as per teachers’ feedback, 42 per cent teachers did not get it. This practice across DIETs of 4 divisions is, as per feedback from proportion of teachers, 62, 61, 58 and 50 per cent across Belagavi, Mysore, Bengaluru and Kalburgi divisions respectively.

**Utility of Level I Induction Training – TALP – Feedback from Teachers**

Method of Level I Induction Training for TALP in conducting Computer Education classes a feedback is taken from teachers. Here is the data collected from trained teachers which includes 49 out of 3250 teachers who received TALP training from their colleagues in cascade mode.

Table 43: Utility of TALP Training for Computer Education Classes - Feedback from Teachers

Utility Percentage [No. of Teachers]	80% and >	60 to 80%	40 to 50%	<40%	Total Teachers
Bengaluru	421	407	165	57	1050
%	40	39	15	05	-
Mysore	378	248	110	29	765
%	49	32	14	03	-
Belagavi	375	313	140	32	860
%	44	36	16	03	-
Kalburgi	250	198	88	39	575
%	43	34	15	06	-
State Average	1424	1166	503	157	3250
%	44	36	15	05	-

Source: Primary Data

At least 80 per cent of teachers report that the Level I training was useful for them in transacting Computer Education classes. Proportion of teachers who give this level of feedback ranges from 81 per cent in Mysore division to 77 per cent in Kalburgi division. Among the rest of the 20 per cent teachers in the State, 15 per cent report that the training was useful only from 40 to 50 per cent. <40 per cent utility is reported only by 05 per cent teachers.

**As per teachers' feedback, TALP Level I training has been useful to a great majority of teachers in transacting Computer Education classes.**

Table 44: Constraints in TALP Training – Learning Transactions

Sl. No.	Divisions → Responses ↓	Bengaluru	Mysore	Belagavi	Kalburgi	State
1.	Not Relevant to my teaching subjects	28	30	34	36	128
	%	03	04	04	06	04
2.	Lack of Basic Skills in Students	86	53	98	49	286
	%	08	07	11	09	09
3.	Problems with Computers	47	21	28	14	110
	%	04	02	03	02	03
4.	Subject Knowledge deficit in Students	73	67	86	38	264
	%	07	09	10	07	08
5.	Complexity of Use	82	50	64	41	237
	%	08	07	07	07	07
6.	No Response	522	333	328	267	1450
	%	50	44	38	46	45
7.	Not Applicable	212	211	222	130	775
	%	20	28	26	23	24
8.	Total Teachers	1050	765	860	575	3250

Source: Primary data.

1424 teachers have given a feedback that Level I training have been useful to them by more than 80 per cent to conduct Computer Education Classes. There is 'No Response' from 1450, 45 per cent teachers, for a question on Constraints in utility of TALP training; 775 teachers report that the question is 'not applicable' to them. It is recalled that 53 schools have

not set up computer laboratory in their schools. Again, it is recalled that 61 schools do not have Projectors to transact Computer Education in class. A total of 114 schools (114/650 schools, is 18 per cent schools) fall under No computer laboratory, No Projector Category. Hence, it is possible that 775 teachers, 24 per cent teachers fall under not applicable category. Hence, analysis of data from this Table is limited to 1025 teachers, 31 per cent teachers, who have reported constraints in maximizing utility of Level I training for Computer Education.

Reasons in order of proportion of teachers reporting the reasons, proportion in brackets are: Lack of Basic digital skills in students (09%), subject knowledge deficit in students (08%), complexities in use of Computers (teachers' problem – 07 per cent), lack of relevance to the subjects they teach (04%) and problems with Computers (03%).

Problems reported are not insurmountable. They can be addressed by DIETs/ Education Officers during their routine M and S visits.

**The bottom line is that there are not many significant problems in maximizing the utility of Level I Induction Training for effective Computer Education under TALP in schools.**

#### **6.4.5 Computer Education /TALP Vs. Syllabus Demands**

One of the normally observed debates in school education is related to the eschewal of modern child-friendly, activity oriented, psychologically sound methods of teaching which is integral to the B.Ed. syllabus everywhere. After completing the course and joining the profession teachers justify their adoption of traditional methods of teaching for the reason that they cannot complete the syllabus if they adopt time-consuming modern methods. Syllabus completion weighs heavily in the minds of most of the teachers. It is wondered whether TALP school teachers have the same feelings towards Computer Education vis-à-vis completion of syllabus.



Table 45: Computer Education/TALP Vis-à-vis Syllabus Demands

Divisions	Bengaluru	Mysore	Belagavi	Kalburgi	State
CE Takes time. Syllabus is Heavy	650	432	485	364	1931
%	62	56	56	63	59
No, Not a Problem	196	182	211	122	711
%	19	23	25	21	22
No Response	204	151	164	89	608
%	19	20	19	15	19
Total Teachers	1050	765	860	575	3250

Source: Primary data.

59 per cent teachers feel that adoption of teaching method of school subjects through Computer Education /TALP consumes more time than that through their regular methods. Eventually it will be difficult for them to complete the syllabus. Non-completion of syllabus makes students/parents/HT unhappy and many parents/students also complain about it to the HT. This kind of opinion/based on past experience is relatively in a higher proportion, 63 per cent teachers among Bengaluru and Kalburgi division teachers.

22 per cent teachers have positive attitude about Computer Education/TALP vis-à-vis demands of the syllabi. They can manage the syllabus well even with adoption of TALP technique of teaching – using pre-loaded laptops and also projecting CD/DVD lessons, engaging in explanations, teaching–learning transactions. This proportion is slightly higher at 25 per cent among Belagavi division teachers.

19 per cent teachers have preferred ‘No Response’, response. They may not have the wherewithal (Projectors/Smart Boards) to use CDs/DVDs in class.

**Bottom line is that more than one-fifth of teachers have a perfectly positive attitude towards adoption of TALP method of teaching-learning transaction.**

### **Development of e-Lessons**

Development of e-lessons in their subjects is one of the basic computer skills that a ‘good’ teacher is expected to acquire. Such lessons will be more students friendly.

Table 46: Teachers developing e-lessons

Divisions Computer Education	Bengaluru	Mysore	Belagavi	Kalburgi	State Total Teachers
Yes, we have developed	584	467	558	307	1916
%	56	61	65	53	59
Total Teachers	1050	765	860	575	3250

Source: Primary data.

59 per cent teachers have developed e-lessons in their subjects. This proportion is high at 65 per cent in Belagavi division, and low at 53 per cent in Kalburgi division. Belagavi division teachers are relatively more skilled at a 12 per cent difference from Kalburgi division teachers.

**Table 46.1: Method of Development of e-lessons**

Divisions → Methods ↓	Bengaluru	Mysore	Belagavi	Kalburgi	State Total Teachers
Solo Effort	179	138	174	90	581
%	17	18	20	16	18
With Colleagues	351	281	329	159	1120
%	33	36	38	28	34
With Students	50	49	56	60	215
%	04	06	07	10	07
Not done	470	297	301	266	1334
%	45	39	35	46	41
Total State Teachers	1050	765	860	575	3250

Source: Primary data.

The best method to develop e-lessons by teachers is to do it with colleagues. There will be instant, on-the-spot, validation of content material of the lessons. 34 per cent teachers in the State adopt this method. This practice is lowest at 28 per cent by teachers in Kalburgi division.

59 per cent teachers in the State develop e-lessons.

18 per cent teachers develop e-lessons, independently of others. This is good as it reflects their degree of skills. This is uniformly so across all divisions.

07 per cent teachers develop e-lessons involving students. This is also ‘good’ as students get exposure. However, the quality of e-lessons will be better when teachers develop e-lessons along with colleagues.

**‘Good quality’ e-lessons are developed by 34 per cent teachers under TALP programme.**

### **Teachers Sharing e-lessons Developed by them with DIETs**

18% teachers out of 59% who develop e-lessons share them with DIETs. This is good, as DIETs can revalidate them. This practice is upto 21 per cent among Belagavi division teachers. It is low at 15% among Mysore division teachers.

### **TALP Trained Teachers – Sensitizing Colleagues**

TALP Level I Induction Training received teachers had been advised to sensitize their colleagues (TALP Schools) about basic skills of use of computers in classroom teaching-learning transactions of their subjects. Here is a reality check of what they have done through self-reports of teachers.

95 per cent of teachers have sensitized their colleagues in the use of Computers/Projectors/CDs/DVDs, for classroom teaching. This is the uniform (not identical) status across teachers of all divisions.

Among the 3084 out of 3250 teachers, 95 per cent teachers, who have sensitized their colleagues, 1475 teachers, and 45 per cent have done this for one or two teachers and 26 per cent have done it for 3 or 4 teachers. Rest of them have done it for more than 4 teachers. It means 71 per cent teachers have sensitized 04 and less than 04 colleagues. This is the uniform incidence across all divisions.

**Teachers in TALP schools share their knowledge and digital skills with their colleagues.** This is a welcome position in TALP schools.

### **Exposure to Refresher Training:**

DIETs/DSERT provided ‘Refresher Training’ to teachers who had already received Induction Training so as to enable them to act as Mentors, IT coordinators, in their schools or in their office/station of work. During such training they were also familiarized about the use of various open source web addresses, web links that would facilitate exposure to advanced learning materials, teaching techniques that are of relevance to their work as Computer

Education teachers. They were also advised to share these web links with their colleagues. No. of teachers who received Refresher Training. No. of teachers who shared with their colleagues the web links. No. of teachers – Refresher Trained as well as Sensitized teachers find the Web Links useful for their class- work. Here is a feedback from teachers.

**There are 3250 TALP Induction Level I trained teachers in this sample. Among them, 2084 teachers, 64 per cent have received Refresher Training in Computer Education /TALP.**

**Web-Links:** During the Refresher Training, as a part of the programme, web links were given to them. 2879 out of 3250 teachers, 89 per cent report that these web-links were useful. Web-links were about: Usage of electronic gadgets, impact of ET on teaching-learning transactions, advantages of ET in education, motivation for use of ET in classrooms etc. There is uniform (not identical) appreciation/ acceptance of web links by the teachers across all divisions.

84 per cent of teachers, 2733/3250, report that the web links were relevant for their teaching-learning transactions, while, 81 per cent report that they were ‘simple to comprehend’.

**Table 47: Acceptance of Web links across Divisions – A Percentage Analysis**

Utility, Relevance, Simplicity are the 03 attributes on which feedback has been taken about the web-links provided to them during Refresher Training, from 3250 sample teachers.

Divisions → Attribute ↓	Bengaluru	Mysore	Belagavi	Kalburgi	State Total
	(Abstracts of Percentages Only)				Teachers
Utility	87	92	92	85	89
Relevance	81	86	88	82	84
Simplicity	78	82	85	79	81
Average Acceptance	82	87	88	82	85

Source: Primary data.

Note: Actual number of teachers for each attribute is considered, summated, and average taken from sum of discrete number of teachers who have responded to the questions. Average of averages is not taken.

**Web-links provided during Refresher Training are accepted on counts of usefulness, relevance and simplicity.**

**Average acceptance of Web-links in the State is at 85 per cent. It ranges from 82 per cent in Bengaluru and Kalburgi divisions to 87 per cent in Mysore division to 88 per cent in Belagavi division (highest).**

They are useful (89 per cent), relevant (85 per cent) and simple to comprehend (81 per cent).

### **Use of Other Web links by Teachers**

There are several open source web-links for use of school teachers in the universe of educational technology. Not all teachers may use them. Reasons may be lack of awareness, or time or interest or access to gadgets or connectivity issue

**38 per cent teachers in the State use open source web-links for their teaching.** Usages across divisions are: Belagavi (42%), Kalburgi (40%), Mysore (38%), and Kalburgi (34 per cent).

Higher level of usage should be welcome.

[E.g.: of OS software/web-links: Google, Geo, Khan Academy, Akash Byjus, Allens, etc.]

### **Table 48: Use of DIKSHA Portal by TALP Teachers**

No. of TALP teachers (sample 3250) use DIKSHA Portal.

Divisions	Bengaluru	Mysore	Belagavi	Kalburgi	State
Yes, use it	907	693	735	483	2818
%	86	91	85	84	87
No. of Teachers	1050	765	860	575	3250

Source: Primary data.

87 per cent teachers report that they use DIKSHA portal. This use is lowest at 84 per cent in Kalburgi division and highest at 91 per cent in Mysore division. Still, it is observed that use of DIKSHA is in a high proportion among TALP teachers.

### **Attitudes towards DIKSHA among TALP Teachers**

2818 teachers have reported that they use DIKSHA. They were asked about the utility, relevance and comprehensibility (Simple to Comprehend or not) of DIKSHA portal. All the 2818 teachers have not responded to these queries. Responses are in different proportions of teachers.

**Table 48.1: Attitudes towards DIKSHA among TALP Teachers**

Divisions	Useful	%	Relevant	%	Simple	%	Total
Bengaluru	823	78	125	12	102	19	1050
Mysore	625	82	71	09	69	09	765
Belagavi	698	81	93	11	69	08	860
Kalburgi	457	79	60	10	58	10	575
State	2603	80	349	11	298	09	3250

Source: Primary data.

TALP teachers believe that DIKSHA is a useful portal. 80 per cent teachers in State report about it. This report is uniformly observed across all divisions. However, 11 per cent teachers in State view it as ‘Relevant’ to their subject needs. Again, hardly 09 per cent think that it is simple to comprehend.

**TALP teachers have a mixed opinion about DIKSHA portal. While majority believe that it is useful in general, hardly a few opine that it is either relevant to their syllabus or simple for understanding.**

#### **ICT Texts given under TALP/CE**

The Department has supplied print versions/hard copies of Text Materials of computer lessons, known as ICT Texts, to schools. Teachers are expected to store them in school and share it with students by loading them in the Computers (soft versions).

83 per cent teachers report that their schools have received ICT texts for Computer Education. This feedback is uniform (not identical) across all divisions. However, only 49 per cent teachers report that these ICT text materials have been uploaded into computers. This practice ranges from 44 per cent in Kalburgi division to 51 per cent in Bengaluru division.

#### **Care and Concern for Slow Learners by TALP Teachers (Sample of this study)**

Slow learners in TALP classes, just as it is in regular classes, is expected. Teachers are expected to conduct **REMEDIATION** for them. If necessary, they are also expected to use Computers for Computer Education in the school subjects.

94 per cent teachers report that there are slow learners in Computer Education/TALP classes and consequently the teachers organize/conduct Remedial classes for them. This incidence is uniformly observed across all divisions.

However, all teachers, 94 per cent, who conduct remedial classes, do not do it by using Computers, which they normally do in regular Computer Education classes. 60 out of 94 per cent (Total 3250 teachers) use Computers even in remedial classes. Such use of Computers for remedial classes ranges from 55 per cent in Kalburgi division to 63 per cent in Belagavi division.

**Remedial care and concern for slow learners needs a higher level of interest and involvement by TALP teachers.**

### **Maintenance of a computer lab Log Book**

TALP/CE teachers need to maintain a logbook for the computer laboratory. The Mentor in the school should do it [IT Coordinator Teacher or others requested by him/her]. Log in time, log out time, duration of use, volume of GB use, opening and closure time of computer lab needs to be recorded for the systems in use in the computer laboratory; use of Cartridges, materials displayed in the dashboards, materials downloaded etc.; are recorded in the logbooks. It will be like a Ready Reckoner of use of computer laboratory. How many teachers maintain a logbook? Here is the data. It is possible that there is more than one teacher from a school in the total sample. Hence, total 'yes' reply is to be counted only for teachers and not equated for the number of schools.

66 per cent teachers report that they maintain a Log Book of computer lab use in their schools. It is low at 54 per cent in Kalburgi division and high at 70 per cent at Bengaluru division.

**Log book maintenance for computer laboratory needs to be made mandatory for TALP Schools.**

## **6.5 SUMMATIVE OBSERVATIONS on IMPLEMENTATION of TALP in SCHOOLS – Feedback from Teachers**

**Profile:** There are 3250 teachers in the sample, as per ToR, of whom 54 per cent are women; majority is middle aged and have at least 10 years' experience. 67 per cent teachers teach in exclusively Kannada medium schools.

**Workload:** Only 2 per cent of TALP trained teachers do not engage TALP Classes. Otherwise, they divide their work load of 24 hours per week equally across Regular (no computers) and Computer Education classes in their subjects. However, Computer Education practical classes for students are conducted by only 74 per cent teachers. It is noted that 53 out of 650 schools of the study have not set up a computer laboratory. Out of 53 schools, 24 schools are of Belagavi division. There is no scope for Practical classes in such schools. Absence of wi-fi (no Bluetooth also) connectivity may be another reason.

68 per cent teachers in the State report that they give Assignments/ Projects to students in Computer Education. Scope for assignments/projects in Science/Social Studies is relatively quite high as compared to English and Mathematics (except geometry), which are 04 subjects under TALP. There is uniform practice among teachers in giving assignments/projects in regard to periodicity (weekly/fortnightly/monthly).

**Feedback on Training:** 98.33 per cent teachers in this sample received Level I Induction Training/TALP while the rest were trained through 'sensitization exercises' by their colleagues. For a few of them, training in DIETs was not for a full complement of 10 days, may be for logistic reasons.

85 per cent teachers are satisfied/more than satisfied that they got hands-on-practice during training. Among the 15 per cent dissatisfied teachers in the State, 20 per cent are from Kalburgi division. It is possible that even among teachers, there may be 'slow learners'. They may need additional hands-on-practice.

Language of TALP Training (Level I) is English (Medium of Instruction).

Nearly 80 per cent teachers report that Level I training is relevant/ highly relevant to their classroom Computer Education transactions. For 19 per cent, it was relevant to 'some extent'.



### **Utility of Pre-Loaded Laptops supplied by the Department/DSERT.**

A minimum of 45 per cent teachers report that the pre-loaded cassettes (CDs/DVDs), are useful to the extent of 60 per cent of their teaching needs. Another 31 per cent teachers regard it as useful in the range of 50 to 59 per cent of their work. Less than 50 per cent utility is reported by 21 per cent teachers.

### **Proportion of Students who benefit from TALP – Teachers’ Perceptions**

50 per cent teachers perceive that at the least, 60 per cent students benefit from Computer Education/TALP transaction of subjects. Another 37 per cent perceive 40 to 59 per cent students benefitting under Computer Education teaching. Bottom line is that CDs/DVDs and Computer Education using them is not of maximum [more than 85 to 90 per cent] benefit to [85 to 90 per cent] students. They are not comprehensive in tune with syllabus needs and not customized to individual differences among students.

95 per cent teachers report that TALP/CE treatment of subjects is **‘EFFECTIVE’** for classroom teaching. It is to be made **‘EFFICIENT’** and **‘HOLISTIC’**.

### **Feedback on Training Methods**

58 per cent teachers report that they were given assignments/project work, practical work in Computer Education during training. It is possible that some DIETs, some batches did not get it. Practical training/assignments/project work should be made mandatory during Level I training. This good practice is reported only from 50 per cent teachers of Kalburgi division.

### **Utility of Level I Training for Computer Education/TALP Transactions in Classrooms**

More than 80 per cent utility is reported from at least 60 to 80 per cent of teachers. 44 per cent among them are clear that it is useful by 80 per cent and more than that. Rest of the 20 per cent regard it as useful up to 50 per cent or less than that. Level I training has been useful for Computer Education classes to a large majority of teachers.

Teachers were questioned about the constraints in maximization of utility of the skills they had acquired during training, and for 100 per cent level effective Computer Education transactions. Reasons in order of proportions of teachers reporting on this are: Lack of basic digital skills among students (09%), deficit in subject knowledge in students (08%), complexities in use of Computers (teachers’ problem – 07%), lack of relevance of skills to the subjects they teach (04%) and problems with computers (03%). The bottom line is that problems in maximizing TALP are not significant and insurmountable.

### **Computer Education/TALP Vs. Syllabus Demands**

59 per cent teachers feel that Computer Education/TALP is time consuming and affects their syllabus completion concerns. Only 22 per cent teachers have a perfectly positive attitude towards Computer Education/TALP.

### **Development of e-Lessons**

59 per cent teachers develop e-lessons. Good quality e-lessons are developed by 34 per cent teachers under TALP.

### **Sensitization of Colleagues:**

Teachers in TALP schools share their knowledge and digital skills with their colleagues.

### **Refresher Training:**

64 per cent teachers have received Refresher Training (in this sample). Web-links were given to teachers during this training. More than 80 per cent teachers are satisfied with the web links with respect to utility, relevance and simplicity. This is true across all divisions.

38 per cent teachers report that they also use other open source web-sites.

### **Use of DIKSHA by TALP Teachers:**

87 per cent TALP teachers use DIKSHA Portal. 80 per cent find it useful. However, hardly 11 per cent find the lessons to be of Relevance to their syllabus/teaching and only 09 per cent report that these materials are simple to comprehend.

### **ICT Texts given for Computer Education/TALP**

83 per cent teachers report that they have received these texts, while only 49 per cent have uploaded them to the Computers for use by students.

### **Care and Concern for Slow Learners**

94 per cent teachers report that there are 'slow learners' in their class. They give remedial lessons for slow learners. However, only 60 out of 94 per cent use computers in remedial classes.

### **Maintenance of Log Book**

66 per cent teachers maintain a log book in the computer lab of their schools.

**CIET/NCERT Handouts:** 39 per cent teachers have received 140 handouts on Computer Education in their schools. This receipt varies across divisions. 52 per cent teachers also report on receipt of 52 videos by their schools. Students have access to them.

## 6.6 STUDENTS: LEARNING SCHOOL SUBJECTS

The ToR for TALP study specified 8000 students as sample, of which, 6500 students had to be from high schools. As such analysis of data in this section is for 6500 students.

### **Profile of Students:**

6,333 out of 6,500 students, 97.4 per cent, attend schools from their homes. Rest of them 2.6 per cent, are staying in hostels, may be pre-metric or others, and attending schools. Students staying in hostels, even among limited proportion, are relatively more in Belagavi and Kalburgi divisions.

National norms for acceptable distance of a high school from homes of students/ children are (within) 5 Kms. 809/6500, 12.45 per cent students travel to school from a distance of more than 5 Kms. This may not be an issue of concern as 41 per cent students in this sample (2681 students) commute to school on bicycle. They will not be tired to travel to school. They can concentrate on studies. 2266 out of these 41 per cent (2681 students) are beneficiaries of the Free Bicycle scheme of the GoK, 85 per cent (out of 41 per cent) students. 2718/6500 students, 42 per cent, walk to school. It is also noted that for 2708/6500 students, 42 per cent students, distance of school to home/place of stay is well within 1 km. Among students whose school is in the range of 2 to 5 Kms. 17 per cent use public bus.

Bottom line is that commuting to school for children, all over the State is not at all a problem, even at the high school stage.

**Table 49: Parental Background of TALP schools' students:**

Parents Educational Qualification	Illiterate	Upto 4 <sup>th</sup>	5 <sup>th</sup> to 7 <sup>th</sup>	8 <sup>th</sup> to 10 <sup>th</sup>	Up to 14 <sup>th</sup>	Degree	PG	Ph. D	Total
Father (No)	999	1100	1451	1958	649	286	45	12	6500
%	15.36	16.92	22.32	30.12	9.98	4.4	0.69	0.18	-
Mother (No)	1292	1188	1641	1853	399	104	125	8	6500
%	19.87	18.27	25.25	28.50	6.13	1.6	0.23	0.12	-

Source: Primary data.

As expected, proportion of illiterate mothers (19.87 per cent) is higher than that of fathers (15.36 per cent). Alternatively, 85 per cent fathers and 80 per cent mothers are not illiterate.

It is possible that at least 15 per cent of high school students, even by 2016 to 2020 AD are first generation learners, are being exposed to Computer Education/TALP. This is both amusing and pleasing.

8<sup>th</sup> standard to 10<sup>th</sup> standard schooling is the norm among both parents. It is also pleasing to note that there are post-graduates and research degree holders among fathers and mothers whose children are attending the Government school system in the State.

**Migration Status:** - 6217/6500 parents, 95.65 per cent, are permanent residents of the State. They have been living in the same place for more than 20 years. Among the rest of the 383 parents, 226 parents are in-migrants to the present place of residence from within the State. Children of parents who attend Government school system are from within the State.

**Parental Occupation:** Parents have mentioned variety of occupations for the question on their occupational background. 10 different occupational categories are mentioned apart from 'others' column and 'No Response' column. A detailed analysis of fathers/mothers occupations will not be made here. Analysis will be limited to prominent occupational categories (minimum 5 per cent entries). Other occupations will only be mentioned without a quantitative indicator (without percentage of incidence).

**Table 49.1: Fathers' Occupations**

Divisions↓ Occupation	Agri- culture	Labour/ Coolie	Constru- ction	Busi- ness	Dri- vers	Govt. Job	Others	NR	Total
Bengaluru (No.)	733	725	104	187	118	31	155	47	2100
%	35	34	05	09	06	02	07	02	-
Mysore (No.)	500	605	132	91	75	19	94	14	1530
%	33	40	08	06	05	01	06	01	-
Belagavi (No.)	807	527	73	106	50	49	78	30	1720
%	47	30	04	06	03	03	05	02	-
Kalburgi (No.)	410	439	57	99	50	32	49	14	1150
%	36	38	05	09	04	03	04	01	-
State (No.)	2450	2296	366	483	293	131	376	105	6500
%	38	35	05	07	05	02	06	02	-

Source: Primary data.

Table 49.2: Mothers' Occupations

Divisions↓ Occupation	Agri- culture	Labour (Coolie)	Maid Servant	Home Maker	Others	NR	Total
Bengaluru (No.)	292	498	365	780	157	08	2100
%	14	24	17	37	07	-	-
Mysore (No.)	137	463	139	682	106	03	1530
%	09	30	09	45	07	-	-
Belagavi (No.)	249	377	330	660	98	06	1720
%	14	22	19	38	06	-	-
Kalburgi (No.)	172	360	171	395	48	04	1150
%	15	31	15	34	04	-	-
State (No.)	850	1698	1005	2517	409	21	6500
%	13	26	15	39	06	-	-

Source: Primary data.

All the fathers are working, engaged in paid work. But among mothers, 39 per cent are home makers, unpaid work. Proportion of Home makers is 45 per cent in Mysore division.

38 per cent fathers and 13 per cent mothers are in agriculture. [It is noted in passing that as per State level update, 13 per cent farm households are headed by women cultivators]. Farmer parents/fathers are in highest proportion in Belagavi division, at 47 per cent.

Those who are labourers – agricultural labourers and coolies constitute 35 per cent fathers and 26 per cent mothers.

Those who are in construction work (05 per cent), business (06 per cent) and drivers (05 per cent) may be mainly from urban pockets.

15 per cent of mothers are maid servants. 06 per cent of fathers/mothers are in a variety of sundry occupations, clubbed together in regard to their incidence/data under 'others'.

The variety of jobs under 'others' category are: Typists, Peons, Tailors, Drivers, Conductors, Clerks, Technicians/Engineers, Government servants, Bank workers. Number of entries under each category are highly insignificant.

### **Significance of Occupational Data for TALP Study:**

Majority of parents, who send their children to Government schools, especially fathers, are in low paid jobs. They find it hard to afford Smart phones, pay for wi-fi and renewal of internet facility to their children. TALP implementation will not be complete by supplying computers, projectors, smart boards to schools. 'Parents' as a dimension in Digital education needs to be factored into TALP implementation.

### **Age and Sex of Children**

Proportion of over-aged students in the sample (6500 students) of the study, in government schools, is 07 per cent. It is on the higher side in Bengaluru and Belagavi divisions. As per age groupings 49 per cent are 16 years of age (10<sup>th</sup> standard equivalent). Together, 87 per cent had exposure to Computer Education/TALP for at least one year. There is not much difference in exposure to TALP, by age category, across all divisions.

54 per cent of sample students are girls. This distribution across sexes is uniformly visible across divisions.

### **Summary of Profile of Students**

A great majority of students attend schools from their homes. Commuting is not an issue because of free bicycle scheme. Small, insignificant proportion of migrants attends government schools. Parents are in lowly occupations which constrain them to buy smart phones and pre-paid internet packages for Computer Education. They are in appropriate age category in their schools and distribution of sample across the sexes is fair / balanced, slightly tilting towards girls.

### **Computer Education/TALP Classes**

**Table No.50: Organization of TALP/CE Classes in Schools - Feedback from Students**

Divisions	Bengaluru	Mysore	Belagavi	Kalburgi	State
Yes	1976	1500	1561	1097	6134
%	94	98	90	95	94
Total Students	2100	1530	1730	1150	6500

Source: Primary data.

94 per cent students report that TALP classes are conducted in their schools. Proportion is highest in Mysore division (98%) and lowest in Belagavi division (90%).

**Table No.50.1: Number of Computer Education Periods per Week**

Divisions	Bengaluru	Mysore	Belagavi	Kalburgi	State	Rest
10 to 12 hrs.	1869	1393	1442	1051	5755	> 12 hrs.
%	88	91	84	91	89	

Source: Primary data.

On an average, 89 per cent schools in State earmark 10 to 12 hours per week for TALP classes. Rest of them organize classes for more than 12 hours per week. Minimum is 10 to 12 hours.

**Table No. 50.2: Number of Practical Periods per week**

Divisions	Bengaluru	Mysore	Belagavi	Kalburgi	State	Rest
2 to 3 Hours	1598	1210	1263	900	4971	> 3 hours
%	76	79	73	78	76	

Source: Primary data.

76 per cent students report that they have a minimum of 2 to 3 hours of Practical Classes periods per week. This allocation is nearly the same across all divisions.

### **Timings of Computer Education/TALP Classes (by Teachers in Classrooms)**

Table No.50.3: No. of Teachers who prefer to conduct the TALP Classes in the Morning

Divisions	Bengaluru	Mysore	Belagavi	Kalburgi	State	NR
Yes, Morning	1296	1054	1015	661	4026	366
%	62	69	59	57	62	-

Source: Primary data.

62 per cent teachers prefer to conduct TALP classes in their subjects during morning hours. There is not much difference across divisions in this practice.

### **Timings of Computer Education Practical Classes in Computer Laboratory**

Table No.50.4: No. of Students who prefer practical classes in the afternoon

Divisions	Bengaluru	Mysore	Belagavi	Kalburgi	State	NR
Yes, Afternoon	1629	1270	1342	938	5174	366
%	78	83	78	82	80	06
Total Students	2100	1530	1720	1150	6500	-

Source: Primary data.

80 per cent students do practicals in computer lab during afternoons. This is good. Drudgery after lunch will vanish. It is comparably so across all divisions.

Table 50.5: Exposure to Computer Education before TALP- A feedback from students.

Divisions	Bengaluru	Mysore	Belagavi	Kalburgi	State	NR
No Exposure earlier	1784	1363	1506	1054	5707	793
%	85	89	88	92	88	12
Total Students	2100	1530	1720	1150	6500	-

Source: Primary data.

88 per cent students had no exposure to Computer Education before they joined TALP high schools. [It is recalled that HTs had reported that they had exposure through CALC. Students' self-report rather than HTs perceptions are of value]. Highest proportion in this category (92 per cent) is from Kalburgi division students.

**Table 50.6: Students attitude towards Computer Education /TALP Classes**

Divisions	Bengaluru	Mysore	Belagavi	Kalburgi	State
No. Who Like	2020	1471	1647	1126	6264
%	96	96	96	98	96
Total Students	2100	1530	1720	1150	6500

Source: Primary data.

96 per cent students are quite happy to learn through Computers in their classrooms. They like the TALP programme. This is uniformly so across all divisions.

230 students do not like TALP classes. Reasons are as they follow: Computer Education is difficult to follow (Lessons/Class through Computers: 69 students); Do not know Basics of the subject (79/230); Eyes get strained (63/230) and finally neck gets strained (19/230). Practical classes are also included in this update.

### **Students preference for group work**

68 per cent, 4399/6500, like to learn with friends. 1611/6500, 24 per cent like to learn in a group with others. 490/6500 prefers to work/learn alone with the computers in the computer laboratory.



### TALP Classes Organization – Feedback from Students: A Summary

Students are happy with the organization of TALP classes in their schools. 10 to 12 hours of Computer Education classes in the classrooms, 2 to 3 hours of Practical work are organized in schools. Most of Computer Education class is in the mornings and practicals are in the afternoons.

It is noted with satisfaction that almost all students, with very few exceptions, enjoy TALP/ Computer Education classes – regular/practical classes.

A few students report that they get eye strain in Computer Education classes. LED projectors may be useful for them.

Table 51: TALP has been helpful to you in understanding/studying your School Subjects.

Divisions	Bengaluru	Mysore	Belagavi	Kalburgi	State
Yes, Helpful (No.)	2055	1504	1619	1127	6305
%	98	98	94	98	97
Total Students	2100	1530	1720	1150	6500

Source: Primary data.

TALP, learning school syllabus/lessons/topics of school subjects has been highly, immensely successful venture. 97 per cent students have found it useful in the State. Such a feedback is from 98 per cent students in Bengaluru, Mysore and Kalburgi divisions. **All the trouble is worth it.**

### Possession of e-gadgets at home

Table No. 51.1: Type of Gadgets Possessed by Students

Divisions ↓ Yes/No	Bengaluru	Mysore	Belagavi	Kalburgi	State
Smart Phone	1934	1488	1561	1025	6058
%	92	97	91	89	93
I Pad	59	22	37	18	136
%	03	01	02	02	02
Laptop	73	57	57	26	213
%	04	04	03	02	03
Computer (DT)	68	32	43	20	163
%	03	02	03	02	03
Total	2100	1530	1720	1150	6509

Source: Primary data.

Note: Total Percentages can exceed 100 as a student can possess more than one gadget.

- DT means Desktop Computer

Majority of Students possess SMART phones and use them for online classes. Their proportion in the State is 93 per cent. Hardly 08 per cent students in the State possess a laptop or a desktop or a tablet. Many students from Kalburgi division may not possess any of the gadgets.

It is also possible, as a cross reference analysis of Parents feedback would suggest, in many cases Smart phones may not be exclusive possession for independent use by students. They may be sharing it with parents/elders at home.

Table 51.2: Usage of gadgets at home by students

Divisions → Yes/No	Bengaluru	Mysore	Belagavi	Kalburgi	State
Yes, we use (No.)	1182	927	896	568	3573
%	56	61	52	49	55
No (Number)	834	578	702	480	2594
%	40	38	41	42	40
NA	84	25	122	102	333
%	04	02	07	09	05
No. of Students	2100	1530	1720	1150	6500

Source: Primary data.

Even while students have access to one or other of the electronic gadgets, which they use it for on-line classes, only 55 per cent students have access to them beyond school hours. They will not be able to use them for visiting web-sites, access advanced information, surf for information, and for advanced learning. They will need to share them with their parents. Even parents' data matches with this feedback. Access to e-gadgets beyond school on-line classes is in proportions of 61 per cent – Mysore division, 56 per cent – Bengaluru division, 52 per cent – Belagavi division and 49 per cent – Kalburgi division students (lowest in the State).

Using e-gadgets only for on-line learning transactions and not for other additional uses is not wholesome Computer education/TALP. Given the socio-economic background of parents and their capacities to buy gadgets for exclusive use of their children, the given implementation of TALP will not be able to address the concern of 'equity' in schooling.

Anybody at home who can guide/help students on Computer Skills.

Table No.51.3: Computer Assistance at Home for students

Divisions	Bengaluru	Mysore	Belagavi	Kalburgi	State
Yes, Some one is there (No.)	741	521	517	336	2115
%	35	34	30	29	33
No. of Students	2100	1530	1720	1150	6500

Source: Primary data.

33 per cent homes are well placed in the context of Computer Education of children. There is somebody who is knowledgeable about computers and who can guide their wards in computer skills and learning through computers. This proportion is lowest at 29 per cent in Kalburgi division.

Alternatively, school is the only institution/source for Computer Education /TALP learning to two-thirds of the student body. It is here that Remedial Learning for slow learners assumes significance.

**Use of pre-loaded Computers** to learn school subjects in Computer Practical Classes (Self-Learning Exercises)

Table No. 51.4: Use of Computers in Practical Classes

Divisions	Bengaluru	Mysore	Belagavi	Kalburgi	State
Yes, we use (No.)	1670	1238	1330	737	4975
%	80	81	77	64	77
No. of Students	2100	1530	1720	1150	6500

Source: Primary data.

77 per cent students have access to pre-loaded computers in practical classes [It is recalled / as per Tool 1 data that 92 per cent schools have computer laboratory], to learn their subjects. This access is beyond the opportunity to learn through computers in regular classrooms. Students in Kalburgi division are in lowest proportion (64 per cent) among those who use computers for subject learning during practical classes.

**Students' ability to understand their lessons through pre-loaded cassettes**

[Regular classrooms or/and Practical Classes]

Table No.52: Students' Comprehensibility of CD Lessons

Divisions→ Level of understanding↓	Bengaluru	Mysore	Belagavi	Kalburgi	State
To a Large Extent	441	236	301	163	1141
%	21	15	18	14	18
To Some Extent	1430	1152	1199	812	4593
%	68	75	70	71	71
To a Little Extent	117	81	75	65	338
%	06	05	04	06	05
Not useful	112	61	145	110	428
%	02	04	08	10	07
No. of Students	2100	1530	1720	1150	6500

Source: Primary data.

07 per cent students in the State are not at all able to benefit from TALP/Computer Education. It is noted that even without computer education considerable proportions of students have learning difficulties. Difficulty level of syllabus goes on increasing with every standard of schooling. Proportion of students in this category across Bengaluru, Mysore, Belagavi and Kalburgi is: 02, 04, 08 and 10 per cent respectively.

18 per cent students are very much satisfied with TALP/ Computer Education in school subjects.

**Bottom line of this analysis is that there are considerable individual differences in learning through TALP.**

Production of CD lessons under TALP initiative should take note of this reality and make lessons as simple as possible.

**Students' methods to solve their learning difficulties/problems.**

Table No. 53: Students' Method of solving Learning Problems

Divisions → Methods ↓	Bengaluru	Mysore	Belagavi	Kalburgi	State
Consult Friends	416	264	278	216	1174
%	20	17	16	19	18
Consult Teachers	1653	1246	1381	914	5194
%	79	81	80	79	80
Keep Quiet	31	20	61	20	132
%	01	01	04	02	02
Total Students	2100	1530	1720	1150	6500

Source: Primary data.

80 per cent students depend on their school teachers to solve their learning problems and clarify their doubts. This is good. Further, 18 per cent students confer with their friends to clarify doubts. This is also OK. Problem is with those who keep quiet. They need to be identified by their teachers, motivate them, and build their confidence levels to be pro-active in clearing doubts. HTs/Teachers need counseling on this concern.

**Learning School Subjects (Summary Account):**

TALP has been well received by almost all (97 per cent) students. Access to e-gadgets for TALP arrangement for learning is difficult for a considerable proportion of students, specifically learning beyond school hours, beyond on-line classes. Equity in TALP facilitation is affected. A small proportion of students get home support to adjust to TALP/CE learning. A great majority depend only on the school. There are considerable individual differences among students in absorption of learning through TALP. Curriculum development needs to take note of this reality.

**Electricity Facility [in Sample Schools]**

52 per cent students report that they get uninterrupted electricity facility in their schools. This report is from 56, 55, 51 and 45 per cent students in Bengaluru, Belagavi, Kalburgi and Mysore division students respectively. In fact, this unsteady supply affects Computer practical classes, as they are mostly held in the afternoons, immediately after lunch. Only 21 per cent students report that they will have steady supply of power during their practical classes. Divisions-wise tally across Mysore, Belagavi, Bengaluru and Kalburgi students respectively is from 27, 20, 19 and 18 per cent.

### **Internet Facility for Computer Education Practical Classes**

Schools where 59 per cent students in State study have wi-fi/Internet connection for their practical classes while schools where another 10 per cent study uses Dongle/Bluetooth. Students who do not have either internet or Dongle facility across the State and divisions respectively in terms of percentages are 31 (State), Kalburgi (46 per cent), Belagavi (33 per cent), Bengaluru (28 per cent) and Mysore (22 per cent).

Mysore division has the best access (78 per cent) while Kalburgi division has the most discomfoting (54 per cent) access only.

There is wide regional disparity, widest gap being 24 per cent deprivation, across the divisions in access to internet – wife or dongle – during practical classes.

### **Computer Usage Skills**

30 per cent students can operate a Computer without dependence on a mouse. There is not much difference in this skill across the students of the 4 divisions.

73 per cent students are able to locate their files/documents/lesson units/CDs/DVDs on the dashboard of their computer. There is not much difference in this proportion across the four divisions/students.

**Table 53.1 Students' Happiness about Computer Education in their Schools**

Level of satisfaction	Bengaluru	Mysore	Belagavi	Kalburgi	State
Very Happy	1154	887	956	557	3554
%	55	58	56	48	55
Happy	760	555	627	534	2476
%	36	36	36	46	38
Little Happy	134	59	113	55	361
%	06	04	07	05	06
Not Happy	52	29	24	04	109
%	02	02	01	-	02
No. of Students	2100	1530	1720	1150	6500

Source: Primary data.

93 per cent students in the State are Very Happy/Happy that they have Computer Education in their schools. This figure across the four divisions respectively is: 94 per cent – Kalburgi and Mysore, 92 per cent – Belagavi and 91 per cent – Bengaluru division. Hardly 02 per cent students are expressed not happy with Computer Education mediated learning.

Majority of students are not able to get a peaceful/productive computer class experience/learning due to electricity problems. There are regional disparities in internet/dongle access, the gap between Mysore and Kalburgi divisions being 24 per cent while the State average access is 69 per cent. 93 per cent students are Very Happy/Happy about Computer Education in their schools.

## 6.7 Feedback from Parents on their participation in the TALP Programme

**Preview:** 650 schools constitute the sample for TALP in high schools. As per ToR, parents are to be interviewed with the help/facilitation of Head Teachers regarding their involvement in the TALP programme. Two parents are interviewed from each school. Hence, the sample is 1,300 parents.

**Profile of Parents:** There are 1,300 parents out of whom 978, 75 per cent are fathers. Mothers' coverage is more in Bengaluru (30%) and Mysore (38%) divisions while it is low in Belagavi (15%) and Kalburgi (13%) divisions.

**Parent-Teacher Dialogues about on-line classes:** Post Covid-19 pandemic schooling got organized through on-line classes. 1,169 out of 1,300 parents (90%) discussed the modalities of on-line schooling with teachers and HT. Proportion of involvement of parents about on line schooling across the 4 divisions: Bengaluru, Mysore, Belagavi and Kalburgi are 87, 92, 92 and 90 per cent respectively. Involvement is uniformly observed in comparable degrees.

It is possible that all homes/parents/students were not ready for on line schooling. They were not expecting post Covid-19 lock-down and suspension of regular schooling. The first step the parents had to take for on-line schooling was to get a smart phone to their wards to attend on-line classes. Preparedness of homes in this regard is as follows:

Table 54: Parental Readiness for On-Line Schooling

Type of Readiness→ Divisions↓	Smart Phones with Children before Pandemic	Smart Phones only after Pandemic	Children use Parents' Phones always	Children use Parents' phones only after Pandemic	Total Students
Bengaluru	09	198	191	22	420
%	2.14	47.14	45/47	5.24	
Mysore	06	157	124	19	306
%	1.96	51.30	40.52	6.21	
Belagavi	05	198	111	30	344
%	1.45	57.56	32.27	8.72	
Kalburgi	06	81	115	28	230
%	2.61	35.22	50.00	12.17	
Total	26	634	541	99	1300
%	2.00	48.77	41.62	7.62	

Source: Primary data.



Children in high schools are in the age cycle of 14, 15, 16 years. In only 2.00 per cent homes in the State, where children attend government schools (that is lower, lower middle and middle class children normally attend government schools) children are provided with Smart Phones even before the Covid-19 pandemic times. Government school children possessing Smart Phones independently/exclusively is not the norm in the State.

However, after the pandemic/Covid-19, parents were compelled to buy Smart Phones to children/their wards to attend On-line classes. Only 48.77 per cent parents could afford to buy Smart phones to their children to attend on line classes. There is no capacity for around 50 per cent of parents to buy Smart Phones to their children. This capacity appears to be high (may also be willingness) in Belgaum division, at 57.56 per cent.

Children were allowed to use Parents' phones in 49.34 per cent homes in the State. Normally, children use phones to communicate with their classmates/friends to exchange academic/personal notes. They are allowed to use it for limited hours in a day. However, with the onset of on-line classes, they use it even during school time; they have no choice. Parents have to bear with it. Out of the 49.34 per cent who use parents' phones, 41.62 per cent were allowed to do so always, even before the pandemic. In 7.62 per cent cases, they are allowed only after the pandemic.

In regard to exclusive purchase of phones for children, the position of Kalburgi division (backward in the State) is not appreciable in comparison to other divisions.

**Inference:** Launching on-line classes without examining the capacity of parents/homes of children who attend government schools to buy smart phones is not a good proposition. There is a principle, a philosophy, logic in distribution of free uniforms, textbooks, mid-day meals, bicycles etc., to children/homes for government school children. There is no need to discuss this logic. Same logic (Hicks/Caldor/Scitovsky Compensatory principle, for those who are curious to know) applies for distribution of smart phones also. A large majority can ill afford Smart Phones to their kids. Many of them take it on credit/installment basis also. It is appropriate for the Government to buy/ distribute Smart Phones to Government school (high school for the present) children. A departmental committee can be set up to examine the concerns, estimate the needed expenditures and set about bulk purchase of phones using the QCBS practice.

Table 54.1: Parental Opinions on On-line Schooling

Opinions -----→ Divisions↓	No Alternative	Blended is good	Regular School is good	On line only for Pandemic	Total
Bengaluru	185	100	63	72	420
%	44	24	15	17	
Mysore	137	71	38	60	306
%	45	23	13	20	
Belagavi	166	57	33	88	344
%	48	17	10	26	
Kalburgi	111	38	36	45	230
%	48	17	16	20	
State	599	266	170	265	1300
%	46	21	13	20	

Source: Primary data.

On line learning carries its own problems for children/ parents/homes. Foremost problems are related to space availability and use. Most of the homes from where children attend government schools are small/ medium size. Under the given circumstances, privacy for children, maintenance of a silent/peaceful atmosphere, sharing space for other family uses or with other school going siblings, for father/mother who have work from home duties, maintenance of visits of wanted/unwanted guests/visitors, and like this, there are several constraints for managing on-line schooling at home.

33 per cent parents do not welcome on line schooling. Out of them, 20 per cent report that they can put up with this practice only due to pandemic times. Another 46 per cent have opined that there is 'no alternative', which means they would put up with it as they have no choice. In effect, 79 per cent parents (20 + 13 + 46) would not be happy with on-line schooling. Rest of the 21 per cent parents would not welcome exclusive on line schooling. They would welcome Blended Learning – both on line and regular – a mix of both. 13 per cent parents are very clear that they would prefer regular schooling. 13 per cent is 170 out of 650 homes.

Across the divisions, the annoyance with on line schooling is relatively more in Belgaum and Kalburgi divisions. Highest preference for regular schooling is in Kalburgi division (16 per cent, may be unfriendly housing conditions) and Bengaluru division (15 per

cent, may be slums and group housing status). Kalburgi division parents are relatively most unhappy with on-line schooling. General living conditions in households should be factored within the organization of on line learning. Panchayat halls, community Halls, Churches/Convents/Mosques/temple premises with connectivity and similar places can be subjected to coordinated use for on-line schooling of children. This will ease the burden on homes, especially poor homes.

### **Gigabyte (GB) Usage for On-line Schooling by Children**

The more GB is used, the higher the Service usage of data plan and the higher the amount a person has to pay (parents for children). If the GB/per day limit is consumed in taking on line classes, students cannot use the smart phone on the same day for other academic pursuits. Otherwise, they have to go for a higher rate plan. Not all students are able/capable of buying higher rate plans (parents). Many students may buy limited GB plans. GB is used for memory, storage, retrieval, storing of data, graphs, documents, videos, pictures, photos, drawings, on-line teaching/learning transactions.

Table 54.2: GB Capacity in Smart Phones of Students (No. of Parents)

Place	1 to 2 GB	> 2 GB	Not Using	Total
Bengaluru	375	320	13	420
Mysore	294	10	02	306
Belagavi	309	34	01	344
Kalburgi	208	14	08	230
State	1186	90	24	1300
%				
Bengaluru	89	08	03	100
Mysore	96	03	-	99
Belagavi	90	10	-	100
Kalburgi	90	06	02	98
State	91	07	02	100

Source: Primary data.

Note: A few 'no responses' are there.

A great majority of students use 1 to 2 GB data per day. They buy limited data plans. 07 per cent use their Smart Phones beyond school hours, may be for advanced academic pursuits. A dedicated network plan can be put in place by the Department of Education

through tie-up with BSNL, Airtel, Jio, Vodafone etc. for the benefit of all students. A fixed GB use plan per day by every student can be supported and an annual payment can be made. An umbrella of on-line teaching network can be rolled out.

This will be a mega 'cloud' network for TALP for use of School/College students. Software development for this network can be commissioned to WIPRO, INFOSYS, CISCO, IBM or any other similar corporate houses.

### **Parents' Views on 'Samveda' Classes**

The DoE (DSERT) has facilitated the telecast of school subjects (of the syllabus) with time table and advance information to students so as to address the constraints for regular schooling during lockdown/pandemic times. This is known as SAMVEDA. Students/homes who possess a Television can get access to it. It will be on Doordarshan/Chandana Channels; Homes of all parents/sample of the study have TV facility. They have responded to a question on their opinions towards SAMVEDA classes, on the basis of their children's involvement and feedback.

### **Parents' Opinions on SAMVEDA Classes -**

90 per cent parents in the State have offered a positive feedback on Samveda Classes. It ranges from 87 per cent in Kalburgi division to 93 per cent in Mysore division. An insignificant, ignorable 5 out of 1300 parents feel that it is 'bad'.

### **Parents' Views on 'Vidyagama' Classes:**

When the social life in the State got relatively more relaxed, when the restrictions of movement/assembly of people got relaxed, when there was partial lockdown during pandemic times, the Department (DSERT/CPI) organized **VIDYAGAMA** classes in lieu of regular schooling. Children were earlier attending a centrally located school from nearby satellite habitations and transport facility was there during pre-Covid-19 times. When full lockdown was there, they were deprived of regular schooling. With the partial lifting of lockdown restrictions; children were allowed dispersed schooling facility in their own habitations. A Panchayath Office, Community Hall, a marriage Convention Centre, a temple premises, Mosque, Church, a compound of a landlord's house, like this wherever possible, schooling facility was organized. School teachers would visit the foreknown place of schooling by staggering their visits, teach children who would congregate at the foreknown place and 'complete' the syllabus, address students' learning problems. Rules of the Covid-19 laid down by the Government like social distancing, compulsory wearing of masks,

regular sanitation of the premises, and sanitation of children/teachers would be observed in these Vidyagama classes. Vidyagama classes were held throughout the State. The opinions of parents on the organization and conduct of Vidyagama classes are collected.

341 out of 1300 parents opined that the Vidyagama classes were ‘very good’ (26 per cent). Another 585 parents felt that these classes were ‘good’ (45 per cent). All of them formed their opinions on the basis of feedback from their wards. 341 parents (26 per cent) reported that these classes were ‘Satisfactory’. In effect, 97 per cent parents have expressed a ‘**Positive**’ opinion about Vidyagama schooling. Those who are cut up with this practice (nearly 3 per cent) are in an insignificant minority.

Opinions on Vidyagama programme, are uniformly similar across all divisions, all regions of the State.

#### **Samveda/Vidyagama classes – Follow up by students – Monitoring by Parents.**

As there is no regular schooling, it is not possible to keep a tab on follow up exercises after every day schooling. Teachers find it difficult to monitor students on their follow up of daily lessons. Parents were questioned regarding their monitoring practices of their children’s studies. 1160 out of 1300 parents, 90 per cent, report that their children engage in home studies after the Samveda, Vidyagama classes. They have not given up the learning habit.

#### **Parents’ preference for regular schooling during Pandemic times.**

769 out of 1300 parents, nearly 60 per cent, would not mind to send children to regular schooling in spite of Covid-19 pandemic. 346 parents, 29 per cent would not support such a measure. Others (the rest) are undecided. Out of those who prefer regular schooling, 15 per cent (198 out of 1300) would want it on the basis of shift system, not all students in one shift, while 231 (18 per cent) prefer only on-line classes. However, among those who prefer regular schooling (60 per cent), 416/1300, 32 per cent insist on adherence to Standard Operating Procedures, SoP for pandemic/regular schooling.

**Power Problems:** Power cuts are common in the State, especially rural areas. How do parents/homes/students manage Samveda lessons/on line classes during power cuts/power breakdown/power shut down. Only 102 out of 1300 households, 8 per cent homes, have UPS facility; 117 HH, 9 per cent, rush to neighbours with UPS; a total of 17 per cent do not miss classes. 794/1300, 61 per cent wait for repeat telecast. 22 per cent of students have no options. They miss classes. Kalburgi division homes are the most affected (32 per cent) due

to power problems. These 32 per cent may be the poorest of the poor. Department needs to think about them. Bridge courses for them can be one alternative.

### **DIKSHA and YOUTUBE/DSERT PORTALS:**

DIKSHA is a digital portal for distance education operated by the NCERT. It offers learning materials relevant to prescribed school curriculum. It is an e-learning portal. It is an Open Education Resource [Free for use]. It is mostly teacher-centered and used by teachers. 838 out of 1300 parents of this study, 64 per cent, are aware of this portal. The DSERT operates a learning centre You Tube Channel through a tie up with CHANDANA TV Channel. 1112 out of 1300 parents, 86 per cent, are aware of You Tube Channel of the DSERT. There is not much difference across divisions in awareness of parents about the You Tube channel of the DSERT.

### **Parents' Interest/Involvement regarding Education/Schooling of their children**

1036/1300 parents, 80 per cent, have discussed/met/conferred with the Head Teachers of the schools attended by their children. Division-wise differences in this involvement are not much.

VIDYAGAMA schooling has located some teachers of schools as 'MARGADARSHI' teachers who would interact with parents/students and clarify their doubts, answer their queries. It is reported that 1190/1300 parents, 92 per cent have interacted with Margadarshi teachers. While majority of them engage in such discussions once in a week, others do it more often. Involvement of parents with Margadarshi teachers is uniformly reported across all divisions.

### **Student Assessment in Public Places/Parents**

During pandemic times, schools/teachers use parks, banyan tree shades, platforms, community centres to assess Children's learning. This is a permitted practice. 1128 parents, 87 per cent, are aware of this practice. Awareness level is slightly higher in the northern Karnataka divisions. All those who are aware have no objections to this practice. Even others, who were not aware, have no objection. A negligible percentage (2 per cent) has reservations on this practice. In fact, 1174/1300, 90 per cent consider this as good and welcome it. Some testing is better than no testing.

### **Mobile addiction – Parents' Views**

Are the students addicted to mobile phones even while classes are not there and they are not engaged in post-class activities? What do parents feel about it? 714/1300 parents, 55

per cent, think that their wards are addicted to mobile phones. 445 out of these 714 students (56 out of 55 per cent) use mobile phones to chat with friends. This is lowest (46%) in Mysore division. Of the rest, 8 per cent have no idea. They do not monitor.

### **Parents' awareness of Cyber Crimes**

Only 556/1300, 43 per cent parents are aware of Cyber Crimes in society.

## **6.8 Summative Observations on Parental Attitudes and Involvement with On-line schooling during Pandemic times**

Education/Schooling of children is essentially a triangular activity/process. The students, parents and the school/teachers/HT constitute the 03 vertices of this triangle. Parental interest and involvement, their perceptions and opinions are of significance in the schooling of children, especially during pandemic times. This is captured in this Chapter.

650 schools constitute the sample of TALP high schools in this study. 2 parents were selected by the HT from each school. To the extent possible, one father and one mother were requested to the HT for selection. It is difficult to get mothers. 75 per cent are fathers. Lowest coverage of mothers (13 per cent) was in Kalburgi division. There is total of 1300 parents.

Parent-teacher, Parent-school/HT interactions, purchase (capacity) or sharing of smart phones for on-line schooling, parental options on on-line schooling, usage of GB capacity, parental views on SAMVEDA and VIDYAGAMA classes, monitoring of student learning at home, parental awareness about DIKSHA portal, You Tube Channel of DSERT/Chandana TV, Cyber Crime, students' assessment in public places like parks/shades of banyan tree are the subjects of coverage in this Chapter.

90 per cent parents are observed to be involved in the on-line schooling of children. Involvement is uniformly observed across all divisions/regions of the State. They have discussed their wards' on-line schooling with the teachers. Among them, 80 per cent parents have discussed with Head Teachers also. Such discussions are in lowest proportion (77%) in Bengaluru division. 92 per cent parents have conferred with MARGADARSHI teachers of VIDHAGAMA schools. Majority of them report that they do it/did it once in a week. Involvement of Bengaluru division parents with Margadarshi teachers is in lowest proportion.

Parents/homes/children were not ready for on-line schooling. Only 2 per cent parents had provided Smart Phones to their wards before the pandemic. During the pandemic times

and for purposes of on-line schooling, 49 per cent parents got Smart phones for exclusive use of their children. 49 per cent parents shared their own phones for on-line classes. They had no choice. Kalburgi division has the lowest record in exclusive possession of Smart phones by students (35 per cent).

In fact, 33 per cent parents do not expressly welcome on-line schooling. 46 per cent report that they have no choice; they have to put up with it. In effect, 79 per cent parents prefer regular schooling. Another 21 per cent do not mind Blended Learning. Annoyance with on-line schooling is relatively more in Belagavi and Kalburgi divisions.

A great majority of students have facility (usage plan) for 1 to 2 GB per day (91 per cent students). 07 per cent use it beyond school hours for advanced learning.

A great majority of parents (90 per cent) welcome SAMVEDA classes (beamed by NCERT). 97 per cent parents have expressed positive opinions about VIDYAGAMA classes/schooling. Majority of them also monitor whether their children engage in follow-up exercises after attending these classes.

60 per cent parents have reported that they would prefer regular schooling even during pandemic times. 27 per cent are explicitly against such a measure.

Only 8 per cent homes are prepared for power problems when they affect on-line schooling. They have UPS facility. Kalburgi division parents/homes/students are the worst hit due to power problems during on-line schooling. While 22 per cent lose classes due to power cuts in the State, the update for Kalburgi division is 32 per cent.

87 per cent are aware of students' assessment of students' learning in public spaces. None of them has any objection. In fact, 90 per cent of them welcome this: Some testing is better than no testing.

55 per cent parents feel that due to the pandemic times, their children got addicted to mobile phones. This addiction is lowest (46 per cent) in Mysore division. 37 per cent parents do not think so. 8 per cent have no idea.

**Final Observations:** A high/very high degree of interest/involvement is observed among parents for on-line education. Majority prefer regular schooling. Even while parents of Government school children are economically very weak, they have managed to meet the expenditures for on-line schooling. They need a respite in the context of RTE.



## 6.9 DISTRICT WISE PERFORMANCE: CHECKLIST ANALYSIS

A Point Rating has been used in this checklist. 'Yes' response gets 01 score while 'No' response gets Zero score. List of statements from the tools 1 to 5 is classified according to Respondents and Themes/Concerns. Checklist is for 30 Revenue districts where DIETs are there.

If Response is Yes, put a tick mark '✓' for YES box, if Response is No, put a tick mark for No Box. Total number of responses to questions gives total score as there is 01 mark for each of the Yes responses. Count the total number of total Yes for all schools in a district, summate the counts for all schools of the district. This is the 'obtained score' of a district. Multiply the maximum score of each school with the total number of schools in the district. This value is the 'Total Maximum Score'. Divide obtained score of the district from the total maximum score of the district. The product of division is the 'Performance Score' of the district. Arrange all districts of the State in descending order of Performance Score of each district.

Analysis is confined to IT@High schools where TALP implementation is substantive and systematic. Only implementation items and feedback items are considered. There are a total of 123 items across Tools 1,2,3,4,5; Tools 1 and 2 are answered by HTs of High schools; Tool 3 by Teachers, Tool 4 by students and Tool 5 by parents. No. of items across tools 1 to 5 are: 41-infrastructure –tool 1, 24-TALP implementation –tool 2, 30- teachers' feedback-Tool 3, 19-students' feedback-Tool 4; and 09 – Parents' feedback-Tool 5; Total 123 items. Total are given in Annexure.

### STEPS for ARRIVING at a DISTRICT SCORE

**Step 1:** Count all 'Yes' responses in tools 1, 2, 3, 4 and 5 for a School/School/ Teacher / Student/ Parent

Add Scores of Tools 1 to 5 that are score obtained in all Tools 1 to 5. This is OBTAINED SCORE of one school. Obtained score of all schools in a district is OBTAINED SCORE – OS.

**Step 2:** Summate all obtained scores of all schools [OS] of a district.

$$\text{Scores of } 1 + 2 + 3 + 4 + 5$$

**Step 3:** Add OS of all tools

$$\begin{aligned} & \text{OS 1} + \text{OS 2} + \text{OS 3} + \text{OS 4} + \text{OS 5, to get,} \\ & = \text{OS of a district} = \mathbf{[X]} \end{aligned}$$

**Step 4:** Divide by Summated Maximum Score of 1 to 5, that is, maximum score of Schools/Teachers/Students/Parents

- (a) No. of schools multiplied by 41 + (b) No. of Schools multiplied by 24+  
(c) No. of Teachers multiplied by 30 +, (d) No. of Students multiplied by 19+  
and (e) No. of Parents multiplied by 09

$$\text{Maximum Score} = (a) + (b) + (c) + (d) + (e) = \mathbf{[Y]}$$

$$\text{District Score} = X/Y \text{ Percentage} = \mathbf{[Z]}$$

**Step 5:** After getting [Z] for all districts arrange districts in descending order of [Z] Values.

**Step 6:** Get a Summated Score for the whole State, that is,

Sum of OS (x) of all districts divided by Sum of Maximum Scores of all 650 schools (Tool 1) + all 650 schools (Tool 2) + 6500 students + 3250 teachers + 1300 Parents.

$$\text{Tools 1 to 5} = 41 + 24 + 30 + 19 + 09$$

$$= \mathbf{[123]} \text{ for one school;}$$

**STATE Maximum Score** =

$$\mathbf{650 \times 41 + 650 \times 24 + 3250 \times 30 +}$$

$$\mathbf{6500 \times 19 + 1300 \times 09 =}$$

$$\mathbf{26650 + 15600 + 97500 +}$$

$$\mathbf{1, 23, 500 + 11700 = 2,74,950}$$

$$\mathbf{\text{STATE Maximum Score} = 2,74,950}$$

Note: Sample size varies for Tools 1, 2, 3, 4, 5. They are 650, 650, 3250, 6500 and 1300 respectively.

Table 55: Checklist Analysis: Data Obtained: Scores across districts.

Sl. No	Districts	Tool 1	Rank	Tool 2	Rank	Tool 3	Rank	Tool 4	Rank	Tool 5	Rank
1	Chikkamagaluru	65.6	1	70.0	30	61.9	5	46.7	21	64.6	12
2	Kodagu	59.6	2	83.6	1	63.0	3	42.8	28	65.2	10
3	Shimoga	59.2	3	80.7	7	56.6	18	50.0	10	52.3	34
4	Udupi	58.8	4	73.0	26	57.0	15	47.9	17	52.6	33
5	Ramanagara	58.7	5	79.6	9	58.8	10	51.0	7	65.5	9
6	Gadag	58.5	6	77.4	18	64.4	2	52.9	4	70.8	1
7	Ballari	57.3	7	79.2	12	62.7	4	37.3	31	60.2	27
8	BNG Rural	57.3	8	80.7	8	55.8	20	50.1	8	66.1	7
9	Vijayapura	55.7	9	73.9	25	60.1	7	46.9	18	64.0	17
10	Bagalkot	55.5	10	76.5	19	57.8	13	54.2	2	65.8	8
11	Mandya	54.4	11	75.4	21	54.5	22	43.5	26	66.4	5
12	Yadgiri	53.7	12	75.2	23	49.1	33	37.2	32	62.3	23
13	BNG South	53.7	13	79.6	10	54.0	24	50.1	9	61.9	25
14	Davanagere	53.4	14	78.3	16	50.1	31	51.7	6	66.7	3
15	Dakshina Kannada	53.3	15	62.1	31	53.3	27	46.9	19	63.2	20
16	Kalburgi	52.4	16	82.1	3	54.0	25	43.4	27	60.3	26
17	Kolar	52.4	17	78.9	14	59.6	8	45.6	22	59.6	28
18	Chikkodi	52.4	18	81.6	4	57.1	14	49.9	11	64.0	18
19	Belagavi	52.2	19	79.0	13	54.1	23	48.6	14	64.4	15
20	Hassan	52.1	20	74.1	24	65.0	1	48.9	13	64.6	13
21	Uttara Kannada	51.7	21	58.1	34	56.8	16	46.9	20	63.2	21
22	Raichur	51.5	22	79.6	11	52.5	30	37.2	33	57.9	32
23	Mysore	51.0	23	71.9	28	60.8	6	49.9	12	63.2	22
24	Dharwada	51.0	24	78.5	15	58.1	12	44.9	24	64.3	16
25	Chamarajanagara	50.7	25	82.9	2	58.8	11	52.0	5	64.6	14
26	Haveri	50.6	26	76.5	20	53.0	28	45.3	23	62.0	24
27	Koppala	50.3	27	71.1	29	47.6	34	48.5	15	66.7	4
28	Bidar	50.3	28	81.4	5	53.6	26	39.2	30	66.4	6
29	Chikkaballapura	50.3	29	81.1	6	54.9	21	48.0	16	64.0	19
30	BNG North	49.6	30	75.4	22	52.6	29	59.2	1	58.2	30
31	Sirsi	49.6	31	62.1	32	59.2	9	27.2	34	58.2	31
32	Tumkuru	49.0	32	73.0	27	49.4	32	53	3	67.5	2
33	Chitradurga	48.8	33	77.9	17	55.9	19	44.5	25	65.2	11
34	Madhugiri	44.3	34	60.5	33	56.8	17	42.6	29	59.6	29
	STATE	53.4		75.9		56.6		46.1		63.0	

Source: Primary data.

Analysis of district wise TALP performance reveals the following insights

05 parameters are considered:

- a. TALP infrastructure Facilities in schools
- b. TALP learning organization in schools
- c. Teachers' Feedback on TALP implementation,
- d. Students' feedback on TALP Implementation, and
- e. Parents' feedback on TALP implementation.

**Insight:** Neither the State nor any district has got 100 percent score on TALP Implementation. Maximum score in the state on one of the 05 parameters – Learning organization in schools is 75.9 percent. Maximum score obtained at the State is in students' feedback-46.1 percent; students are the end users of the programme. Minimum score obtained by any district on students' Feedback is 27.2 percent in SIRSI district.

State Level, discrete on 05 parameters and pooled performance is as follows.

Table 55.1: State Level Performance of TALP

Sl. No.	Parameter	No. of Questions	Sample Size	Maximum Score	Obtained Score	Percent performance
a.	TALP Infrastructure	41	650 schools	26650	14221	53.4
b.	TALP Learning organization	24	650 Schools	15600	11838	75.9
c.	Teachers Feedback	30	3250 Teachers	97500	55176	56.6
d.	Students' Feedback	19	6500 Students	123500	56879	46.1
e.	Parents Feedback	09	1300 Parents	11700	7367	63.0
a to e	Total STATE	123	NA	274950	145478	52.9

Source: Primary data.

Considering performance of TALP on all parameters, it is observed that TALP implementation has been most efficient and effective in regard to organization of learning activities in schools- use of preloaded lessons in Classrooms, exposure of students to TALP theory and practical classes, projects, assignments and assessments. State score in this regard is 75.9 percent, highest across all 05 parameters.

This is followed by parents' feedback at State score of 63.0 percent, **Parents are very happy.** However, this parameter need not be taken as seriously as other parameter as parents' feedback is based on feelings and not full knowledge.

Teachers' feedback parameter gets a state pooled score of 56.6 percent. This includes quality of induction / refresher training, facilities and their uses.

This is followed by supply/provision of TALP infrastructure facilities in schools with a state score of 53.4 percent. This finding is also reflected in qualitative analysis of data, Tool 2; preloaded computers, projectors and smart boards (not fully coverage) are given, even coverage of lessons is not complete. Workshop report has revealed this.

Of all the parameters, the state score on students' feedback, the end users of the TALP programme is lowest at 46.1 percent. Students' learning capacities, individual differences thereon, exposure to practical skills matter

**State average TALP performance, on all parameters pooled together, is 52.9 percent. TALP has performed at 53 percent of expected capacity in the State.**

#### **Top 05 performer districts in State**

##### **Parameter 01: Infrastructure facilities**

[Note: Some schools have supplemented Departmental facilities]

Chikmagaluru, Kodagu, Shimogga, Udupi, Ramanagara

##### **Parameter 02: Learning Organization,**

Kodagu Chamarajanagara, Kalburgi, Chikkodi, Bidar

##### **Parameter 03: Teachers' Feedback**

Hassan, Gadag, Kodagu, Bellary and Chikkamagaluru.

##### **Parameter 04: Students' Feedback**

Bagalkot, Tumkur, Gadag, Chamarajanagar and Davanagere

##### **Parameter 05: Parents' Feedback**

Gadag, Tumkur, Uttara Kannada, Koppal and Davanagere.

Considering only the first four parameters- a, b, c, d, districts which appear in 02 and more than 02 lists are : Kodagu Chikmagaluru, Gadag, Chamarajanagar

These 04 districts may be considered as top performing districts.

**Bottom 05 Districts in TALP performance**

**Parameter 01: Infrastructure Facilities.**

Madhugiri, Chitradurga, Tumkur, Sirsi and Bengaluru North

**Parameter 02: Learning Organization**

Uttara Kannada, Madhugiri, Dakshina Kannada, Sirsi and Chikkamagaluru.

**Parameter 03: Teachers; Feedback.**

Koppala, Yadgiri, Tumkur, Davanagere and Raichur.

**Parameter 04: Students' Feedback**

Sirsi, Raichur, Yadgir, Bellary and Bidar.

**Parameter 05: Parents' Feedback.**

Shimoga, Udupi, Raichur, Sirsi, Bengaluru North

Considering only the first four parameters - a, b, c, d Districts which appear in 02 and more than 02 lists are Madhugiri, **Tumkur, Sirsi Yadgir, Raichur.**

These 05 districts may be considered to be performing at sub-optimum levels, low levels.

**Note: Bottom performing districts need intensive care**

## 7. SUMMARY OF FINDINGS AND RECOMMENDATIONS

India, Karnataka State is moving at a fast pace towards the fostering and creation of a digital society. A large number of initiatives are already in place across all Departments of Government and in the larger society towards this vision. Even initiatives for digitalizing the process of education and evaluating the outcomes thereon have been there for quite some time in the field of education in the State. ICT Phase I, Phase II and CALC are illustrations in this context. But these initiatives were not systematic. Technical knowhow was borrowed from outside the system. Learning outcomes/performance of students had not been subjected to digital storage methods. School governance was traditional.

Hence, the Department of Education, adopted novel initiatives to systematize digitization of schooling processes student evaluation and school governance since 2016/2018. There are 03 components for this initiative – TALP, SATS and MIS [See Abbreviations list for expansion of these terms]. There are the initial steps for a full-fledged technology driven, student friendly, modernized, wholly internally managed system of schooling to prepare children and youth to integrate themselves with the vision of a ‘**Digitalized Universe**’, the modern world, life and society in which we would be living in future. [There is a trite observation: ‘Even a thousand mile race has to begin with a first step’]. This will be mandatory for a ‘**COMPUTER LITERATE**’ society.

These initiatives are just a few years in age. They need a formative evaluation for effecting mid-course correctives, for improvement of the system and for SELF-ANALYSIS.

The present study An Evaluation of Technology Assisted Learning Programme (TALP) and Infrastructure Facilities is an exercise in Self-Analysis of the Department of Education, being managed by the Karnataka Evaluation Authority, Department of Planning, Government of Karnataka.

### **7.1 PROGRAMME IMPLEMENTATION**

15479 Computers were given to 1000 TALP schools during the years 2016-17 to 2019-20, 467 computers became dysfunctional. They are not replaced. 3221 projector are supplied to 3851 TALP schools. 242 out of 3221 schools are also given SMART boards. All computers are preloaded with lesson. 41715 teachers had been identified for TALP trainings. 37795, 91 percent of target, were trained. Others got training for their colleagues. This is ‘**excellent**’ performance (Training).

## **7.2 TALP in High Schools: Infrastructure and Organization of TALP**

Primary data on infrastructure facilities, organization and management of TALP in Classrooms and computer lab, student management including slow learners, evaluation of Computer Education practices, SATS and MIS adoption in schools, development of e-lessons, stock of TALP trained teachers and sensitization exercises, TALP/Computer Laboratory budget management, use of DIKSHA portal, are the variety of concerns captured from 650 high schools under IT @ schools component of TALP programme. Here is a summary of findings.

### **7.2.1 Infrastructure Facilities: Summary of Significant Findings of the Study**

#### **Infrastructure Facilities: Distribution to Schools**

**DSERT Basic Data:** DSERT/DOE/GoK had supplied 7658 desktops, 1221 laptops and 239 tablets to 1000 schools in 3 packages of 11, 15 and 21 systems, Social Studies and English.

DSERT also gave 3221 depending upon the size of schools. A total of 15945 Computers were given during 2016-17 to 2019-20 includes supply to DIETs/Offices. Again 6330 systems were given during 2020-21. TALP coverage of 2020-21 is 3851 high schools. All the systems have pre-loaded cassettes on syllabi/topics of 04 subjects: Science, Mathematics projectors across 3851 TALP schools and SMART Boards to 242 TALP schools.

No school has been given TALP Management Contingency Grant.

### **7.2.2 Infrastructure in Sample Schools (650) – Primary Data/Field Survey Data Reports**

92 per cent schools have set up a CL (Computer Laboratory). All the schools (with CL) have Printers wherein 19 per cent schools have Colour printer facility (Colour Printers are essential for Biology/Geography/etc. lessons for advanced learning/surfing/downloading from internet). 34 per cent schools have scanners also [2 to 3 page downloading, for project work/assignment, scanners would be useful].

26 per cent schools do not get uninterrupted electricity and neither have UPS facility in computer lab. 47 per cent schools do not have either internet or Bluetooth facility.

91 per cent schools have projectors to use Computers for classroom teaching-learning transactions [83 per cent LCD projectors]. No LED projector anywhere.



### **7.2.3 Computer Laboratory Organization in schools**

#### **1. Computers and Computer Laboratory:**

DSERT has supplied 7658 desktops, 1221 laptops and 237 tablets to 1000 schools during the years 2016-17 to 2019-20, in a ratio of 84: 13: 03 [total 9116 systems]. Computers have been supplied to schools depending upon the size of schools, in a ratio of 11: 16: 21 units.

92 per cent schools (out of 650 sample of this study) had set up a computer laboratory in their schools. Computer laboratory set up ranges from 86 per cent schools in Belagavi to 98.3 per cent schools in Kalburgi division schools.

Kalburgi division schools have been supplied the highest proportion, 81 per cent desktops, while Bengaluru division was given the lowest proportion, 69 per cent desktops. Highest proportion of laptops is to Mysore division and lowest proportion is to Kalburgi division. It is noted that Kalburgi is a backward division.

74 per cent TALP schools (650 counts) are small schools. They can hold 15 and <15 tables. This figure is 85 per cent in Kalburgi division. 83 per cent schools have provided 'Computer Tables' to their computer lab.

In sum, seating arrangement for students in the computer lab is 'good' across the schools of the State.

Large scale computer laboratory, those who can accommodate 30 and > 30 students at a time, are relatively more in Belagavi division and less in Kalburgi division. Small and medium size computer lab is the norm in the State.

#### **2. Printers:**

All the 650 schools have provided for printer in the computer lab. However, it is noted that only 19 per cent schools have provided for Colour Printers, [Mysore division – 24 per cent]. 34 per cent schools have provided for scanners also, which will facilitate completion of individual/group projects in Computer Education as well as assignments in Computer Education.

Department of Education/DSERT has not provided printers to TALP schools (see ToR 2.12, iv, p.2). They must have purchased printers from contingency or other sources. A policy of uniformly supplying all the accessories needed for a computer lab should be adopted by the Department. It should be a package comprising of a state of the art AIO

Laptops, a LED projector (may be more than one depending upon the strength of the school), a colour printer with scanner, pen drives, computer tables with chairs (as per norms), UPS facility, SMART Boards with writing pens, contingency fund for purchase of cartridges, printing paper, maintenance, service and repairs, wi-fi monthly telephone bills, installation costs etc. TALP implementation should be wholesome (all items of a package), comprehensive (all schools) and systematic. It should not be partial, piecemeal and half-hearted. The standard response of the Department will be that there is a problem of funding [see the write up under ToR 2.1.2 TALP components, No. iv, p.2].

#### **4. Electricity and Internet for CL:**

65 per cent schools get uninterrupted 24 X 7 electricity, which is good for computer lab. 74 per cent of 230 schools, 7 per cent schools, which have electricity problem (170 schools), have UPS facility. In effect, 26 per cent of total schools (3250) have to put up with vagaries of power problems and absence of UPS.

A cloud network of ED/CPI/DSERT/DDPIs/DIETs/ all TALP schools would have been useful. A reputed software firm would be able to develop a software for the purpose.

47 per cent schools do not have wi-fi/internet or use Bluetooth/ dongles. Only one way interaction, teaching-learning through use of pre-loaded CDs/DVDs on projectors connected to desktops/laptops/tablets is possible in such schools. Absence of this facility is as high as 72 per cent in Kalburgi division schools.

Break-up of wi-fi and Dongle use among 53 per cent schools is 21 and 32 per cent respectively.

#### **5. Projectors**

91 per cent schools have projectors. Among them 83 per cent have LCD projectors; others DLP projects. No school has LED projectors.

#### **7.2.4 Organization of Computer Education (CE)/TALP in Schools**

82 per cent TALP schools begin Computer Education at 8<sup>th</sup> standard. This figure reaches 90 per cent in Mysore and Belagavi divisions while it stoops to 61 per cent schools in Kalburgi division. 11 per cent schools in the State do not have 8<sup>th</sup> standard.

It is noted that proportion of slow learners, 60 per cent in 20 per cent schools is majority of students in TALP schools, had a little exposure to Computer Education under SSA's CALC programme [over 50 per cent students]. This is of advantage to TALP.

Pace of learning for 80 per cent schools is satisfactory and uniform. In the rest of the schools, proportion of slow learners is around 20 per cent in the State. Highest in Kalburgi division.

### **1. Students' Use of Computers**

45 per cent (293 out of 650 schools) give only pre-loaded computers to students. This is the only exposure in the Computer Education classes. Among rest of the other schools, students use CDs/DVDs from CD/DVD library for advanced learning, in 105, 16 per cent schools. Students in 39 per cent schools visit learning websites, open source websites. It is recalled that many schools do not have Wi-Fi - Bluetooth facility (47 per cent schools).

11 per cent schools have a CD/DVD library. It is lowest at 07 per cent in Kalburgi division. CDs/DVDs can be there in a school without a CD/DVD library. 14 per cent schools have a repository of CDs/DVDs, advanced/ supplementary learning materials. Most of them have less than 50 CDs/DVDs across 4 Computer Education/TALP subjects.

In 80 per cent TALP schools, students are expected to maintain a Computer Education notebook/exercise book. In almost all these schools, teachers check recordings in the Computer Education notebooks.

### **2. Computer Education as an Examination Subject**

In 27 per cent schools Computer Education is an examination subject. This is slightly higher in Mysore division at 35 per cent. 90 per cent of these schools also indicate Computer Education marks/grades in the marks cards.

### **3. Computer Education Assignments/Project Work**

40 per cent schools give assignments/project work in Computer Education and evaluate them.

### **4. MIS in Schools**

27 per cent HTs have received MIS training, highest at 35 per cent in Mysore division and lowest at 21 per cent in Kalburgi division.

### **5. SATS in Schools**

SATS is adopted in 99 per cent schools. 07 schools have not adopted (out of 650 schools), may be private aided schools: Bengaluru – 02, Belagavi – 03 and Kalburgi – 20.

## **6. Proficiency of TALP Schools in e-schooling**

In 59 per cent schools, teachers have developed e-lessons. Division-wise update is Belagavi (67 per cent), Kalburgi (58 per cent), Bengaluru (IT City – 56 per cent) and Mysore (50 per cent). 56 out of these 58 per cent have developed these lessons ‘with colleagues’. Others have done it with students or as a solo effort. 50 out of 58 per cent have shared their lessons with their district DIETs.

## **7. Sensitization of Colleagues**

63 teachers have been sensitized by every 100 trained teachers in the 650 schools. Further, it is also observed that 96 per cent of sensitized teachers use the skills to engage TALP/CE classes.

## **8. Refresher Training**

Teachers of 62 per cent TALP schools have received TALP Refresher Training meant for IT Coordinators, Mentors. Schools report that web links given to them during this training have been useful to them [web links – Need for ICT, Rationale for integration of ICT in school syllabi, interface between IT and school curriculum, skills needed for use of electronic gadgets].

Almost all the teachers who received Refresher Training found it to be useful, relevant and simple to comprehend.

## **9. Audit of School Budget**

41 per cent schools report that they got their school/computer laboratory budgets audited.

### **7.2.5 Use of DIKSHA Portal**

90 per cent TALP school teachers use DIKSHA portal/of NCERT. Almost all of them feel that this portal is neither relevant to their syllabi nor simple to comprehend.

ICT texts for Computer Education classes had been served to schools. It is a Ready Reckoner for TALP lessons. 81 per cent schools have shared it with students, while only 59 per cent have uploaded them into the Computers.

### **7.2.6 Remedial Classes for Slow Learners**

90 per cent TALP schools engage additional classes for slow learners. This is **good**. However, only 70 per cent out of them use Computers for Remedial Classes.

**Final Insights:** There is a computer lab in almost all the TALP schools. Most of these schools/Computer Laboratory are small in size. Seating arrangements in computer laboratory is 'good'. However, the computer laboratory set up in schools is not full-fledged as they miss out on printers, colour printers and scanners. There is no LED projector anywhere in TALP schools. Only two-thirds of TALP schools have uninterrupted, 24/7 electricity. One fourth of total schools have no UPS facility also. Nearly 50 per cent schools neither have internet/wifi nor Bluetooth facility. Computer Education is not interactive in all these schools.

A coloured network for ED/DoE/DSERT/DDPIs/DIETs/BRCs/CRCs/ TALP schools would be ideal for Computer Education/TALP. IT firms can be approached to develop software.

For significant proportion of students Computer Education means, using pre-loaded computers by themselves or by their teachers in classrooms. No scope for advanced use of computers.

CE is an examination subject in only one fourth of the TALP schools. Two fifths of schools give assignments and correct them.

MIS is limited to one fourth of TALP schools. However, adoption of SATS is almost complete.

Quite a significant proportion of TALP school teachers have developed e-lessons. Most of these teachers also have shared it with DIETs.

TALP schools report that Refresher Training has been useful to them.

Almost all schools use DIKSHA but find it out of gear for their syllabi and not easy for use.

Almost all schools Conduct Remedial classes with or without Computers for slow learners.

**TALP has been a very good initiative. It needs a higher level of systematization, comprehensiveness and focus.**

**Table 56: Cost Estimation of TALP Tool Kit**

Sl. No	Items/Equipment	Cost (in Rs.)	
		Lower Estimate	Higher slightly estimate cost
1	AIO Computers (One piece)	25000	35000
2	LED Projectors (One Piece)	6000	12000
3	Smart Boards (One)	1000	2000
4	Colour Printer with Scanner (one piece)	6000	15000
5	Pen Drive 64 GB (one)	500	800
6	UPS (2 to 4 Hrs. backup)	15000	25000
7	Cartridges	600	3000
8	Printing papers (1 Ream)	300	500
	Total	54400	93300

**Note: The lower estimate of cost of a TALP kit will be Rs. 55000/- per school, A more moderate, higher estimate will be Rs. 94000/-**

## **7.3 IMPLEMENTATION OF TALP AT HIGH SCHOOLS: FEEDBACK FROM HEAD TEACHERS**

### **7.3.1 Capacity Building of Teachers**

Details of TALP trained teachers in schools, management responsibilities of Computer Education/TALP with specific reference to registers, logbook, usage of computer laboratory, disposal of e-waste are the concerns addressed in this section.

There are 5345 teachers in 650 schools. 50 per cent ratio is 56: 44 in Bengaluru division. There are 3909 TALP trained teachers out of 5345 total teachers, 73 per cent, in this sample. Ratio of Science: Mathematics: Social Studies: English teachers among TALP trained teachers is 26: 39: 11: 24. Preference to Mathematics is clear. 83 per cent teachers are Post-graduates in their subjects. A few, very few, are M Phil and Ph.Ds.

There is not a single TALP trained (Induction Training, Level I) in 14 out of 650 schools. Teachers of these schools appear to be self-trained.

In 52 out of 650 schools (8 Per cent), all teachers have received Level II, Refresher Training. In another 47 per cent schools, a few teachers have received Level II training.

**Bottom Line:** TALP teachers are well qualified and adequately trained.

### **7.3.2 Computer Education (CE) organization in Schools:**

- A total of 6 periods per week is provided for Computer Education/TALP in 46 per cent schools. This provision is across both theory and practical work. However, another 45 per cent schools provide 6 and > 6 hours per week separately for theory and practical classes. 09 per cent schools do not provide for Computer Education/TALP classes even while they have received infrastructure and teachers are trained.

In effect, TALP/ Computer classes are organized in 82 per cent schools.

### **7.3.3 Computer Education (CE) Teachers in Schools**

In 86 per cent schools, 558 out of 650, regular TALP trained teachers manage Computer Education. Among the rest of the 92 TALP schools, there are 113 self-trained teachers and 36 contract teachers. Contract teachers are paid by NGOs/SDMC.

With a few exceptions, teacher management in TALP schools is good.

#### **7.3.4 Contingency Expenditures in TALP:**

Only 66/650 schools, over 10 per cent, report on receipt of contingency grant by the Department for management of computer laboratory. A budget analysis of these 10 per cent schools reveals an average expenditure of rupees one lakh (Rs.1,00,000/-) per computer lab under contingency expenditures for a year.

#### **7.3.5 Disposal of e-waste:**

Majority of TALP schools (over 80 per cent) do not dispose e-waste every month. Only 87/650 schools do so.

**7.3.6 SoP Register:** It is maintained in 73 per cent of TALP schools.

#### **7.3.7 MIS in TALP Schools:**

Nearly 80 per cent schools have adopted MIS. Maximum use is for issue of Transfer Certificates (94 per cent), followed by use of maintenance of admission register, marks register (91 per cent), Students attendance register (87 per cent) and Teachers' attendance data (84 per cent). A good practice of keeping MIS for MDM is adopted by 87 per cent schools.

Quite a distance has been covered by the Government school system in MIS marathon. Only the last mile has to be run.

#### **7.3.8 SATS in TALP Schools**

95 per cent TALP schools are under SATS umbrella. 92 per cent schools engage in analysis of SATS performance. However, sex, social category as parameters of analysis, is not addressed adequately.

85 per cent schools store question papers of previous years in digital format and 95 per cent store marks of students likewise. Gap in compliance to MIS and SATS is narrow. It needs to be filled up.

**Final Word:** Digital governance of TALP schools need to be; made more and more comprehensive and systematic.



## 7.4 TALP TEACHERS

### **7.4.1 Profile**

**Work Load:** Workload of teachers in TALP schools is balanced across regular and TALP classes. This is time of 86 per cent of a total of 3250 teachers. However, only 72 per cent teachers guide students in computer classes. TALP teachers have workload of 12 to 12 hours per week across each of (a) regular, (b) TALP/Computer Education and (c) Computer practical classes. Teachers without scope for computer classes, use the periods for regular/TALP (CD/DVD) classes.

TALP classes with CDs/DVDs) supplied by the Department are operated **with 50 per cent EFFICIENCY**.

**Projects/Assignments in Computer Education:** 68 per cent teachers give projects/assignments in Computer Education to students. Teachers without computer lab/Wi-Fi/Bluetooth facility in TALP schools have no scope to give project work/assignment.

Only 25 per cent teachers have the correct habits of giving assignments, one assignment/per month. It will be more than one per month across 4 subjects.

### **7.4.2 TALP Training – Feedback from Teachers**

85 per cent teachers report that the Level I Induction training received by them in DIETs (including Hands-on Practice) was ‘adequate’ to efficiently engage TALP classes. Among them, 32 per cent report that it was ‘more than adequate’. Adequacy report ranges across 74 to 91 per cent: Mysore – 91 per cent, Belagavi – 85 per cent, Bengaluru – 84 per cent and Kalburgi – 74 per cent. 425 out of 3250 teachers, 13 per cent (netted out from teachers sensitized by colleagues) are dissatisfied with Level I training with respect to adequacy.

### **Utility of Pre-Loaded Computers to**

TALP teachers (pre-loaded with CDs/DVDs of lessons in School Subjects), in regard to savings on time and efforts. 45 per cent teachers report that the pre-loaded computers are at the least 60 per cent useful in saving their time and efforts for classroom teaching-learning transactions. Another 31 per cent teachers report on 50 to 59 per cent utility.

### **Proportion of Students who benefit from Pre-Loaded Computers – Perceptions from TALP Teachers – Feedback**

At least 60 per cent students benefit from TALP facilitation of classroom teaching. This is a report from 50 per cent teachers. 87 per cent teachers report that at least 40 per cent

students benefit from pre-loaded computers. One of the constraints in maximization of benefit to students is that quite a few schools do not have projectors.

DSERT has not given a complete TALP Kit/package to schools.

### **Effectiveness of TALP level-I Induction Training – Feedback from Teachers**

95 per cent teachers report that TALP is an 'Effective' learning friendly, student friendly, method of teaching.

**Language of Level I Training** : 49 per cent teachers report that they received TALP training in English medium, 19 per cent in Kannada medium, rest in mix of 2 languages.

### **Receipt of Enrichment Materials**

39 per cent teachers report that they received 140 handouts prepared by CIET/NCERT during training period. This supply is 46, 39, 37 and 32 per cent across Mysore, Bengaluru, Belagavi and Kalburgi respectively.

Further, 52 per cent teachers report that their schools have received 52 videos on lessons of school subjects. They have it in their computer lab.

### **Assignments for Teachers during Level I Training**

58 per cent teachers report that they were given assignments/project work/practical work as a part of their training. Proportions of teachers getting assignments/project work during training across Belagavi, Mysore, Bengaluru and Kalburgi division (DIETs) are 62, 61, 58 and 50 respectively.

**Utility of Level I Training** : < 40 per cent utility is reported by 5 per cent teachers.

### **Constraints in Transaction of Computer Education (CE) [for mechanization of utility]**

1025/3250 teachers, reported on constraints in use of Level I training for TALP type transactions. Reasons listed in order of proportion of teachers are: Lack of basic digital skills among students (09%), subject knowledge deficit among students (08%), technical complexities (07% - teachers' problems), lack of relevance of CDs for their subjects (0.4%) and computer problems (03%).

### **Computer Education (CE) /TALP vs. Syllabus Completion Requirements**

59 per cent teachers report that TALP methods consume more time than regular/traditional classroom teaching. Hence, they find it difficult to complete syllabus on time. This kind of opinion is slightly higher in Bengaluru and Kalburgi divisions (63 per cent) while it is 56 per cent in Belagavi and Mysore divisions.

22 per cent teachers have ‘positive attitude’ towards TALP method of teaching – using computers/CDs/projectors/Smart Boards to teach.

**Development of e-lessons:**

‘Good quality’ means development of e-lessons with colleagues. Otherwise another 25 per cent teachers out of total 59 per cent teachers, develop w-lessons, rest as solo effort or with students. Proportions of teachers who develop e-lessons, all methods, are 65, 61, 56 and 53 per cent in Belagavi, Mysore, Bengaluru and Kalburgi divisions.

**Sharing of e-lessons with DIETs**

18 out of 59 per cent teachers, who develop e-lessons, share them with DIETs. This incidence is at 21 per cent in Belagavi and 15 per cent at Kalburgi divisions.

**7.4.3 TALP Trained Teachers Sensitizing Colleagues**

**Refresher Training Feedback**

64 per cent teachers (3250 - sample) have received Refresher Training – served for IT Coordinators, Mentors.

**Utility of Web-Links given during Refresher Training: A Feedback**

Teachers who received Refresher Training and who were given web links during this training had shared it with their colleagues.

89 per cent teachers report that these web links are useful. Usage of electronic gadgets, impact of ET on teaching-learning transactions, advantages of ET in education, motivation for use of ET in classrooms, are illustrative web-sites. Majority believe that they are relevant as well as simple to comprehend.

Further, it is noted that 38 per cent teachers use other open source web-links also [Google, Geo, Khan Academy, Akash, Allens, Byju’s, etc.]

**7.4.4 Use of DIKSHA Portal:**

**ICT Texts given under TALP/CE**

83 per cent teachers have received ICT texts of Computer Education lessons under TALP. However, only 49 per cent teachers have uploaded them to the computers given by DSERT.

### **Care and Concern for Slow Learners by TALP teachers**

94 per cent teachers report that there are 'slow learners'. Consequently all of them organize/conduct Remedial Classes in Computer Education for them. 60 out of these 94 per cent teachers also use computers for remedial classes. It ranges from 55 per cent usage in Kalburgi division to 63 per cent in Belagavi division.

### **Maintenance of a Computer Lab Log Book**

66 per cent teachers maintain a computer lab log book. This practice ranges from 54 per cent in Kalburgi division to 70 per cent in Bengaluru division.

### **Final Insights**

TALP is not fully implemented by the DSERT. All the lessons (even at least 80 per cent lessons) are not produced in CD/DVD format. Hence whole syllabus is not uploaded. But, for the given level of implementation and Level I Induction training for them thereon,

### **Teachers are doing full justice to TALP in their Schools.**

Majority give equal attention to regular vs. TALP classes, give assignments/projects to students (but only a small percentage evaluate them). Majority report, that the Level I training was adequate for managing TALP. Majority (60 per cent) concede that preloaded CDs/DVDs are useful at least by 60 per cent level in reducing their time and effort in transaction of school subjects. Only 50 per cent teachers report on benefit from TALP to atleast 60 per cent students.

DSERT/Department has given only a truncated TALP package/kit to schools. All TALP schools are given desktops/laptops/tables and many of them are given projectors. None of them has been given a full TALP kit which may include another 8 to 10 inputs [See Tool 1, Section 1.8].

Only 22 per cent teachers are able to manage the teaching of full; syllabus (cover the syllabus) even with TALP. Others have 'a positive attitude' except in regard to syllabus completion. They find TALP as fully effective in efficient of learning modulus to students.

Teachers are also good in sharing their skills with untrained colleagues, in developing e-lessons.

In sum, teachers are very highly satisfied with the TALP programme. They also feel the need to improve the systematic, holistic and fully effective implementation of TALP.

## 7.5: STUDENTS: ANALYSIS CHAPTER (CONTINUED)

The ToR for TALP study specified 8000 students as sample, of which, 6500 students had to be from high schools. As such analysis of data in this section is for 6500 students.

### **7.5.1 Profile of Students:**

6,333 out of 6,500 students, 97.4 per cent, attend schools from their homes. Rest of them 2.6 per cent, are staying in hostels, may be pre-metric or others, and attending schools. Students staying in hostels, even among limited proportion, are relatively more in Belagavi and Kalburgi divisions.

National norms for acceptable distance of a high school from homes of students/children are (within) 5 Kms. 809/6500, 12.45 per cent students travel to school from a distance of more than 5 Kms. This may not be an issue of concern as 41 per cent students in this sample (2681 students) commute to school on bicycle. They won't feel tired while travelling to school and can concentrate on studies. 2266 out of these 41 per cent (2681 students) are beneficiaries of the Free Bicycle scheme of the GoK, 85 per cent (out of 2681 students) students. 2718/6500 students, 42 per cent, walk to school. It is also noted that for 2708/6500 students, 42 % students' distance of school to home/place of stay is well within 1 km. Among students whose school is in the range of 2 to 5 Kms, 17 % use public bus.

Bottom line is that commuting to school for children, all over the State is not at all a problem, even at the high school stage.

**Table No. 57: Parental Background:**

Parents Educational Qualification	Illiterate	Upto 4 <sup>th</sup>	5 <sup>th</sup> to 7 <sup>th</sup>	8 <sup>th</sup> to 10 <sup>th</sup>	Up to 14 <sup>th</sup>	Degree	PG	Ph. D	Total
Father (No)	999	1100	1451	1958	649	286	45	12	6500
%	15.36	16.92	22.32	30.12	9.98	4.4	0.69	0.18	-
Mother (No)	1292	1188	1641	1853	399	104	125	8	6500
%	19.87	18.27	25.25	28.50	6.13	1.6	0.23	0.12	-

Source: Primary data

As expected, proportion of illiterate mothers (19.87 per cent) is higher than that of fathers (15.36 per cent). Alternatively, 85 per cent fathers and 80 per cent mothers are not illiterate.

It is possible that at least 15 per cent of high school students, even by 2016 to 2020 AD are first generation learners, are being exposed to Computer Education/TALP. This is both amusing and pleasing.

8<sup>th</sup> standard to 10<sup>th</sup> standard schooling is the norm among both parents. It is also pleasing to note that there are post-graduates and research degree holders among fathers and mothers whose children are attending the Government school system in the State.

Migration Status: 6217/6500 parents, 95.65 per cent, are permanent residents of the State. They have been living in the same place for more than 20 years. Among the rest of the 383 parents, 226 parents are in-migrants to the present place of residence from within the State. Children of parents who attend Government school system are from within the State.

Parental Occupation: Parents have mentioned variety of occupations for the question on their occupational background. 10 different occupational categories are mentioned apart from 'others' column and 'No Response' column. A detailed analysis of fathers/mothers occupations will not be made here. Analysis will be limited to prominent occupational categories (minimum 5 per cent entries). Other occupations will only be mentioned without a quantitative indicator (without percentage of incidence).

Table No. 57.1: Fathers' Occupations

Divisions↓ Occupation	Agri- culture	Labour/ Coolie	Constru- ction	Busi- ness	Dri- vers	Govt. Job	Others	NR	Total
Bengaluru (No.)	733	725	104	187	118	31	155	47	2100
%	35	34	05	09	06	02	07	02	-
Mysore (No.)	500	605	132	91	75	19	94	14	1530
%	33	40	08	06	05	01	06	01	-
Belagavi (No.)	807	527	73	106	50	49	78	30	1720
%	47	30	04	06	03	03	05	02	-
Kalburgi (No.)	410	439	57	99	50	32	49	14	1150
%	36	38	05	09	04	03	04	01	-
State (No.)	2450	2296	366	483	293	131	376	105	6500
%	38	35	05	07	05	02	06	02	-

Source: Primary data

Table No. 57.2: Mothers' Occupations

Divisions↓ Occupation	Agri- culture	Labour (Coolie)	Maid Servant	Home Maker	Others	NR	Total
Bengaluru (No.)	292	498	365	780	157	08	2100
%	14	24	17	37	07	-	-
Mysore (No.)	137	463	139	682	106	03	1530
%	09	30	09	45	07	-	-
Belagavi (No.)	249	377	330	660	98	06	1720
%	14	22	19	38	06	-	-
Kalburgi (No.)	172	360	171	395	48	04	1150
%	15	31	15	34	04	-	-
State (No.)	850	1698	1005	2517	409	21	6500
%	13	26	15	39	06	-	-

Source: Primary data

All the fathers are working, engaged in paid work. But among mothers, 39 per cent are home makers, unpaid work. Proportion of Home makers is 45 per cent in Mysore division.

38 per cent fathers and 13 per cent mothers are in agriculture. [It is noted in passing that as per State level update, 13 per cent farm households are headed by women cultivators]. Farmer parents/fathers are in highest proportion in Belagavi division, at 47 per cent.

Those who are labourers – agricultural labourers and coolies constitute 35 per cent fathers and 26 per cent mothers.

Those who are in construction work (05 per cent), business (06 per cent) and drivers (05 per cent) may be mainly from urban pockets.

15 per cent of mothers are maid servants. 06 per cent of fathers/mothers are in a variety of sundry occupations, clubbed together in regard to their incidence/data under 'others'.

The variety of jobs under 'others' category are: Typists, Peons, Tailors, Drivers, Conductors, Clerks, Technicians/Engineers, Government servants, Bank workers. Number of entries under each category are highly insignificant.

### **Significance of Occupational Data for TALP Study:**

Majority of parents, who send their children to Government schools, especially fathers, are in low paid jobs. They find it hard to afford Smart phones, pay for wi-fi and renewal of internet facility to their children. TALP implementation will not be complete by supplying computers, projectors, smart boards to schools. 'Parents' as a dimension in Digital education needs to be factored into TALP implementation.

### **Age and Sex of Children**

Proportion of over-aged students in the sample (6500 students) of the study, in government schools, is 07 per cent. It is on the higher side in Bengaluru and Belagavi divisions. As per age groupings 49 per cent are 16 years of age (10<sup>th</sup> standard equivalent). Together, 87 per cent had exposure to Computer Education/TALP for at least one year. There is not much difference in exposure to TALP, by age category, across all divisions.

54 per cent of sample students are girls. This distribution across sexes is uniformly visible across divisions.

### **Summary of Profile of Students**

A great majority of students attend schools from their homes. Commuting is not an issue because of free bicycle scheme. Small, insignificant proportion of migrants attends government schools. Parents are in lowly occupations which constrain them to buy smart phones and pre-paid internet packages for computer education. They are in appropriate age category in their schools and distribution of sample across the sexes is fair / balanced, slightly tilting towards girls.

### **7.5.2 Computer Education/TALP Classes in schools- Feedback from Students**

Table No. 58: Organization of TALP Classes

Divisions	Bengaluru	Mysore	Belagavi	Kalaburgi	State
Yes	1976	1500	1561	1097	6134
%	94	98	90	95	94
Total Students	2100	1530	1730	1150	6500

Source: Primary data

94 per cent students report that TALP classes are conducted in their schools. Proportion is highest in Mysore division (98%) and lowest in Belagavi division (90%).



Table No.58.1: Number of Computer Education Periods per Week

Divisions	Bengaluru	Mysore	Belagavi	Kalburgi	State	Rest
10 to 12 hrs.	1869	1393	1442	1051	5755	> 12 hrs.
%	88	91	84	91	89	

Source: Primary data

On an average, 89 per cent schools in State earmark 10 to 12 hours per week for TALP classes. Rest of them organize classes for more than 12 hours per week. Minimum is 10 to 12 hours.

Table No. 58.2: Number of Practical Periods per week

Divisions	Bengaluru	Mysore	Belagavi	Kalburgi	State	Rest
2 to 3 Hours	1598	1210	1263	900	4971	> 3 hours
%	76	79	73	78	76	

Source: Primary data

76 per cent students report that they have a minimum of 2 to 3 hours of Practical Classes/Computer Laboratory periods per week. This allocation is nearly the same across all divisions.

### **Timings of Computer Education/TALP Classes (by Teachers in Classrooms)**

Table No. 58.3: No. of Teachers who prefer to conduct the TALP classes in the Morning

Divisions	Bengaluru	Mysore	Belagavi	Kalburgi	State	NR
Yes, Morning	1296	1054	1015	661	4026	366
%	62	69	59	57	62	-

Source: Primary data

62 per cent teachers prefer to conduct TALP classes in their subjects during morning hours. There is not much difference across divisions in this practice.

### **Timings of Computer Education Practical Classes in Computer Laboratory**

Table No.58.4: No. of students who prefer Practical Classes in the Afternoon

Divisions	Bengaluru	Mysore	Belagavi	Kalburgi	State	NR
Yes, Morning	1629	1270	1342	938	5179	366
%	78	83	78	82	80	06
Total Students	2100	1530	1720	1150	6500	-

Source: Primary data

80 per cent students do computer education practicals in computer lab during afternoons. This is good. Drudgery after lunch will vanish. It is comparably so across all divisions.

Table No.58.5: Exposure to Computer Education before TALP

Divisions	Bengaluru	Mysore	Belagavi	Kalburgi	State
No Exposure earlier	1784	1363	1506	1054	5207
%	85	89	88	92	80
Total Students	2100	1530	1720	1150	6500

Source: Primary data

80 per cent students had no exposure to computer before they joined TALP high schools. [It is recalled that HTs had reported that they had exposure through CALC. Students' self-report rather than HTs perceptions are of value]. Highest proportion in this category (92 per cent) is from Kalburgi division students.

### **Students' attitude towards Computer Education/TALP Classes**

A great majority of students like to learn school subjects through the use of pre-loaded computers in their classrooms.

Table No.58.6: Students attitude towards TALP Classes

Divisions	Bengaluru	Mysore	Belagavi	Kalburgi	State
Yes, We Like	2020	1471	1647	1126	6264
%	96	96	96	98	96
Total Students	2100	1530	1720	1150	6500

Source: Primary data

96 per cent students are quite happy to learn through Computers in their classrooms. They like the TALP programme. This is uniformly so across all divisions.

230 students do not like TALP classes. Reasons are as follows: Computer Education is difficult to follow (Lessons/Class through Computers: 69 students); Do not know Basics of the subject (79/230); Eyes get strained (63/230) and finally neck gets strained (19/230). Practical classes are also included in this update.

### **With Whom do Students like to learn Computers?**

68 per cent, 4399/6500, like to learn with friends. 1611/6500, 24 per cent like to learn in a group with others. 490/6500 prefers to work/learn alone with the Computers in the computer lab.

### **TALP Classes organization – Feedback from Students: A Summary**

Majority of Students are happy with the organization of TALP classes in their schools. 10 to 12 hours of Computer Education classes in the classrooms, 2 to 3 hours of Practical work are organized in schools. Most of Computer Education class is in the mornings and practicals are in the afternoons.

It is noted with satisfaction that almost all students, with very few exceptions, enjoy TALP/CE classes – regular/practical classes.

A few students report that they get eye strain in Computer Education classes. LED projectors may be useful for them.

### **7.5.3 TALP and Learning in Schools**

#### **TALP Makes a Difference: Academic Performance of Students**

It is not advisable to depend on marks obtained by students in examinations conducted by (TALP) Schools as there will be diversity in standards of examinations across schools, in standards of assessment and difficulty levels. One comparable examination in the state as a whole is SATS, Student Achievement Tracking system, conducted and managed by the KSQAAC.

This evaluation study has considered SATS results for 650 sample schools, as per ToR. SATS results for these schools for the years 2018-19, year of launching TALP, for 2019-20 and 2020-21 have been collected for 8<sup>th</sup>, 9<sup>th</sup>, and 10<sup>th</sup> standards from KSQAAC. A division wise analysis and State level analysis is made of this learning Achievement data.

Total marks obtained by each student of a school is divided by number of students of a school. Total marks of all students of all schools of a district/all districts of a division is divided by the total number of students of a district/division to get AVERAGE SATS score of a division. This is done for each standard, for each year. It is submitted that average of averages is not taken anywhere [Taking average of averages is a statistical sin].

Consolidated SATS data on Learning Achievement s are arrived as by converting grades into scores/ marks as follows, by taking median values. A+ grade→90 to 100 percent; 95 is the median score; No. of A+ in a school that is A+ grade obtained by no. of students, of a standard, of a year is calculated. This is continued for A+ grade > 85 score, A grade- 85 score; B+ will be 75 scores; B- 65 scores' C+ 55 Scores and C→45 scores. All the scores of A+, A, B+, B, C+, C of a school is added. All the summated scores of all schools of all

districts/ divisions/State are computed. SATS had shared soft copy of Results of 650 sample schools whose DISE codes were given to KSQAAC.

Learning achievements of TALP schools is presented in a tabular form here

Table No 58.7: SATS Performance of TALP Schools [In percentage Marks]

Division		Bengaluru	Mysore	Belagavi	Kalaburgi	State
Year	Standard					
2018-19	8 <sup>th</sup>	79	78	78	78	78
2019-20	9 <sup>th</sup>	81	78	78	81	80
2020-21	10 <sup>th</sup>	89	89	88	88	89

Source: Primary data

Note: Movement from 2018-19, 8<sup>th</sup> standard to 2020-21, 10<sup>th</sup> standard

SATS learning achievement data in 650 TALP sample schools is presented in table No. 56.7 here.

**State update:** It is clear that there is a gain of 11 percent in average performance in the State. During the first year gap, that is from 2018-19, the year of launching the TALP Project, the gain was marginal, from 70 to 80 percent, only 02 percent gain in the state. But within a span of 02 years, from 2018-19 to 2020-21, there is an observed gain in learning attainments of 2018-19, 8<sup>th</sup> Standard batch, as they moved to 10<sup>th</sup> standard class. A major, significant variable in reality of schooling in the State between 8<sup>th</sup>, 2018-19 and 10<sup>th</sup>, 2020-21 is the TALP programme.

There is every reason to believe that TALP, Teaching learning transactions mediated through the pre-loaded computers on the big screen, projectors. Under TALP programme as well as exposure to learning opportunities in computer laboratories, followed by completion of assignments/projects using digital technology has contributed substantively, 11 percent gain in marks in SATS examination, to LEARNING among students of the state TALP sample, 6500 students of 650 schools.

**Division wise update:** Gains across the 04 division viz; Bengaluru, Mysore, Belagavi and Kalaburgi, during the period of movement of 02 years from 8<sup>th</sup> standard in 2018-19 to 10<sup>th</sup> standard in 2020-21, are 10,11,10 and 10 percent [values are round off]. Gains are uniform across all TALP schools of all divisions in the State.

**Note:** Selection of schools for TALP programme in 2018-19 was according to certain criteria like infrastructure facilities, staff strength. Hence base level learning achievement at 8<sup>th</sup> standard in 2018-19 is high while over the 02 years from 2018-19 to 2020-21, it has gone up, higher still TALP has made a positive dent.

## 7.6 HIGH SCHOOLS – CONTROL GROUP STUDENTS

### 7.6.1 Preview:

As against 650 sample schools for the main evaluation, one school each has been considered for the control group, totaling 34 schools from 34 educational districts. None of the 34 schools is a TALP school. 02 boys and 02 girls are taken from each school, totaling 68 boys and 68 girls. Sample of control group is 136 students.

### 7.6.2 Profile of Students:

Age, sex, place of residence (home/hostel), distance of school from place of residence, method of commuting to school, use of bicycles given by the Government under free distribution of bicycles scheme, migration status, socio-economic background are the variables in profile of students

134/136, 99 percent students, are in 14 to 16 age group; hardly any over aged students. There are 68 boys and 68 girls. 130/136 students travel to school from home; 06/136 from hostel. For 74 % students, school is located within a distance of 2 Kms. 57/136, 42 per cent walk to school. 39/136, 29 use bicycle to commute to school; for 26/39 students it is a government given bicycle, 19 per cent of total students.

At least 15 per cent of sample students are first generation learners to school as 15 per cent fathers and 20 per cent mothers are illiterates. Mean level of Education of fathers is 8.4 years, of mothers 7.6 years and that of parents as a whole is 7.9 years.

#### Parental Educational Level of Students

Sample TALP Schools: 650

Sample Schools without TALP: 34

Sample TALP School Students: 6500

Sample Students Control Group: 136

(Values in Years) Mean Levels of Education (MLE)

Persons → Values (MLE) ↓	Father	Mother	Total (State)
Study Sample	7.4	6.7	7.1
Central Sample	8.4	7.6	7.9

Source: Primary data

Going by the mean educational levels of fathers, mothers and parents as a whole, post facto analysis of selection of schools by the Department for TALP programme reveals that, the selection is highly justified as the benefit are going to relatively more educationally backward (background) families.

### **7.6.3 Occupational Background of Parents**

All the fathers (Sample size + Control Group) are working. In sample group, 39 per cent are home makers while in control group 29 per cent are home makers. A working woman means, she is empowered and contributes to family income and welfare. 29 per cent fathers and 09 per cent mothers are in agriculture in Control group [Sample group = 38 and 13 per cent]. Parents in control group are relatively in less proportion in agriculture.

Those who are labourers/coolies constitute 33 per cent fathers and 21 per cent mothers in control group [Sample group: 35 and 26 per cent]. 18 per cent mothers are maid servants in control group [Sample group: 15 per cent], which means they earn an income in Control group [both Control group and sample group are poor and lower class groups. Sample group are poorer than Control group. It is a matter of degree].

### **7.6.4 Summary Comparisons of Students in Sample group and Control group**

Parents are in low level occupations in Control group and Sample group, Sample group more than Control group which constrains them to buy Smart phones and pre-paid Internet packages. Sample group are relatively more incapacitated than Control group.

### **CE Classes** (not TALP)

72 per cent control group students report that they have computer education classes [Sample group – 94 per cent]. Computer education [68 per cent] classes are for 10 to 12 hours a week for [S – 89]. 51 per cent control group students get computer education practical classes [Sample group – 76 per cent]. 57 per cent control group students had no exposure to computers/computer education; before they joined this school [in case of sample it is 88 per cent), and sample group (96 per cent), students like Computer Education/TALP classes. Reasons among insignificant, negligible proportion of students for dislike of Computer Education in both sample group and control group are similar. While 97 per cent of sample students report that TALP has helped them in a better understanding of their school subjects, the similar proportion of control group students is 86 per cent. Contribution of TALP to academics, (Sample group), to learning, appears to be a shade better than regular computer education programme in control group schools. One of the Contributory Variables

may be the quality of pre-loaded learning materials/Cassettes supplied by the DSERT to schools under the TALP programme.

In both sample group and control group groups, students have access to Smart phones, I pads, laptops, computers to attend on line classes. It is mostly Smart phones [Sample group – 93 per cent, control group – 86 per cent]. Control group is relatively better off in possession of e-gadgets than S group [other than Smart phones].

An equal proportion of control group and sample group students (55 per cent) have access to e-gadgets for school studies beyond school hours, as they have a constraint to share their gadgets with elders.

74 per cent children in control group have an elder at home to help/assist/ guide them in use of Internet/wi-fi, Smart phones. This proportion of having an elder at home to assist is only 33 per cent in sample group. Control group has far better e-survey milieu at home than Sample group.

91 per cent control group students use Computers for learning in Computer Laboratory/practical classes. This proportion is 77 per cent in TALP schools.

Dependence on teachers for doubts in Computer Education classes is 75 per cent among Control group Teachers students while it is 80 per cent in Sample group.

### **7.6.5 A Comparative Summary Account of C and S group Students:**

#### **CE Vs. TALP**

Sample for the TALP evaluation study is 650 schools and 6500 students while for the Control group it is 136 students from 68 schools.

15 per cent students are first generation learners (both father and mother illiterate) in both control and sample groups.

Mean level of education MLE in the total sample is better in control group (7.9 years) than in sample group (7.1 years). In case of fathers, the values are control group – 8.4; sample group – 7.4, and for mothers, Values are control group – 7.6 and Sample – 6.7 years.

Going by the MLE of control and sample groups, it is inferred that selection of schools under the TALP programme by the Department, a post facto revaluation, is highly

justified. Benefits under TALP are going to be relatively more educational backward families.

Going by the occupational background of control and sample groups, it is observed that sample group is relatively poorer than control group. Both are poor. The socio economic background levels reveals that parents in Sample group as compared to control group have constraints in accessing a smartphone or buy prepaid Internet packages for on-line schooling and offline project work.

TALP umbrella, Sample group students are better than control group students in regard to exposure to Computer Education/TALP practical classes, duration of practical classes per week, contribution of TALP to studies.

However, control group students are better than sample group in regard to prior (prior to school Computer Education/TALP) exposure to Computer Education, possession of e-gadgets other than Smart phones, help/assistance from elders for Internet operations.

Both groups are placed in the same boat in regard to access to Smart phones beyond school hours, enjoyment and likings for Computer Education/TALP classes.

#### **7.6.6 SATS performance of Control group**

TALP was launched in 2018-19, as has already been discussed. 34 schools were selected as Control group for the study. SATS performance of 650 sample TALP schools has already been discussed. Now SATS schools will be discussed. Data has been provided by KSQAAC on SATS performance of 34 schools for 8<sup>th</sup> standard 2018-19, 9<sup>th</sup> standard, 2019-20 of same students and 2020-21 of same students. Progress in performance of same batch of students from 8<sup>th</sup> in 2018-19 to 10<sup>th</sup> in 2020-21 of 34 schools without TALP intervention, Learning status and progress is discussed here.

As the sample of control group schools is small, 34 schools only, division wise analysis is statistically not advisable. Cell entries will be low [see→ A. Lindquist: 'Educational Measurements']. Only state level comparisons are made.



Table No. 58.8: SATS performance [in percentage Marks] of control group students- State data of control group [34 schools]

Standards	2018-19	2019-20	2020-21
8 <sup>th</sup>	78	85	83
9 <sup>th</sup>	76	86	83
10 <sup>th</sup>	70	68	67

Source: Primary Data

The average SATS performance of 8<sup>th</sup> standard students in 34 non-TALP schools was 78 percentages in 2018-19. It moved up to learning of SATS in 2018-19, may be done to better awareness of SATS. However, as there was no TALP facilitation in these schools, the performance in 2020-21 at X standard 2018-19 batch 8<sup>th</sup> standard students was 83 percent. There is a gain of 005 percent in learning attainments between 2018-19 to 2020-21 in students from 8<sup>th</sup> to 10<sup>th</sup> standards.

#### **7.6.7 SATS comparison in learning attainments between TALP and non-TALP schools:**

Gain in learning attainments of 8<sup>th</sup> standard students of 2018-19 batch in SATS as observed in X standard, same batch in SATS as observed in X standard, same batch in 2020-21 is 11 percent (already discussed). Similar gain in non TALP schools in 05 percent. As such, difference in gain between TALP and non TALP schools in SATS examination is 06 percent in favour of TALP schools. The ToR expected 05 percent differential schools. However, the differential gain is 06 percent, one percent more than expected gain.

**FINAL WORD:** TALP programme has proved to be a shade better in its benefits to students of the sample group in comparison to similar benefits to control group students in schools which have Computer Education (not TALP). TALP schools get pre-loaded content materials in Computers which is not the case with control group students/schools. These e-content also make a positive difference in favour of sample group over control group.

As the comparison of SATS performance of sample 650 schools with control group sample of 34 schools reveals, there is a differential gain of 06 percent in SATS perform in favour of TALP schools as students move up from 8<sup>th</sup> standard in 2018-19 to 10<sup>th</sup> standard in 2020-21. This is a substantive gain, given the base level of performances of students, 78 percent at 8<sup>th</sup> standard, which became 89 percent at 10<sup>th</sup> in TALP Schools and 83 percent at 10<sup>th</sup> in non TALP schools. **TALP contribution matters.**

## **7.7 CASE STUDIES REPORT**

**7.7.1 Perspectives:** Case Study analysis constitutes the third and final perspective on REALITY of a phenomenon, TALP programme in the current context. Secondary data analysis, already discussed, provides a MACRO perspective. Primary data analysis in this report provides the EXISTENTIAL perspective. Case Studies provide the Micro level perceptions. Case Studies are limited to small samples, in-depth in analysis, comprise qualitative treatment and are focused in coverage. The three approaches together constitute TRIANGULATION of insights into reality – the TALP programme.

### **7.7.2 Criteria for Selection of Cases:**

650 TALP schools constitute the sample for the main study. They are spread across 34 educational districts in the State. All the districts were ranked on 127 variables of TALP implementation: 44 variables of TALP (Basic infrastructure not included) infrastructure, 24 on Learning organization, 20 on Teachers feedback, 30 on Students’ feedback and 09 variables on Parents’ feedback. Top 05 districts and Bottom 05 districts were chosen as contrasting case districts, to examine in depth, the implementation status of TALP, as reflected from 127 variables. At the rate of one school from each of these 10 districts, ten schools were chosen for the Case Study. All sample schools of a district were arranged in ascending order of their DISE Code and the middle most school was chosen to give randomness for selection.

### **List of Case Study Schools**

Detailed list of schools with village, district names, DISE Codes and year of establishment is given in annexures. Here, significant data is provided. Top ranked schools are hereafter referred to as T1, T2, T3, T4 and T5. Bottom ranked schools are referred to as B1, B2, B3, B4 and B5. All are Government schools.

**Table 59: LIST OF CASE STUDY SCHOOLS**

Sl. No. (Top)	School Name	Village	District	Year of Establishment
T1	Karnataka Public School	Ponnampet	Kodagu	Before 1947
T2	GPUCHS	Kalasa	Chickmagaluru	1947 to 1986
T3	GGHS	Lakkundi	Gadag	2001 to 2010
T4	GHS	Navalur	Chamarajanagar	1987 to 2000
T5	GGHS	Mailoor	Bidar	1987 to 2000

(Bottom)				
B1	GHS	Hamumanahalli	Madhugiri	2001 to 2010
B2	GHS	Jaddigadde	Sirisi	2001 to 2010
B3	GHS	Gogi	Yadgiri	1987 to 2000
B4	GBHS	Raichuru	Raichuru	Before 1947
B5	GHS, Radio Park	Bellari	Bellari	1947 to 1986

There is a balanced spread of schools under both T and B categories in regard to year of establishment. 08 out of 10 schools are in villages and 02 are in Kasaba towns.

### 7.7.3 Performance of Schools – TALP

Table 59.1: Scores obtained by Case study Schools (TALP)

Sl. No	Variable Type	Schools (Scores)										
		T1	T2	T3	T4	T5	B1	B2	B3	B4	B5	Maximum
1.	Infrastructure	28	35	31	26	31	12	14	25	24	27	44
2.	Learning Organisation	23	14	21	20	21	01	21	17	18	10	24
3.	Teachers' Feedback	26	27	21	18	17	16	07	21	12	16	30
4.	Students' Feedback	07	09	13	11	11	08	02	10	12	08	20
5.	Parents' Feedback	08	06	07	07	03	04	06	08	08	05	09
	TOTAL	92	91	93	82	83	41	50	81	74	66	127

Note: For variables 03 and 04, tools 03 and 04, Teachers' and Students' Feedback, sample is 02 teachers and 02 students. Average score of feedback from both of them, in each case, is considered for analysis. For example, if on Tool 1 of T1 School, Teacher 1 scores 27 and Teacher 2 scores 25, average score considered is 26. Whenever average ends up with 0.5 (T5 → Teacher 1 scores 25 and Teacher 2 scores 08, average is considered as  $33 \div 2$ , 16.5, considered as 17).

Scores obtained by Top 5 schools on 127 variables; viz., T1, T2, T3, T4 and T5 are 92, 91, 93, 82 and 83 respectively. Average score for top 05 schools is 88.2.

Likewise, scores obtained by Bottom 05 schools on 127 variables, viz., B1, B2, B3, B4 and B5 are 41, 50, 81, 74 and 66. Average score for bottom 05 schools is 62.4.

There is a clear difference of 25.8 scores in performance of top and bottom schools [in TALP programme implementation], on 127 variables. Per cent difference is 20.31. **There is 20 per cent difference across top 5 and bottom 5 schools in the State in TALP performance [Implementation], as per CASE STUDY analysis.**

Table 59.2: Percent Difference across Chief Variables (in % ages)

Sl. No.	Chief Variables	Top 5 Average	Bottom 5 Average	Difference
1)	Infrastructure	69	46	23
2)	Learning organization	83	56	27
3)	Teachers Feedback	73	48	25
4)	Students' Feedback	51	40	11
5)	Parents' Feedback	69	69	Zero
	Total	69	49	20

There is no difference between top and bottom schools in regard to parental satisfactions about the implementation of TALP in schools. This is borne out of the Primary Field Survey also. The top district schools score significantly over bottom district schools in regard to TALP Learning organization. This is the most significant insight which is also ratified by primary survey results. This is followed by Teachers' feedback and infrastructure facilities. The ultimate beneficiaries of TALP, the students, do not differ significantly in regard to their feedback on TALP facilitated learning, even while it needs to be acknowledged that there is difference between the two sets of schools.

**Better monitoring of learning organization in schools, provision of infrastructure facilities, hands-on-training to teachers, issue of SoP for implementation of TALP in schools are needed to bridge the gap between top and bottom ranked schools.**

### **Qualitative Insights**

The schools on top ranked districts are better than those of bottom ranked districts clearly in regard to the following variables:

Table 60: Contrasts cross Top and Bottom 05 Schools  
[Figures in Brackets indicate Provision]

Sl. No.	Discrete Variables [A] <u>Infrastructure</u>	Top 5 Schools Maximum 05	Bottom 5 Schools Maximum 05
1.	Computer Lab facility	05	04
2.	Computer Tables provided	05	04
3.	Children sit in Chairs	05	03
4.	All in one Laptops are there	05	03
5.	Printer is there	05	05
6.	Printer has scanner	03	00
7.	Electricity Problem	03	03
8.	Projector in School	05	05
9.	CE begins at 8 <sup>th</sup> standard	05	03
10.	Students use Preloaded Laptops	03	00
11.	Students use Websites	05	02
12.	Slow learners given attention	05	03
13.	Students maintain CE book	05	03
14.	School has MIS	05	01
15.	School has SATS	05	05
16.	School has developed e-Lessons	05	02
17.	Use Laptops for Remedial Classes	04	03
18.	Maintain Log Book	05	02
19.	Right method of Waste Disposal	02	02
20.	Maintain SoP Register	04	03
21.	MIS for Student Attendance	05	02
22.	MIS for Teacher Attendance	04	03
23.	MIS for MDM	04	03
24.	Maintain computer lab Stock Register	04	03
25.	Digital Students' Progress Report	05	04
26.	Digitized Literary/Cultural Activities	05	03
27.	Digitised Science Lab. Equipments	04	03
28.	Map List digitized	04	02
29.	Admission Register Digitized	05	04
30.	TC Register Digitized	05	04
31.	Government Circulars Digitized	05	03
32.	Previous Years Question Papers Digitized	05	03
33.	Digitize Students' Performance	05	03
34.	Digital Analysis of Performance	05	05
35.	Graphic Analysis	03	02
36.	AMC for Computer Maintenance	02	00
	No. of 05s out of 19 items	<u>10</u>	<u>01</u>
	No. of 04s out of 19 items	<u>06</u>	<u>03</u>

Infrastructure in Schools and Learning organization are considered for qualitative/discrete variable analysis. Teachers' Training feedback was considered in detail during workshop data analysis, already reported.

It is clear that the top 05 schools are far better than bottom 05 schools on most of the parameters considered. Compliance to TALP norms is complete in 13 out of 17 infrastructure variables and 10 out of 19 learning organization variables (all 05 schools comply) while the figures for bottom listed schools are 03 and 01 respectively.

**SoP based/Guided M and S will be needed for lifting the bottom ranked schools above optimum levels of performance, as revealed by the 10 schools of the case study.**

**Final Insights:**

Case Study results have more than ratified the variety of insights obtained in field study.

## **7.8 EDUSAT – SCHOOLS – HEAD TEACHERS**

### **7.8.1 Preview:**

EDUSAT has been an initiative of the DSERT to provide Education through Satellite Television. It was initially implemented in 2758 schools of 05 districts viz., Bengaluru Rural, Chamarajanagar, Ramanagara, Kalburgi and Yadgir. Educational programmes are beamed for 4<sup>th</sup> to 8<sup>th</sup> standard students. Video conferencing facility is provided to 960 out of 2758 schools through the Centre for e-governance, CeG. Other schools have RoT, Receive only Terminal, no interactive facility. EDUSAT connectivity is also given to 21 DIETs, offices of CPI, PU Board, DSERT, DDPI Offices – a total of 41 locations. 02 studios of the DSERT beam the lessons. Linkages are established with CIET/NCERT, Delhi. CeG has been functioning since 2005. It works with the State Data Centre – SDC, which provides taluk level connectivity to schools. Through the use of KSWAN, Karnataka State Wide Area Network and PoP (Point of Presence), SDC establishes links with BSNL for better connectivity. EDUSAT time-table for beaming lessons is given to all EDUSAT schools with specification of time of beaming and standards in foci.

### **7.8.2 Sample of this Study**

05 schools each from initial EDUSAT 05 districts, totaling 25 schools and another 25 TELE Education schools from 18 districts constitute the 50 schools for this study. At the rate of 05 teachers from 50 schools, data is collected from 250 teachers. At the rate of 10 students from each school, across 05 standards – 4<sup>th</sup> to 8<sup>th</sup> – 500 students constitute the sample. EDUSAT data is from 23 districts, 50 schools, 250 teachers and 500 students.

Tool 5 has collected data from 50 EDUSAT schools spread across Bengaluru division (11), Mysore (09), Belagavi (18) and Kalburgi (12 schools). As the sample size is small, as per ToR across divisions, division wise analysis not made as was done for IT @ schools and PUC samples. Analyzed for the whole State, 50 schools. Percentage analysis for very small samples is eschewed in Statistics. Head Teachers of elementary schools are respondents for Tool 5.

### **7.8.3 Profile of Head Teachers and Schools**

29/50 HTs are elderly, in 51 to 60 age group (58 per cent). There are only 02 HTs who are less than 40 years. 30/50 HTs are females. Again 29/50 HTs have more than 25 years of experience. Considerable majority, 36/50 have less than 10 years of experience in the present schools.

Only a few schools 08/50 have been set up after 2000 AD. 12/50 schools are quite old, established before independence. 42 out of 50 schools are co-educational. There are 05 boys and 03 girls' schools. 50 per cent schools are located at a distance of more than 10 Kms. from Taluq HQ. While 32/50 schools are very far [more than 30 Kms] from District HQ. There is public bus facility to 44/50 schools. 26/50 schools are pure elementary schools – no high schools sections, of which (of 26/50), only 9/26 have 8<sup>th</sup> standard while 05/26 are LPS schools, from 1 to 5<sup>th</sup> standard.

In sum, sample schools of the study are managed by elderly, experienced HTs. Schools are located in rural and remote rural areas, fit to be served by EDUSAT/Tele Schooling.

### **7.8.4 EDUSAT Functioning**

25/50 schools get uninterrupted electricity for the whole day, 50 per cent schools, which is essential for functioning of EDUSAT/TV. Out of the 25 schools who have / face power problems, only 09 schools have UPS facility. In effect, 16/50 schools, 32 per cent schools, are at the mercy of the power-god for efficient use of EDUSAT lessons.

Schools which have either uninterrupted electricity or UPS when there is a power failure are relatively in a better position in Kalburgi (10 out of 12 schools, no problem) and Belagavi (13 out of 18 schools) division as compared to schools with problems in Bengaluru (06 out of 11 schools) and Mysore (5 out of 9 schools) divisions. One school in Kalburgi division has got generator also. Most of the schools have UPS backup facility for one or two hours.

**EDUSAT functioning has less problems of electricity/power supply in Northern Karnataka region.**

22 out of 50 schools maintain a log book for use of TV for EDUSAT classes. They record uptime and downtime of use of TV. Subject teacher (20 cases) or head teacher (02 schools, may be small schools) records in the log book.



### **7.8.5 EDUSAT Maintenance**

All the 50 schools report that they face TV maintenance/repair problems, one or the other time. 15/50 schools have entered into an AMC for TV maintenance (30 per cent schools). 29/50 schools call a local technician (58 per cent schools) while the rest, 6/50 schools are able to address the problems by themselves. 13 of these 50 schools face maintenance/repair problems 'regularly' while another 23 schools face it 'many a times'. For 14 schools, it is 'once in a way',

**In effect, a great majority of schools experience problems in functioning of the TV sets, apart from problems of electricity/no UPS, in a few schools. Majority do not have an AMC also.**

**27/50 schools, 54 per cent need at the least 1 week (09 schools) to get the TV back to order. Some of them out of these 27 schools need 02 weeks (05 schools) or more than 02 weeks (13 schools, 26 per cent) for this job.**

**In effect, over 54 per cent of kids lose EDUSAT classes at least for a week due to TV dysfunctionalities, which is a regular feature in a few (13 schools) schools [students are deprived].**

**Across the State, majority of children are deprived of EDUSAT lessons due to one (electricity) or the other (TV going out of order) problems.**

### **7.8.6 Training of Teachers for Use of EDUSAT**

Training for use of EDUSAT lessons, a one day training, is not given to teachers of all schools. Training has been given to teachers of 26/50, that is 52 % have been given training.

In small schools, only one teacher (04 schools) has been trained, while in medium size schools, 02 teachers (07 schools), 03 teachers (04 schools) and 04 teachers (07 schools) have been trained. In large schools, 05 and > 05 teachers (09 schools) have been trained. In considerable number of schools (24 schools), teachers have picked up the technique of using TV for EDUSAT, for integrating the lessons of the syllabi with EDUSAT lessons, by trial and error, or others' guidance.

**Training of teachers in use of EDUSAT has not been 'systematic'.**

### **7.8.7 Integration of EDUSAT Lessons with Regular Classes/Lessons**

26/50 schools report that their teachers integrate EDUSAT classes/ lessons with regular classes/lessons. In other schools, children watch/listen to the TV lessons. If there is only RoT [Receive only Terminal] instead of Video Conferencing facility, integration of TV lessons with regular lessons will be difficult. It is already reported (Section 1.0) that only 960 out of 2758 Edusat schools have video conferencing facility.

### **Feedback on Quality of EDUSAT Classes**

Table No.61 : Quality of EDUSAT Classes

Divisions→ Quality→	Very Good	Good	Satisfactory	Bad	Total Schools
Bengaluru	03	04	03	01	11
Mysore	01	05	03	Zero	09
Belagavi	02	12	03	01	18
Kalburgi	Zero	11	01	Zero	12
State	06	32	10	02	50
Note: Figures are just numbers. Percentages are not taken.					

Source: Primary data

38/50 schools have rated the quality of EDUSAT lessons to be either 'Very Good' (06 schools) or 'Good' (32 schools). Only one school each in Bengaluru and Belagavi divisions are not happy with the quality of EDUSAT lessons.

**EDUSAT lessons have been received very well by almost all the schools.**

### **Contribution of EDUSAT to Students' Performance in Examinations – HTs Perceptions**

12/50 HTs report that students' performance in examinations, as revealed by the marks scored by them, has improved substantially. Another 29/50 HTs feel that the contribution is only 'to some extent'. 09 HTs have clearly reported that Edusat has no relationship with performance of students in examinations.

### **7.8.8 SUMMATIVE OBSERVATIONS on EDUSAT–Feedback from HTs**

EDUSAT has very high potential to contribute to the quality of Elementary Education, provided it is systematically implemented. It has been well received by almost 50 per cent of schools. Dysfunctionalities in implementation have resulted in deprivation of a good experience to a significant proportion of students.

### **7.8.9 RECOMMENDATION**

It is recommended that DSERT provide Interactive Video-Conferencing Facility to all the schools, supply SMART LED Television Sets, integrate AMC for: all TALP activities, e-gadgets for (TALP) IT schools, IT @ PUC, EDUSAT and other e-gadgets in schools. Let the AMC be a State floated service with franchisees in all District/Taluqa Head Quarters that can reach schools within a day for maintenance, repairs and service of all e-gadgets. Provide training in use of EDUSAT to all HTs/teachers without any deficits.

**EDUSAT needs a better deal.**

## **7.9 Implementation of TALP at High Schools: Feedback from Parents**

Profile: There are 1300 parents – 75 per cent are fathers.

Involvement: 90 per cent parents discussed the modalities of on-line classes with teachers/HT. This is uniform across all divisions.

Pandemic Response: Parents were not prepared (means children also) for schooling during pandemic times. Only 2 per cent children had a SMART phone before pandemic times. 49 per cent parents could afford SMART phones for their children with difficulty for independent use and other parents would usually use it on sharing basis with the other members of the home.

### **SAMVEDA/VIDYAGAMA Classes**

Parents (90) have positive views on Samveda classes and also on (97 per cent) Vidyagama classes. Views are uniform across all divisions. 90 per cent parents also monitor post Vidyagama engagement of learning by students.

Post Covid – 19, post lock-down lifting division, 60 per cent parents are ready to send their children to off-line schooling, along with adherence to SoP for the same.

### **Power Cut Management:**

22 per cent houses/students/(parents) miss classes during power cuts/ breakdowns/failures.

DIKSHA/NCERT Awareness: 64 per cent parents are aware of this portal.

Margarshi Instruction: 92 per cent parents have interacted with Margadarshi teachers.

Student Assessments in Public Places: 90 per cent parents welcome this practice.

**Students' Addiction to Mobile Phones:** 55 per cent parents admit that their children are addicted to mobile phones.

**Final Word:** A high/very high degree of interest/involvement is observed among parents for on-line education. Majority prefer regular schooling. Even while parents of Government school children are economically very weak, they have managed to meet the expenditures for on-line schooling. They need a respite in the context of RTE.

## 7.10 EDUSAT – TEACHERS

### **7.10.1 Profile of Teachers:**

250 teachers constitute the sample of teachers from 50 schools @ 5 teachers from each school. Majority of the teachers in this sample are, 72 per cent, elderly, aged over 40 years. Hardly 06/250 teachers are below 30 years. 53 per cent are female teachers. 84 per cent teachers have more than 10 years of teaching experience, out of whom 41 per cent have more than 20 years of experience. However, nearly 64 per cent teachers have 10 years and less than 10 years of experience in the present school.

### **7.10.2 EDUSAT INTEGRATION HABITS**

206/250, 82 per cent teachers integrate their regular lessons with EDUSAT lessons. As per HTs report [Tool 5, EDUSAT], integration of lessons with EDUSAT, in their schools, by their teachers, is not of this scale (82 per cent, 26/50 HTs, schools, report on integration practice). This report recognizes self-report of teachers on integration of EDUSAT lessons. It is possible that there are small scale and low medium size schools where teachers may not integrate EDUSAT lessons, from where 44 teachers from 24 schools have given feedback. Integration is highest, 88 per cent teachers from Kalburgi division.

Integration of Regular Lessons with EDUSAT lessons can be done in 03 possible ways: teaching lessons in syllabi before they are beamed on TV, teaching after EDUSAT programme of the day, teaching/clarifying/ supplementing EDUSAT lessons while they are in progress. 99/250 teachers, 39 per cent prefer to effect integration when the EDUSAT lessons are in progress. 29 per cent exercise the integration after the EDUSAT classes are over while 14 per cent do it before the EDUSAT classes (Total 82 per cent engage in integration). Across the divisions teachers who integrate their teaching-learning transaction while EDUSAT is in progress are in highest proportion (46 per cent) in Belagavi division while they are in lowest proportion (30 per cent) in Kalburgi division.

**There is no SoP, Standard Operating Procedure for integration of EDUSAT lessons with regular school lessons.**

### **Students' Efforts to Clarify doubts [when EDUSAT lessons are in RoT mode or otherwise]**

When the connectivity of EDUSAT to a school is in RoT mode [Receive only Terminal, not interactive], how do students clarify their doubts. Students may note down the questions and seek clarifications with teachers. Even otherwise, students may note down their questions so as not to disturb other students. 40 per cent teachers in this sample report

that most of the students note down their doubts and seek clarifications after their class. Some of them, 53 per cent, do it often (not always). 07 per cent report that students do not clarify doubts.

16 per cent teachers report that all their students are in the habit of clearing their doubts. Students do clear their doubts ‘many a times’ as reported by 34 per cent teachers. **In effect, 50 per cent students clear doubts that they get in EDUSAT lessons.**

### **7.10.3 Quality of EDUSAT Lessons – Feedback from Teachers:**

Usefulness, relevance to syllabus needs, clarity/audibility are the three parameters on which feedback on quality is assessed, apart from ratings on overall quality.

Table 61.1: Quality of EDUSAT Lessons

Divisions ↓ Quality →	Always	Many a Times	Once in a While	No, Not so	Total
Useful (No.)	103	103	34	10	250
%	41	41	14	04	-
Relevant (No.)	138	70	32	10	250
%	55	28	13	04	-
Audible/Clear (No.)	148	77	18	07	250
%	59	31	07	03	-
Overall Quality	Very Good	Good	Average	Poor	Total
Rating (No.)	62	162	25	01	250
%	25	65	10	-	-

Wholesale negative opinion about EDUSAT lessons is almost non-existent, negligible. This is true all over the State. However, a full scale approval of quality dimensions is also not there. 41 per cent teachers report that the lessons are ‘useful’ always. 55 per cent teachers report that the lessons are ‘relevant’ to their syllabus ‘always’. Again 59 per cent teachers report that the lessons are beamed with ‘Clarity’ and ‘audibility’, ‘always’.

**90 per cent teachers rate the lessons as of ‘Very Good’ (25 per cent teachers) as of ‘Good’ (65 per cent teachers) quality. ‘Very Good’ or ‘Good’ certificate given by teachers indicates that the EDUSAT programme, is successful in the State. It needs upscaling, systematization and enrichment support from DSERT.**

Overall rating of quality of EDUSAT lessons as Very Good/Good, across divisions is: Kalburgi (100 per cent teachers); Mysore (97 per cent); Bengaluru (85 per cent) and Belagavi (84 per cent teachers).

‘Poor’ rating is given by only one teacher from Bengaluru division, while the residual rest of the teachers (10 per cent) give ‘average’ rating.

**EDUSAT is a SUCCESS STORY, going by feedback from Teachers.**

**7.10.4 Proportion of Syllabus integrated in EDUSAT lessons**

Table 61.2: Proportion of Integration of Syllabus with EDUSAT

Proportion Integrated	80 to 99%	60 to 79%	40 to 59%	20 to 39%	<20 %	Total
No. of Teachers 'Yes'	65	99	63	12	11	250
% Yes	26	40	25	05	04	-

Source: Primary Data

It is clear that there is no full integration of syllabus in EDUSAT lessons. Full integration, 80 to 100 per cent, should not be expected also. Direct, face-to-face, interactive, teacher guided learning is always good. 60 per cent integration, with interactive facility through Video-Conferencing and teacher facilitation thereon would be ideal.

66 per cent teachers report that there is integration beyond 60 per cent of syllabus. 34 per cent teachers do not consider this to be the case. There is a need for cascade modal workshops of teachers from cluster to block to district to State level and national level that have a focus on modalities of integration of NCF 2005, Karnataka NCF 2010 syllabus and customization to State/sub-State levels/regions of the State. This should be a long term objective promoted by the CIET/NCERT in collaboration with DSERT (SCERTs).

Curricular integration, development of a standard-wise battery of activities, experiments, individual/group projects, assignments and play-way lessons that are age/standard specific need to be evolved in this workshop mode, for purposes of guidance of teachers.

### **7.10.5 Teachers’ - Feedback on Utilities of EDUSAT Content**

Table 61.3: Specific Utilities of EDUSAT Content

Specific Utilities	Narratives	Diagrams	Maps	Experiments	Others	Total
No. of Teachers ‘Yes’	180	96	85	91	12	250
% Yes	72	38	34	36	05	-

Source: Primary Data

Multiple responses are allowed. A great majority of teachers 72 per cent, like the narratives. They deem the narratives as ‘useful’. However, there is no substantive positive opinion in regard to other specifics of teaching-learning transactions. Appreciation is from 38, 34, 36 per cent respectively for use of diagrams, maps and experiments in Edusat lessons.

### **7.10.6 Quality of activities/demonstrations in EDUSAT lessons needs improvement**

Table 61.4: Overall Utility of EDUSAT Lessons to Students

Percent Utility	80 to 100%	60 to 79%	40 to 59%	20 to 39%	20 and <20	Total
No. of Teachers ‘Yes’	67	104	58	14	07	250
% Yes	27	42	22	06	03	-

Source: Primary Data

69 per cent teachers report that EDUSAT lessons are received by over 60 per cent of their students to be useful, in general. 09 per cent teachers opine that the utility for students is less than 40 per cent. A diagnostic analysis on ground level utility by Block Resource Persons, BRCs would be of value in maximization of utility for students. **EDUSAT/CIET/DSERT need to recognize individual differences among students in learning deficits, learning style, learning atmosphere at home and learning capacities of students, to maximize the utility of lessons.**

### **7.10.7 Summative Observations on Feedback from Teachers on EDUSAT Lessons**

- 39 per cent teachers prefer integration when Edusat lessons are in progress.
- There is no SoP for integration of EDUSAT lessons.
- It is not possible for many students to clarify their doubts when Edusat lessons are in progress, as they have RoT facility only.



- **90 per cent teachers rate the lessons as of ‘Very Good’ (25 per cent teachers) or ‘Good’ (65 per cent teachers) quality. ‘Very Good’ or ‘Good’ certificate given by teachers indicates that the EDUSAT programme is successful in the State. It needs upscaling, systematization and enrichment support from DSERT.**
- **EDUSAT/CIET/DSERT need to recognize individual differences among students in learning deficits, learning style, learning atmosphere at home and learning capacities of students, to maximize the utility of lessons.**

### **FINAL INSIGHTS**

EDUSAT is an extremely useful intervention in Elementary Education, provided it is accorded a higher level of systematized attention and marginal increases in investments.

## **7.11 EDUSAT –STUDENTS’ FEEDBACK**

**7.11.1 Preview:** 500 students constitute the sample of students from 50 schools. There are 250 students from 25 schools of 05 EDUSAT districts and another 250 students from 25 Tele Education schools of 18 districts. The ToR specified only EDUSAT schools of 05 districts. After the submission and acceptance of the Inception Report of the project as per ToR, the COVID-19 pandemic invaded the world and the State. Regular classes were suspended for elementary schools and Tele Education on EDUSAT model was begun along with other initiatives like SAMVEDA and VIDYAGAMA. It was felt trite to include Tele Education classes. Hence, the sample was extended to include students of Tele Education schools. Exposure of students to TV lessons is the same for EDUSAT and Tele Education Schools. Hence, the questionnaire serves both stream of students equally well. Analysis follows.

Tables are presented at significant places. TV lessons – EDUSAT and Tele Education are for 4<sup>th</sup> to 10<sup>th</sup> standard students. [Tele Education was managed by the Department in collaboration with IIM – B]. EDUSAT was exclusively for 4<sup>th</sup> to 8<sup>th</sup> standard students.

**7.11.2 Profile of Students:** 60 per cent students are in 11 to 14 age group, corresponding to 4<sup>th</sup> to 8<sup>th</sup> standards schooling. 35 per cent students are in 15 and 16 age group, corresponding to 9<sup>th</sup> and 10<sup>th</sup> standards. Rest of them are below 11 years, may be in multi-grade schools (05 per cent children). Proportion of high school students across the 04 divisions are: Belagavi (50%), Bengaluru (35%), Mysore (30%) and Kalburgi (26%).

57 per cent students are girls. Girls are in higher proportion in Belagavi division (62%) and Kalburgi division (58%). Their proportions in Bengaluru (52%) and Mysore (53%) are lower than the State average figure.

Students belong to all standards/stages of school education: Higher Primary, 5<sup>th</sup> to 7<sup>th</sup> or 8<sup>th</sup> (28%); high school stage, 8<sup>th</sup>, 9<sup>th</sup> and 10<sup>th</sup> (62%). Rest is from LPS stage. It is to be noted that 8<sup>th</sup> standard is located in both large number of high schools and a significant percentage of higher primary schools, even though, as per national policy, it should be part of higher primary stage of schooling.

98 per cent students commute to school from their homes. Rest of the 02 per cent stay in hostels and attend schools. School is located at a distance of less than 02 Kms. to 75 per cent students. 09 per cent students walk to school for nearly 05 Kms. Around 75 per cent children walk to school. It is significant to note that about 20 per cent students use bicycles

to commute to school rest of them commute by public bus. Proportion of students who use bicycles received by them under the Free Distribution of Bicycles Scheme of the Government are: Bengaluru (27%), Mysore (24%), Belagavi (17%) and Kalburgi (18%).

### **7.11.3 Socio-Economic Background of EDUSAT Students**

Table 62: Educational Background of Parents - Fathers

Divisions↓ Level of Education→	Illiterate	1 to 5	6 to 8	9 to 10	12 <sup>th</sup>	Degree	PG	Others	Total
Bengaluru (No.)	20	16	14	31	15	03	0	01	100
%	20	16	14	31	15	03	0	01	-
Mysore (No.)	23	18	18	25	10	11	0	0	105
%	22	17	17	24	10	10	0	0	-
Belagavi (No.)	34	35	42	41	08	04	02	03	169
%	20	21	25	24	05	02	01	02	-
Kalburgi (No.)	25	27	29	32	07	05	0	01	126
%	20	21	23	25	06	04	0	01	-
State (No.)	102	96	103	129	40	23	2	05	500
%	20	19	21	26	08	05	00	01	-

Table 62.1: Educational Background of Mothers

Divisions↓ Level of Education→	Illiterate	1 to 5	6 to 8	9 to 10	12 <sup>th</sup>	Degree	Total
Bengaluru (No.)	34	14	17	20	11	04	100
%	34	14	17	20	11	04	-
Mysore (No.)	39	18	22	20	05	01	105
%	37	17	21	19	05	01	-
Belagavi (No.)	38	44	40	38	09	0	169
%	22	26	24	22	05	-	-
Kalburgi (No.)	21	28	23	46	07	01	126
%	17	22	18	37	06	01	-
State (No.)	132	104	102	124	32	06	500
%	26	21	20	25	06	01	-

Source: Primary data.

26 per cent of sample students in the State are first generation learners. 20 per cent fathers and 26 per cent mothers are illiterates. EDUSAT/Tele Education serve rural, remote rural and tribal belts/regions. Hence, incidence of illiterate parents is on the high side in the State sample as a whole. It is highest in Mysore division – 22 per cent fathers and 37 per cent mothers are illiterate – where tribals are there in Chamarajanagara district. Bengaluru division includes Kolar district where SC population is high; it has 34 per cent illiterate mothers. There are a few graduates in the sample – both parents. Among the schooled parents 26% fathers and 25% mothers have studied upto 10<sup>th</sup> standard.

Table 62.2: Average Levels of Education of Parents across Divisions  
[MLE – Minimum Levels of Education]

Levels↓ Divisions→	Bengaluru	Mysore	Belagavi	Kalburgi	State
Fathers	7.6	7.3	6.9	6.7	7.0
Mothers	5.6	5.2	6.1	7.0	6.1
Total	6.6	6.3	6.5	6.9	6.6

Source: Primary data.

Mean Education Level of parents in this sample is 6.6 years. It is lower by one year as compared to the State figure, as this sample is made up of purely rural, remote rural and tribal regions where EDUSAT/Tele Education is in praxis. The mean level is highest in Kalburgi division especially because of relative better educated women/mothers among sample students. Otherwise, highest value of MLA (Mean Level of Education) in the group is in Bengaluru division for fathers. Fathers have high MLE values in all except Kalburgi division.

**7.11.4 Occupational Background of EDUSAT Parents**

Table 62.3: Occupational Background - Fathers

Divisions ↓ Occupations	Agri- culture	Coolie	Construc- tion Worker	Petty Business	Driver/ Conductor	Others	TOTAL
Bengaluru (No.)	32	35	02	07	09	15	100
%	32	35	02	07	09	15	-
Mysore (No.)	44	27	01	11	08	14	10.5
%	42	26	01	10	08	13	-
Belagavi (No.)	40	77	13	12	04	23	169
%	24	46	08	07	02	14	-
Kalburgi (No.)	40	61	02	10	06	07	126
%	32	48	02	08	05	06	-
State (No.)	156	200	18	40	27	59	500
%	31	40	04	08	05	12	-

Source: Primary data.

Table 62.4: Occupational Background - Mothers

Divisions ↓ Occupations →	Agri- culture	Coolie	Home Maker	Maid Servant	Others	TOTAL
Bengaluru (No.)	24	21	26	18	11	100
%	24	21	26	18	11	-
Mysore (No.)	20	19	42	20	04	105
%	19	18	40	19	04	-
Belagavi (No.)	15	64	52	21	17	169
%	09	38	31	12	10	-
Kalburgi (No.)	21	47	50	04	04	126
%	17	37	40	03	03	-
State (No.)	80	151	170	63	36	500
%	16	30	34	13	07	-

Source: Primary data.

Children who are receiving schooling through EDUSAT/ Tele Education, who are from rural, remote rural/tribal regions of the State are from **‘Very Poor’** parental backgrounds. 40 per cent fathers and 30 per cent mother are ‘Coolies’, labourers. Highest proportion of labourers (fathers) are from Belagavi (46%) and Kalburgi (48%) divisions. In-migration for labour from neighbouring States/regions is quite high in Northern Karnataka. 31 per cent fathers and 16 per cent mothers are in agriculture. They will be marginal/micro farmers who also double up as agricultural labourers and engage in MNREGA wage workers. Construction labourers are relatively noticeable in Belagavi division (fathers). 08 per cent fathers are in petty trade/business. 34 per cent mothers are homemakers. 13 per cent mothers are maid servants. Maid servants are more in Southern Karnataka divisions. If there are more Coolies in Northern Karnataka region, there are more maid servants in Southern Karnataka region.

#### **Insights from Socio-economic Background (of Parents) of Students:**

EDUSAT/Tele Education is serving the **poorest of the poor** families in the State. **This programme is rich with values of equity and justice.** The Department needs to upgrade the programme through supply of LED Televisions Video-Conference facilities and issue of handouts of TV lessons.

**Migrants or Locals:** 96 per cent of students (parents) are locals. They may commute for work, but stay at the place where their wards attend school. Rest of them is from other places within the State.

#### **7.11.5 Participation in EDUSAT/Tele Education Programme**

All the students (500 sample) are exposed to EDUSAT/Tele Education programme. [Hereafter, the word EDUSAT is only used. It implies the inclusion of Tele Education, unless/otherwise specified]. 97 per cent students attend Edusat classes without fail.

#### **7.11.6 Usefulness of EDUSAT**

137/500, 27 per cent students, deem the Edusat lessons to be **‘always’ useful**. Another 160 students consider the lessons to be useful **‘Many times’** 32 per cent. 146 students, 29 per cent, opine that the lessons are **‘sometimes’** useful. Students who feel that the lessons are **‘not useful’** constitute 12 per cent of the sample.

Again, 152/500 students, 30 per cent students deem the lessons to be **‘Always’ relevant**. 42 per cent students feel that the lessons are relevant to their syllabus **‘Many**

**times**'. 18 per cent students report that the lessons are '**sometimes**' relevant. 10 per cent students '**do not consider**' the TV lessons to be relevant to their studies.

**Visibility** of lessons is considered to be '**always**' clear by 55 per cent students, '**many a times**' by 24 per cent students and '**sometimes**' by 15 per cent students. 06 per cent students report that there is '**no clarity**' in TV lessons (visibility).

'**Audibility**' of TV lessons is reported to be '**always**' good by 55 per cent students, '**many a times**' good by 27 per cent students and '**sometimes**' good by 12 per cent students. '**Poor**' audibility is reported by 06 per cent students.

'**Simplicity**' in use of language and for comprehension is reported as '**always**' good by 46 per cent students' '**many a times**' good by 34 per cent students, and '**sometimes**' good by 14 per cent students. 06 per cent students find the lessons to be **difficult** in regard to comprehension of language and matter.

It may so happen that if the audio is clear, visual may be defective and vice-versa. 50 per cent students report that both audio-visual effects have clarity **always**'; this is reported to be so '**Many a times**' by 30 per cent students; '**sometimes**' by 14 per cent students; and '**always bad**' by 07 per cent students.

Here is an abstract of Quality of Lessons, presented in terms of percentages of approval and degree of approval by the total sample of 500 students.

**Table No. 63: ABSTRACT of QUALITY of TV Lessons**

Components of Quality ↓ Type of Approval →	Always	Many a Times	Sometimes	No	Total
Relevance	30	42	18	10	100
Simple to Understand	46	32	14	06	100
Audible	55	24	15	06	100
Vision Clarity	55	24	15	06	100
Audio and Video Clarity	50	30	14	06	100
Usefulness	27	32	29	12	100

Source: Primary data.

The lessons are 'not felt to be of good quality' on one or the other parameters by the students. First concern should be about audio-visual clarity. It is 'fully approved' by 50 per cent students. In this context, it is noted that if audio is clear, video is not clear, as reported

by 45 per cent students. In regard to simplicity of presentation (language) and comprehensibility, 46 per cent students are in full approval. 'Relevance' to syllabus is fully approved by 30 per cent students only. 27 per cent students consider the lessons to be always useful.

TV Lessons are rated to be (Relevance) 'very good'/or 'good' by 90 per cent of teachers. Students' perceptions do not match anywhere with that of teachers. Teachers are already knowledgeable about the content of subjects. Their angle of vision is on style of presentation. This is not the case with students. They look out both towards content and presentation. Added to their problems is the quality of TV and quality of broadcasts.

The bottom line is that **Edusat/Tele Education programme needs a thorough and systematic Review from the perspective of end-users of the programme, the students.**

### **Clearing the Doubts**

369/500, 74 per cent students, get doubts about content of the lessons while they sit in EDUSAT Classes. Proportion of students who get doubts during their participation in Edusat lessons across divisions are: Bengaluru (66%); Mysore (70%); Belagavi (76%) and Kalburgi (81%) divisions. 15 per cent gap is there between students of Bengaluru and Kalburgi divisions, who get doubts during the lessons. Lessons need to be customized to individual differences.

18 per cent students get their doubts cleared 'always' by approaching their teachers, 38 per cent students do it 'many a times'. 26 per cent students preferred 'No Response' to this query/concern.

### **Coverage of Syllabus by EDUSAT**

Table 63.1: Coverage of Syllabus by EDUSAT

Divisions	Bengaluru	Mysore	Belagavi	Kalburgi	State
Yes, All subjects	33	44	87	41	205
%	33	42	51	33	41
Yes, Some Subjects	49	50	61	74	234
%	49	48	36	59	47
No, Do not Cover	18	11	21	11	61
%	18	10	12	09	12
Total Students	100	105	169	126	500

Source: Primary data.



41 per cent students in the State give a feedback that the EDUSAT lessons fully and comprehensively cover the syllabus. 47 per cent report that they cover syllabus partially, not the whole range. 12 per cent students do not approve of the lessons in terms of the coverage of their syllabus. Belagavi students are relatively happier about the coverage of syllabus by the lessons. Bengaluru students are least happy. Students' perceptions depend upon students' expectations which in turn depend upon their prior subtle knowledge of the subjects.

### Subject-wise Extent of Coverage of Syllabus – Students Perceptions

A total of 288/500 students, 58 per cent, feel that more than 50 per cent syllabus is covered by EDUSAT lessons. 50 per cent coverage should be considered as a 'satisfactory' proposition, as regular school teachers also transact the subjects (teach) with their students. In so far as Kannada is concerned, 152/500 students, 30 per cent, feel that the lessons cover more than 75 per cent of their syllabus. However, concern is about 22 per cent students who feel that the EDUSAT lessons cover less than 25 per cent of their syllabus. Deficit feedback is uniformly felt across all divisions.

Table 63.2: Subject-wise Coverage of Syllabus in EDUSAT Lessons (State update)

[Number refers to Students] [Coverage in Percentages]

Subjects↓ Percentage Coverage→	76 to 100%	51 to 75%	26 to 50%	< 25%	Total Students
Kannada (No.)	152	136	102	110	500
%	30	27	20	22	-
English (No.)	135	146	128	91	500
%	27	29	26	18	-
Hindi (No.)	143	120	104	133	500
%	29	24	21	26	-
EVS (4 <sup>th</sup> /8 <sup>th</sup> ) Clubbed	131	149	121	99	500
%	26	30	24	20	-
Mathematics	145	148	125	82	500
%	29	30	25	16	-
All Subjects	154	143	120	83	500
%	31	29	24	16	-

Source: Primary data.

31 per cent students report that the EDUSAT lessons cover 76 to 100 per cent of syllabus in almost all subjects. Attention across subjects varies in the report of 'deficits' in coverage, less than 25 per cent coverage, by students. Less than 25 per cent coverage across subjects is reported by proportion/percentage of students as follows: Highest deficit – Hindi (26 per cent students report); Kannada (report by 22 per cent students); EVS (report by 20 per cent students); English (report by 18 per cent students); Mathematics (report by 16 per cent students). Summary of this finding is that deficit in coverage in descending order across subjects is for Hindi, Kannada, EVS, English and Mathematics.

If 50 per cent coverage in EDUSAT lessons across subjects is counted, which is a desirable/tolerable degree, then the coverage across subjects in descending order, as per students' feedback is: Mathematics (59% students > upto 50 per cent coverage of syllabus); Kannada (57% students); EVS and English (56% students) and Hindi (53% students). Overall, across all subjects, students' perception of 50% coverage of syllabus is reported by 60 per cent students. [Note: Overall average figure crosses, individual average figures, as EVS is clubbed].

#### **7.11.7 MESSAGE from this ANALYSIS:**

Students have differentiated perceptions of coverage of syllabus by EDUSAT lessons. Such a perception reflects the deficits in effectiveness of EDUSAT lessons. Concern is to **devise ways and means of maximizing effectiveness** of EDUSAT lessons. Following measures are submitted for consideration:

- (a) Subject Teachers should orient students about the day's EDUSAT lessons before the lessons are broadcast. They will always have the time-table with them.
- (b) Department should provide video-conferencing facility to all schools along with LED TV.
- (c) Ensure full clarity in audio-visual effect during broadcasts,
- (d) Do not wait for TVs to go out of order and attend to repairs. Enter into AMC for maintenance and service of all TVs/all schools. This should be a District level, decentralized arrangement (by the CEO/ZP) through a tendering process and digital payments.
- (e) Teachers should discuss the day's lessons, vis-à-vis the syllabus every day in the evening. That is a minimum of 15 minutes in the morning and 15 minutes in the evening should be earmarked every day or one hour during weekends for **preview** and **Review** of lessons.

- (f) Give monthly assignments (periodical, all subjects) on the lessons/units covered by EDUSAT during the month. Evaluate the assignments (diagnostic evaluation). Supplement through regular teaching, deficits/ confusions in learning. Give training for HTs/teachers in this respect.

### 7.11.8 Quality of EDUSAT Lessons – Students’ Ratings

Table 63.3: Feedback on Quality of EDUSAT Lessons

Divisions→ Quality ↓	Bengaluru	Mysore	Belagavi	Kalburgi	State
Very Good (No)	25	35	55	22	137
%	25	33	33	17	28
Good (No.)	20	28	66	52	166
%	20	27	39	41	33
Average (No.)	40	32	31	44	147
%	40	30	18	35	29
Poor (No.)	15	10	17	08	50
%	15	10	10	06	10
Total Students	100	105	169	126	500

Source: Primary data.

61 per cent students rate the overall quality of lessons to be ‘Very Good’ (28%) and ‘good’ (33%). 29 per cent students grant ‘average’ rating. For 10 per cent students quality is ‘poor’. Across the divisions rating of very good/good quality is from 72%, 60%, 58% and 45% students respectively from Belagavi, Mysore, Kalburgi and Bengaluru divisions.

### **7.11.9 Contribution of EDUSAT Lessons to Performance in Examination - Feedback from Students**

166/500 students, 33 per cent, consider that the lessons have contributed ‘Very much’ to their performance in examinations. 231/500 students, 46 per cent give a ‘OK’ feedback for this query. Rest of the 21 per cent students do not give any credit to the lessons for their performance in examinations. In fact, this data refers to students’ feelings/perceptions. It is not possible to attribute performance in examination to any single or a contribution of factors. Feelings are feelings. Logic cannot explain, justify feelings. They need to be considered on face value. They also matter.

### **KSWAN Facility and Internet Connectivity:**

Centre for e-governance maintains KSWAN facility (Karnataka State-Wide Area Network). 104/500 students, 21 per cent report that they have this facility for their schools. However, 269/500 students, 54 per cent, report that they have internet facility, may be wi-fi or blue tooth. They will be useful for on-line classes. Availability of wi-fi (12% only) and Bluetooth (43%) facility is quite poor in Kalburgi division. As expected, it is better/good in Bengaluru division.

### **Medium of Instruction of EDUSAT Lessons**

380/500, 76 per cent students, get lessons in Kannada Medium; 87/500, 17 per cent, get it in both languages; 04 per cent get it in English medium and 03 per cent in other Indian languages.

### **SAMVEDA Classes**

Over 30 per cent students are aware of SAMVEDA classes and visit them.

### **Edusat Lessons in Cases of Power Failure**

391/500 students, 78 per cent, watch repeat telecasts. 22 per cent have no choices than to miss the classes. Those who miss lessons confer with friends to learn the lessons (22 per cent).

### **Worksheets Completion**

440/500, 88 per cent students, get activity/work sheets from their teachers after the classes and complete them.

### **7.11.10 Summative Observations of EDUSAT/ Tele Education – Students Feedback**

- ❖ There are 500 students from 4<sup>th</sup> to 8<sup>th</sup> standards of whom 57 per cent are girls.
- ❖ Going by the socio-economic background of the sample (500) students, it is revealed that:  
EDUSAT/Tele Education is serving the **poorest of the poor** families in the State. **It is rich with values of equity and justice.** The Department needs to upgrade the programme through supply of LED Televisions, Video-Conference facilities and issue of handouts of TV lessons.
- ❖ 97 per cent students attend EDUSAT (every time EDUSAT word is used, it included Tele Education also), classes without fail. EDUSAT is in 25 schools of 05 districts

and Tele Education is in 25 schools of 18 districts > Covid-19 times initiative, (sample here).

- ❖ Less than 30 per cent students report that the EDUSAT lessons are **‘always’ useful and relevant.**

55 per cent students report that the lessons are **‘always’ audible** and has clarity in **video.**

46 per cent students are **satisfied** with language of presentation of lessons (easy to comprehend).

- ❖ It may so happen that if the audio is clear, visual may be defective and vice-versa. 50 per cent students report that both audio-visual effects have clarity **always’**; this is reported to be so **‘Many a times’** by 30 per cent students; **‘sometimes’** by 14 per cent students; and **‘always bad’** by 07 per cent students.
- ❖ 30 per cent students report that the EDUSAT lessons cover over 75 per cent of syllabus. 50 per cent coverage, which should be considered as good (as teachers also teach) is reported by over 55 per cent students.
- ❖ Corrective actions for maximizing effectiveness of EDUSAT programme is outlined under section 1.7 (here).

**EDUSAT needs a Review from  
STUDENTS’ Perspective and Feedback**

## **7.12 PU COLLEGES: INFRASTRUCTURE FACILITIES AND LEARNING PROCESSES**

**7.12.1 Scope of Review:** The scope of review of implementation of TALP in PU Colleges is limited as compared to that of high schools as the TALP at PU Colleges is on a very much lower scale. Laptops are not given to students in any college. They are given only to colleges for use by Lecturers. Department/DSERT driven computer laboratory will not be there.

Pre-loaded laptops, laptops loaded with PU syllabi lessons, were given in 2017-18 for 250 PU Colleges while another 500 PU Colleges were given laptops in 2019-20. A total of 750 colleges were given preloaded laptops during the 5 year period 2016-19 to 2020-21, from among 1231 total government PU colleges in the State, which constitutes 61 per cent coverage.

Lessons in Physics, Chemistry, Biology, Mathematics, Economics, Accountancy and Business Studies are loaded in the laptops. Languages are not covered. Preloaded laptops do not need internet facility. On an average, 3.34 lakh students studied in 1231 colleges. None of them has government created opportunity to learn through computers. All 750 colleges are given laptops and projectors for use by Lecturers. SMART Boards are not given to any college. Purely Arts/Commerce colleges are not covered. A total of 3779 lecturers are given Induction Training in Basic Skills of 10 days duration through the DIETs during 2017-18 and 2018-19. There is wide inter-district variation in coverage of colleges/lecturers under the Induction/Level I training programme. 150 out of 750 PU Colleges/TALP umbrella, constitute sample of this study.

### **7.12.2 Profile of Sample Colleges/Principals**

Principles of PU Colleges are the respondents for Tool 8 on Infrastructure Facilities, accountability and other details.

92 per cent Principals of the study are elderly, crossed 50 years of age. 85 per cent among them are males. 75 per cent of 150 colleges/principals are experienced, have 21 to 30 years of work experience. Experienced principals are on the higher side in Bengaluru and Mysore divisions (82 and 85 per cent) while they are on the lower side in Belagavi and Kalburgi divisions (66 and 63 per cent). 68 per cent Principals of this study/sample have 5 and <5 years of experience as Principals.

There are hardly 2 PU Colleges out of a total of 150 sample colleges which were established before independence. 47 per cent were established before NEP 1986 and 75 per

cent overall before 2000 AD. Rest of them with one exception, were established between 2000 AD and 2010 AD, the year of launching the RMSA. Older the college, higher the chances of ethos and traditions in the college. 81 per cent colleges are co-educational. 54 per cent colleges are located in/near Taluk headquarters. Only 13 per cent colleges are at District headquarters. All colleges are well connected by public bus facility. 89 per cent PU colleges are STAND ALONE institutions, carrying only 11<sup>th</sup> and 12<sup>th</sup> standards. If they were attached to degree colleges, as is the case with quite a number of private unaided colleges, faculty quality would have been better. But the national policy is to detach all existing PU stage with high schools or comprehensive 1 to 12 institutions. Only 07 per cent colleges are comprehensive, 1 to 12 institutions. Comprehensive 1 to 12 stage of school education (K12) is the norm in all advanced countries of the world.

### **7.12.3 Physical Infrastructure Facilities:**

There is only one out of 150 sample colleges which is run in a rented building (Bengaluru division). All others have own building. 52 per cent colleges (150 sample) are run in one building, easier to manage. 68 per cent colleges are of medium (10 per cent, 3 to 5 sections) and large (58 per cent, 6 and > sections) size while 32 per cent are small size (one to three sections).

77 per cent colleges (sample 150) have 9 and more than 9 rooms. Out of them 57 per cent have 13 and > 13 rooms. Across 150 colleges there are 1763 rooms. Out of them 1361 rooms are used only for classroom teaching, 78 per cent rooms. On an average 09 out of 12 rooms are used for teaching purposes.

132 out of 150 colleges, 88 per cent, have Principals' rooms. 86 per cent colleges, 129 out of 150, have Staff rooms. Only 44 colleges, 29 per cent have a LADIES room, even while 81 per cent colleges are co-educational and 23 per cent lecturers are women.

50 per cent colleges have an all-round compound (wall), while another 22 per cent are partially covered. Safety of moveable assets will be a concern in 50 per cent colleges.

02 toilets for boys and 03 toilets for girls is the norm across colleges. In addition to boys/girls toilets, 24 per cent colleges have common toilets, a single toilet structure with partition, in between. Staff toilets, common for men/women with a partition is the norm while 80 per cent colleges have a separate ladies toilet. Running water/piped water facility for toilets is there in 81 per cent of colleges.

Only 58 per cent colleges have ramps for CWSN students. Among them, 25 per cent have railings for ramps and 40 per cent have landing space for the ramps.

#### **7.12.4 Summary Observations on Physical Infrastructure Facilities**

PU Colleges in the sample have satisfactory facilities for classroom teaching, but they are short on Principal/staff/ladies rooms and toilet facilities. CWSN friendly infrastructure needs improvement.

#### **7.12.5 Academic Infrastructure Facilities:**

84 per cent colleges maintain a science laboratory. Such maintenance is 82, 83, 86 and 87 per cent respectively across the 04 divisions viz., Bengaluru, Mysore, Belagavi and Kalburgi.

39 per cent PU Colleges maintain a Computer Laboratory. Computer laboratory is not a contribution of TALP. Such maintenance is 48, 44, 33 and 29 per cent respectively across the 04 divisions viz.; Mysore, Bengaluru, Kalburgi and Belagavi.

48 per cent colleges maintain a library (not CD library). Such maintenance is 53 per cent in Bengaluru and Mysore, 50 per cent incidence in Kalburgi and only 34 per cent in Belagavi division.

Position in regard to maintenance of a Reading Room (for reading newspapers, magazines) is of very low incidence; just 16 per cent Colleges in the State. Even in this low incidence, Mysore and Kalburgi are in a better position (20 per cent colleges).

07 per cent colleges have seminar rooms while 13 per cent colleges have auditoriums (auditoria).

#### **7.12.6 TALP Friendly Feats in PU Colleges**

47 per cent PU Colleges report that their faculties have developed e-lessons. The incidence of this achievement is: 53, 46, 44 and 43 per cent respectively, across Mysore, Belagavi, Bengaluru and Kalburgi. Among these 47 per cent colleges where faculty have developed e-lessons, colleges report that majority (51 per cent) have done it (developed e-lessons) as a joint exercise with their colleagues. In 41 per cent colleges, individual lecturers have done it. In 07 per cent colleges, support of students has been enlisted. It is noted that development of e-lessons, a good initiative depends on several variables such as Computer Skills, wi-fi connectivity, goodwill and cooperative attitude, college ambience, availability of a computer lab. These variables function in unison. Colleges are short on all these variables.



31 per cent colleges are self-confident about the quality of e-lessons that they have developed (count among 47 per cent colleges). They have shared the e-lessons with their district DIETs for purposes of sharing the lessons with other colleges. Incidence of such sharing is relatively better in Bengaluru and Mysore divisions.

33 per cent colleges extend their working hours by a couple of hours, either in the morning or evening or both times so as to accommodate the use of Laptops for teaching school subjects (TALP assisted facilitation). Such facilitation is there in comparable degree (more than 37 per cent) in all divisions except in Bengaluru division (in only 18 per cent Colleges).

### **7.12.7 Summative Observations on PU Colleges**

Scope for assessment/review of PU Colleges is limited just as implementation of TALP is confined only to distribution of a pre-loaded laptop to 750 out of 1231 PU colleges in the State, 61 per cent coverage, during 2017-18 to 2020-21. Review covers 150 sample colleges as per ToR.

Principals of TALP/PU Colleges are elderly, experienced and work in well established (75 per cent, more than 20 years) institutions. Physical infrastructure in TALP covered PU Colleges (sample colleges) is of uneven incidence. Most of the colleges are Stand Alone (11 and 12 standards only) institutions. All of them (only one exception in Bengaluru division) function in own buildings. There are adequate classrooms even while there are shortages in regard to rooms for Principals, women faculty (Ladies Room) and Staff; for toilets and CWSN facilities.

CL, Science Laboratory, Library, Reading Room are in 39, 84, 48 and 16 per cent colleges respectively. Position all through is relatively better in Mysore and Bengaluru divisions while colleges in Kalburgi lag behind.

In spite of all these limitations, faculty have developed (51 per cent colleges) e-lessons as a collaborative effort among themselves and shared the lessons with DIETs.

**Final Word:** The impression from this review is that PU Colleges are doing well in regard to TALP programme, given the limited, highly limited implementation of TALP and moderate infrastructure facilities. They need intensive fillip and care

## 7.13 IMPLEMENTATION OF TALP PROJECT

150 PU colleges are chosen as sample for this study out of a total of 750 colleges where TALP is implemented in the State, 61 per cent of total PU Colleges. Implementation process/details from 150 colleges are analyzed. Findings and discussion follow:

### **7.13.1 Staff Strength**

Majority of the 150 PU colleges, 57 per cent, are of medium size with 6 to 10 lecturers, while 25 per cent are high medium in size of staff strength, 11 to 15 lecturers. 08 per cent are small 5 and < 5 lecturers while 10 per cent are large, 16 and more lecturers. There is a total of 1710 lecturers across various subjects in these 150 PU Colleges, wherein 1137 lecturers are male and 573 are female, the ratio being 2 : 1, 66 per cent to 34 per cent. 10 out of 150 colleges have no female teachers.

### **7.13.2 TALP Training**

All subject teachers are not trained in all PU colleges. There is an uneven spread of TALP trained teachers. Training coverage, that is TALP trained teachers, vary across subjects in the 150 colleges.

Table 64: TALP Trained Lecturers in 150 Colleges

Subjects	Zero	One	More than One	Total
Physics	37	98	15	150
%	25	65	10	-
Chemistry	28	105	17	150
%	19	70	11	-
Biology	50	88	12	150
%	33	59	08	-
Mathematics	43	97	10	150
%	29	65	06	-
English	53	73	24	150
%	35	49	16	-
Economics	65	66	19	150
%	43	44	14	-
Accountancy	111	36	03	150
%	74	24	02	-
Business Studies	108	40	02	150
%	72	26	02	-
Others	140	04	06	150
%	93	03	04	-

Source: Primary data

Zero percentage teachers/lecturers in 150 colleges in descending order of their proportion across subjects is as follows: Others [Languages, Arts] – 93; Accountancy – 74; Business Studies – 72; Economics 74; English – 35; Biology – 33; Mathematics – 29; Physics – 25; Chemistry – 19. [Note: All figures are percentages].

It is possible that some of the colleges are ‘Science’ only colleges, while rest of them in this bunch (150 colleges) are ‘Commerce’ only colleges. There may also be ‘Science and Commerce’ as well as ‘Science/Arts/Commerce’ colleges. Individual category count is not available. Hence, generalizations made herein need to be considered with reservations.

Mathematics/Science subjects are accorded priority in Induction Training. This is as expected as they lead to prime professional courses like Medicine and Engineering.

Given by data on at least one lecturer given training in Colleges, significant subjects are Chemistry (70 per cent colleges), Physics and Mathematics (65 per cent), Biology (59 per cent colleges), other subjects have at least one lecturer in less than 50 per cent colleges, lowest coverage being Accountancy (24 per cent colleges). Position in regard to TALP trained English lecturers is also notable (65 per cent colleges – 49 +16 per cent).

Table 64.1: Status in regard to organization of Computer Education in PU Colleges

Divisions	Bengaluru	Mysore	Belagavi	Kalburgi	State
<b>Theory Classes</b>					
Zero Periods	32	32	32	22	118
%	71	80	91	73	79
Up to 03 periods	07	03	01	04	15
%	-	-	-	-	10
> 3 periods	06	05	02	04	17
%	-	-	-	-	11
Total Colleges	45	40	35	30	150
<b>Practical Classes</b>					
Zero periods	35	32	32	23	122
%	78	80	91	77	81
Upto 03 periods	07	04	02	04	17
%	-	-	-	-	11
> 3 periods	03	04	01	03	11
%	-	-	-	-	08

Source: Primary data

79 per cent colleges in the State have not earmarked any periods for Computer Education/TALP theory classes in college subjects, in the time table. 21 per cent colleges have indicated TALP/Computer Education theory classes in the time table. In 79 per cent colleges, it is left to the discretion/choice of Lecturers to use pre-loaded laptops in the classes. Proportion of colleges who have **not indicated** Computer Education/TALP theory periods in time-table, across the 4 divisions are: 91 per cent – Belagavi division, 80 per cent – Mysore division, 73 per cent – Kalburgi division and 71 per cent – Bengaluru division.

17 per cent colleges have earmarked at least 03 theory periods for Computer Education/TALP theory classes and another 11 per cent colleges have earmarked more than 03 theory periods for TALP Laptop mediated classes.

Theory period means, the subject teacher will transact the lessons/units in the class using pre-loaded laptops and screening the lessons/pictures/photos/graphs/drawings/specimens/ slides/.... on the projector/screen.

**Practical Classes:** There are zero periods for Practical Classes in 81 per cent colleges; Computer Laboratory (it is recalled that 33 per cent colleges have a computer laboratory). From among rest of the 19 per cent colleges, 11 per cent colleges give access for at least 03 periods/3 days in a week while 08 per cent colleges allow this access for more than 03 periods in a week.

**Bottom line, as per time allocation for TALP/CE classes in the PU College, is that TALP is not implemented either adequately or systematically. There is no SoP (Standard Operating Procedure) in this respect.**

Morning time classes/periods are preferred for TALP classes by 23 out of 33 PU Colleges who organize Theory Classes – Total 150 Colleges. 31 out of 150 colleges organize TALP/CE practical classes in the afternoon. In case of practical classes - 27 out of 31 colleges organize TALP/CE practical classes in the afternoon.

There is no response from 01 college for Theory classes organization and from 03 colleges for Practical Classes organization.

In the 150 PU Colleges, sample of this study, there are four types of lecturers who teach/transact PU syllabus in various subjects: (i) Lecturers who had received Level I Induction Training and TALP; (ii) Lecturers who are self-trained and use Laptops for teaching; (iii) Guest lecturers hired on Contract basis by colleges to teach using laptops/TALP; (iv) Lecturers who are not trained and teach through traditional methods

without using laptop. In the 4<sup>th</sup> type of colleges lecturers using laptops – may be (i), (ii), (iii) categories and others who do not use – both types are there – laptop mediated and traditional.

Table 64.2: Practice of using Pre-Loaded Laptops for Teaching-Learning/TALP, by number of Colleges

Divisions	Bengaluru	Mysore	Belagavi	Kalburgi	State
Level I trained only	10	11	02	05	28
%	22	28	06	17	19
Self-Trained only	04	04	02	03	13
% age	09	10	06	10	09
Guest Teachers (Contract)	05	03	01	02	11
% age	11	08	03	07	07
Both Trained and Traditional	26	22	30	20	98
% Both	58	55	86	67	65
No. of Colleges	45	40	35	30	150

Source: Primary data.

[Note: Figures denote number of Colleges]

In 65 per cent colleges in the State both TALP trained lecturers who use preloaded Laptops for teaching their subjects and other untrained lecturers who adopt traditional methods for teaching are there. There are 86, 67, 58 and 55 per cent colleges in this category across Belagavi, Kalburgi, Bengaluru and Mysore divisions.

In 19 per cent colleges all lecturers have received Level I training and use pre-loaded laptops for teaching. This proportion is highest at 28 per cent in Mysore division [size of PU college/strength/staff strength is a variable]. This type is lowest in Belagavi division at 06 per cent of total 35 sample colleges.

Self-trained lecturers (may also be trained by Level I trained lecturers as a part of Sensitization Plan) use Laptops in 09 per cent colleges. 07 per cent colleges use guest lecturers with technical knowhow to use laptops.

**Bottom line is that TALP implementation is partial and unsystematic in PU Colleges in regard to provision of infrastructure facilities, integration of syllabus, training of lecturers and other services. Both traditional and technology assisted programmes are in vogue.**

### **7.13.3 Maintenance of Computer Laboratory**

It is recalled that 59/150 colleges, 39 per cent, have maintained a computer laboratory even without TALP support.

For a query whether they maintain a computer laboratory Contingency Register, 03 out of 150 colleges have said 'Yes', 01 college has said 'No' and 146 schools have preferred silence. These 04 colleges report that they get contingency fund from the Department for computer lab maintenance. Department does not admit it. Perhaps the colleges may imply the overall contingency they receive for the college which they may use even for computer lab maintenance. These 04 colleges also maintain an Asset Management Register.

### **7.13.4 Items of Expenditure and Total Expenditure, incurred across 59 Colleges for computer laboratory and Computer Education**

This information from colleges would be useful for the Directorate of PU Education/PU Board to estimate the level of expenditure needed to fully and systematically implement TALP in all PU Colleges. Heads of account in computer laboratory/CE expenditures are of significance rather than the actual figures which the latter are also of use in estimations and planning. This amount is presented as **average per year, per college** in rupees unit.

Table 64.3: Estimation of Expenditure on items of Computer Laboratory

Items of Expenditure	Main-tenance	UPS Servicing	B & W Cartridges	Data Cards	Computer Sheets	Colour Cartridge	Others	Total
Amount in Rs.	1263	946	914	886	851	323	1086	6269
In %	20	15	15	14	14	05	17	-

Expenditure per college per year is not much. This is maintenance expenditure as there will not be many computers and computer lab is not full-fledged, unlike the high schools where TALP coverage of programme is relatively more extensive, though not fully adequate. This is an expenditure, Rs.6,269/- per year, per college in a low equilibrium state. There are other expenditures for monthly telephone bills and wi-fi connectivity. Received data are suspect. Hence, it is not analyzed. Department can officially collect reliable data before estimating and engaging in an INTEGRATED PLAN for full and comprehensive coverage of colleges under the TALP umbrella.

Data on expenditures on Computer laboratory/Computer Education is difficult to obtain from PU Colleges as hardly 12 out of 59 colleges with computer lab (150 with CE) maintain a lab log book. It is also noted that 27 each of 59 colleges make maintenance payments through cheque and cash, while 05 pay through PayTM. When TALP will be implemented comprehensively at a future date, the Department can formulate SoP, Standard Operating Procedures where these concerns can be systematized.

Only 09 colleges record usage time of computer laboratory/laptops – uptime and down-time. 03 colleges report that they do not do it and 138 colleges prefer silence.

**7.13.5. Disposal of e-waste:** 119 out of 150 colleges have given ‘No Response’, to this query. Among the rest of the 31 colleges, methods of disposal of e-waste are: give it to garbage collectors (16 colleges), give it to e-waste collectors (07), landfill (05), reuse/recycle (02) and incineration (01). There is no systematized practice. 11 out of 31 colleges dispose e-waste once in a month, 10 colleges do it once a year, 05 do it once in six months and 05 do it once in 03 months. SoP in future can give clear guidelines. Almost all the colleges (30 out of 31 colleges), have maintained their own SoP registers, (not issued by the Department).

One of the following persons makes entries in the SoP register: Principal (12 colleges), Lecturers (14 colleges), Students with Lecturers (03) and IT Mentor (01 college).

#### **7.13.6. Problems in Maintenance of Computer Laboratory**

55 out of 59 PU colleges, who have a Computer laboratory, report that they face problems of maintenance of computer laboratory. 52 colleges specify that the problems are related to systems/accessories going out of order. 35 colleges get the repairs done within a week. A few of them, 12 colleges, take a month or more than that to get the repairs done. For 27/59 colleges, technician who repairs computers is nearby. 12 colleges need to travel to taluk HQ and 19 colleges need to go to district HQ for repairs. Only 15 colleges, out of 59 with computer laboratory, have entered into an AMC. AMC attendance/service is fast. Many a times, 44 colleges summon a technician to the college for repairs. Some of them go to service centre. There is no uniform practice in attending to maintenance problems.

#### **7.13.7. Adoption of MIS**

Digitized governance (of college) administration is promoted by the Government. PU Colleges are also expected to adopt this practice, known as MIS, Monitoring Information System. An update of adoption of MIS is presented below.

Table 64.4: Adoption of MIS in PU Colleges

MIS for	Circulars of Government	Stock Register	Profile of Teachers	Admission Register	
	47	35	30	36	
% adoption	31	23	20	24	
(Continued)	Marks Register	College Calendar of Events	Student Data Previous Years	TC Register	
	30	33	54	29	
% adoption	20	22	36	19	
(Continued)	Student Attendance	Teacher Attendance	SES Data	Science Lab. Equipment	
	27	26	27	29	
% adoption	18	17	18	19	
(Continued)	List of Maps	List of CDs	Assets Register	CL Stock Register	
	14	10	12	13	
% adoption	09	07	08	09	
(Continued)	Literary/Cultural/Sports details	Prize List of Winners	Visit Register	PTA Meeting	Others
	29	26	22	08	24
% adoption	19	17	15	05	16

Note: Percentage out of 150 Colleges.

Adoption of MIS in Colleges is of limited incidence and there is no uniformity across colleges in adoption of concerns of governance.

31 per cent colleges file Circulars of Government in digital mode; admission data of students (24 per cent colleges), student attendance data/register (18 per cent), teacher attendance data/register (17 per cent), students' marks register (20 per cent), students' SES data (18 per cent), alumni data (36 per cent), profile of teachers qualifications, date of joining college, seminars attended etc., (20 per cent), TC Register (19 per cent), college calendar of events (22 per cent), Assets register (12 per cent), science laboratory equipments register (19 per cent), computer laboratory assets register (13 per cent), list of prize winners (17 per cent), visit register (15 per cent), Minutes of PTA meetings (05 per cent), miscellaneous items register (16 per cent), are other items included under digital governance. There is no system for promotion of MIS across Colleges in the Department of PU Education. Maximum adoption is for Government circulars in 31 per cent colleges.



Only 14 colleges maintain a display of MIS files on computer dash board, for easy reference and use.

### **7.13.8. Student Friendly Use of Computers:**

55 out of 59 colleges which have computer laboratory use computers for student-friendly purposes. However, analysis of data in this context will be made for 150 colleges.

Table 64.5: Storing and sharing Question Papers of Previous Years

Division	Bengaluru	Mysore	Belagavi	Kalburgi	State
Store and Share	13	18	13	11	55
Total Colleges	45	40	35	30	150
% Helping	29	45	37	37	37

Source: Primary data.

37 per cent colleges store question papers of previous years on the computers and share them with students. This percentage as a count from 59 colleges which have computer lab, better exposure to technical skills, will be 93 per cent. Proportion of colleges who help students among total colleges across the divisions are: 45, 37, 37 and 29 per cent across Mysore, Belagavi, Kalburgi and Bengaluru divisions.

### **7.13.9. Storage and Retrieval of Marks obtained by Students in Examinations**

Colleges can store and retrieve marks obtained by students in mid-term/annual examinations, print them and share it with students as well as engage in analysis of performance of students in various subjects and across various standards.

Table 64.6: Storage and Retrieval of Marks of Students

Division	Bengaluru	Mysore	Belagavi	Kalburgi	State
Student-wise	30	20	23	22	95
%	67	50	66	73	63
Standard-wise	29	20	22	19	90
%	64	50	63	63	60
Subject-wise	28	22	22	21	93
%	62	55	63	70	62
No. of Colleges	45	40	35	30	150

Source: Primary data.

Over 60 per cent of colleges in the State engage in digital treatment of marks obtained by students in examinations. Performance of Kalburgi division colleges is relatively better in all respects as compared to the other 3 divisions, closely followed by Bengaluru and Belagavi divisions. It can be inferred that if given resources and technical knowhow, PU colleges will do good and systematic student friendly exercises.

#### **7.13.10 Graphic Analysis of Student Performance:**

Even while colleges store the marks, only a mini sub-set of colleges engage in a graphic analysis of performance of students. Many colleges used to do it manually for a long time. Computers and computer skills will make this job easier. Here is the data on number of colleges who do graphic analysis of student performance using computers.

28 colleges (62 per cent), 21 colleges (53 per cent), 23 colleges (77 per cent) and 16 colleges (53 per cent), engage respectively in subject-wise, sex-wise, social category-wise and Student DISE code-wise analysis of students examination marks.

#### **7.13.11 Summative Observations on Implementation of TALP in PU Colleges**

Majority of PU colleges (total 150 in the sample) are of medium size. All subject teachers in sample colleges have not received Level I TALP Induction Training. Proportion of trained teachers varies across subjects. PCMB subjects are given relatively greater preference in training exercises.

Going by the attention given to theory (Computer Education/Laptop mediated classroom teaching) and practical classes (Students' practical in Computer Education in 59/150 colleges which have set up computer laboratory on their own), in college time table, it is inferred that **TALP is not implemented either adequately or systematically**. There is no SoP also in this regard.

Morning classes are preferred in colleges for Laptop mediated teaching, while practical classes are in the afternoon.

Both TALP trained and self-trained lecturers use TALP mediated teaching from among 28 per cent colleges who **use Laptops for teaching**.

39 per cent colleges have maintained a computer laboratory even without TALP/ Departmental support. Hardly a few colleges get contingency grant/or use general contingency fund for running computer lab.

Estimation of computer laboratory maintenance expenditures and planning a budget for the same in future would be essential after collecting **reliable** data by the Department from the colleges.

Computer usage time is not maintained by the large number of colleges.

There is no systematized practice of disposal of e-waste.

Colleges face problems of maintenance of Computers/Computer Laboratory. They are able to attend to them in a satisfactory way.

MIS for digital governance is followed only by around 17 to 20 per cent of colleges, in key areas like attendance of students/teachers, admission/TC register, co-curricular activities data. Only a few of them display MIS data on dashboard. There is no system anywhere.

Almost all colleges store and retrieve marks obtained by students in examinations on the 'systems'. Over 60 per cent colleges do a graphic analysis of various dimensions of students' performance. Only 37 per cent colleges store and share question papers of previous years with students.

**Bottom Line:** Department support for TALP implementation in PU Colleges is highly limited. Colleges are not adequately enabled to use the resources which are currently provided. A great degree of planning, resource support, technical support and finance is needed for systematic and comprehensive implementation of TALP in PU Colleges.

## **7.14 LECTURERS : FINDINGS AND DISCUSSION**

**7.14.1 Pre-review:** The PU Board and Directorate of PU Education implement TALP in PU Colleges with support from DSERT, for 11<sup>th</sup> and 12<sup>th</sup> standards. Lecturers/IT coordinators (among them) are given Level 1/2/3 training for the purpose.

Induction Training, Level I, of 10 days duration has been given to 3779 lecturers of various subjects, working in 750 out of 1231 colleges in State, where TALP has been implemented (61 per cent of total PU Colleges), during the years 2016-17 to 2020-21. This is a basic/foundation course for computer mediated classroom teaching – learning transactions. At the rate of one lecturer per college spread across different subjects in science and commerce streams, 750 lecturers constitute the sample of this study. The DSERT has given one laptop and one projector for each of the TALP covered 750 colleges.

Feedback from Lecturers on implementation of TALP is taken. Findings and discussions follow.

### **7.14.2 Profile of Lecturers:**

There is an even spread of lecturers across all ages. 43 per cent have crossed 50 years of age. 18 per cent are relatively young, in 30 to 39 years age range. Those who have crossed 50 years are relatively more in Kalburgi division.

Female teachers constitute 37 per cent of the sample. Their proportion as compared to State average is relatively higher in Mysore (45 per cent) and Bengaluru (39 per cent) divisions while their share is 31 per cent and 29 per cent respectively in Kalburgi and Belagavi divisions.

**Medium of Instruction:** 600 out of 750 teachers, 80 per cent, teach in English Medium, while 08 per cent teach in both Kannada and English media. Only 12 per cent teach in Kannada medium. Going by the sample of the study, it is surmised that the Department/DSERT has preference for English Medium Lecturers in giving Level I, Induction Training under the TALP programme.

**Type of College:** 73 per cent colleges are co-educational in type. 19 per cent are purely Girls colleges while the rest 08 per cent are Boys colleges. Relative incidence of Boys, Girls and Co-educational colleges is more in Mysore, Kalburgi and Belagavi divisions. There are 39 per cent Girls colleges in Kalburgi division where the 150 out of 750 lecturers teach.

**Table 65: Qualifications of PU Lecturers**

Qualification	M A	M.Sc.	M.Com	B.Ed.	M.Phil.	Ph.D.	Total
Number	228	479	43	524	64	30	750
%	30	64	06	70	09	04	

Source: Primary data.

64 per cent lecturers have reported M.Sc., degree. M.Sc. may be in any of the science subjects or Mathematics. 30 per cent lecturers have an M.A. degree. It is possible that some of these lecturers have acquired an MA degree by correspondence after B.Sc. degree. This is not clear. 06 per cent have M.Com degree. They teach Commerce, Business Studies or Economics.

NCTE/GoI expects teachers who teach at plus 2 stage to possess a B.Ed. degree, a training qualification. 70 per cent teachers have a B.Ed. degree. 10 per cent teachers have also M.Ed. degree from among these 70 per cent trained teachers. Others who do not have B.Ed. may be old timers.

13 per cent have research degrees of whom 09 per cent are M.Phil and 04 per cent are Ph.Ds.

Most of the teachers are well qualified to teach at 11<sup>th</sup> to 12<sup>th</sup> standards. **There is an explicit preference for trained teachers and Science stream (includes Mathematics) teachers for TALP implementation, by the DIETs.**

Table 65.1: Experience in the Present College of Lecturers

Experience	Bengaluru	Mysore	Belagavi	Kalburgi	State
10 and < 10	162	128	110	102	502
%	72	64	63	68	67
11 to 20	57	70	59	48	234
%	25	35	34	32	31
21 and >	06	02	06	Zero	14
%	-	-	-	-	02
Total	225	200	175	150	750

Source: Primary Data

Majority of teachers, 67 per cent, are having 10 and <10 years of experience in this college. 31 per cent are working in this college for more than 10 years. As such teachers have adequate experience in the present/TALP Colleges. [Note: Among 67 per cent teachers

in 10 and <10 years of experience in this college, 40 per cent have 6 and > 6 years of experience].

**DIETs have chosen experienced teachers for Induction, Level I training under TALP.**

#### **7.14.3 TRAINING: Level I:**

652 out of 750 lecturers, report that they received Level I training in Computer Education, 87 per cent, in the context of NCERT syllabus/revised curriculum, NCF 2010 in State. Further, 677/750 teachers, 90 per cent received only Level I training. Others received advanced Level II training also.

For 670 out of 750 teachers, 89 per cent, training was of 10 days duration. 07 per cent received training for <10 days while the rest received it for > 10 days.

420 (56 per cent), 195 (26 per cent) and 135 (18 per cent) teachers received training of >10, 10 and < 10 modules respectively. Training for 82 per cent teachers is more than adequate/as per norms.

617 (82 per cent), 90 (12 per cent) and 43 (06 per cent) teachers report that they received adequate, > adequate and < adequate training respectively. Content of training is reported to be adequate.

#### **Quality of Training – A Feedback**

Table 65.2: Relevance of Training in regard to syllabus

Relevance → ↓Divisions	Highly Relevant	Relevant	To Some Extent	Not Relevant	Total
Bengaluru	14	144	60	07	225
%	06	64	27	03	-
Mysore	06	144	45	05	200
%	03	72	23	02	-
Belagavi	05	117	52	01	175
%	03	67	30	-	-
Kalburgi	12	104	31	03	150
%	08	69	21	02	-
State	37	509	188	16	750
%	05	68	25	02	-

Source: Primary data.

There is more than moderate opinion among lecturers about the relevance of Level I training for their teaching-learning transactions; it is observed that 68 per cent of lecturers report that the training was 'Relevant'. This proportion is highest at 72 per cent in Mysore division.

05 per cent teachers in the State have given exceptionally relevant (good) rating to the Level I training. The proportion is relatively high in Kalburgi division. Lecturers teach variety of subjects. Perhaps, training is relatively more relevant to Science/ Mathematics/ English Lecturers than Commerce subject lecturers. Extended analysis by DIETs can be revealing.

For 25 per cent lecturers, the Induction training is relevant 'to some extent'. Negative opinion is almost nil.

**In sum, Level I Induction Training is well received by the Lecturers.**

#### **7.14.4 Student Learning Facilitation Potential of Induction Training**

**Table 65.3: Facilitation Potential of Induction Training**

Divisions	Bengaluru	Mysore	Belagavi	Kalburgi	State
Yes, response	208	188	170	139	705
%	92	94	97	93	94
Total Lecturers	225	200	175	150	750

Source: Primary data.

Golden test of the skills/competencies developed during a training programme will be when they are used on the ground, put into action, used during teaching-learning transactions. 94 per cent lecturers give a feedback that the Level I Induction training has been useful for their teaching-learning transactions.

This report needs to be received with a pinch of salt as only 28 per cent lecturers are reported to be using Level I TALP training in the classrooms. Other lecturers who had no training teach through traditional methods.

**Bottom line is that TALP training has been fully effective as reported by almost all trained teachers for Classroom teaching-learning transactions, even while coverage of lecturers across 150 colleges is not full/complete.**

**7.14.5 Savings on Time and Effort of Lecturers in use of Pre-Loaded Laptops for Classroom Teaching [Complement to Regular Teaching]**

Whole syllabus is not covered under TALP within pre-loaded cassettes. This was revealed during Workshop analysis of e-content, reported already under section on Secondary Analysis of Data. Pre-loaded laptops are a complement to regular teaching-learning of subjects in colleges. [See Workshop Report – Tables 8.3 and 8.6, pp.124 and 127, Integration of Syllabus, in the draft report. Only 54 per cent of syllabus is covered].

Does the use of pre-loaded cassettes save the time and effort of Lecturers? Any technological advance reduces time and strain as well as increases the comfort zone of human civilizations. What is the case of TALP?

Table 66: Savings on Time and Effort from TALP – Feedback from Lecturers

Divisions → Savings ↓	Bengaluru	Mysore	Belagavi	Kalburgi	State
80 to 100%	47	34	31	22	134
%	21	17	18	15	18
60 to 79%	63	77	72	55	267
%	28	38	41	36	36
50 to 59%	56	33	45	43	177
%	25	17	26	29	24
< 50%	59	56	27	30	172
%	26	28	15	20	22
Total Lecturers	225	200	175	150	750

Source: Primary data

Savings on time and efforts of Lecturers in adoption of TALP for classroom transactions is highly rated, 60 to 100 per cent savings, by 54 per cent of lecturers. Highest proportion of Lecturers, 59 per cent from Belagavi division report that they save 60 to 100 per cent of their time and effort for teaching their subjects. 48 per cent lecturers report that majority of students, more than 60 per cent students, benefit from use of TALP for teaching, in regard to students’ savings on time and effort for learning. Less than 50 per cent teachers report that their time/effort savings is less than 60 per cent while for 22 per cent lecturers, savings are less than 50 per cent of their time used for teaching. With full integration of



syllabus, supply of SMART BOARDS and other Computer Education accessories, savings on time and effort can be maximized.

**Bottom line is that maximization of time and effort savings in use of TALP is needed through additional input support from the Department.**

### **Sensitization of Colleagues by Level I Trained Teachers**

719 out of 750 lecturers, 96 per cent, have tried/sensitized their colleagues as per their self-report. This report is true of all divisions. 70 per cent out of these 96 per cent lecturers have sensitized one or two of their colleagues in Level I Induction Training, basic skills.

### **Type of Skills/Competencies acquired during Level I Induction Training**

Apart from skills acquired to transact pre-loaded (cassettes) laptops for classroom transactions, lecturers have also acquired additional skills/competencies during Level I training.

18 to 19 per cent lecturers acquired skills to work on word documents, to surf internet, download needed/advanced information, pictures, videos, documents and presentations.

8 to 10 per cent lecturers learnt skills to prepare PPTs and work on excel sheets.

Sharing messages, documents is an acquired skill reported by around 05 per cent of lecturers.

Transferring documents from Downloads/Memory box is a skill learnt by only 2.3 per cent lecturers.

Only 1 to 2 per cent lecturers can use graphics and charts, edit and save downloads, work on animations, use a printer/scanner effectively.

Less than 1 per cent lecturers can work on statistical analysis of Students' Performance, write/draft unit/lessons plans and create a college website. As such, **training in efficient and effective use of computer education related skills is not satisfactory.** 10 days training is not at all adequate for the purpose. Hands-on-practice is also embedded in this 10 days training.

**Soft-ware personnel engaged on contract basis, in every taluk/district can visit PU Colleges, on a peripatetic arrangement and provide hands-on-practice, develop competencies/skills among lecturers in real time contexts when they teach units/syllabi of their subjects.** Over a period of time, lecturers can be completely competent, technology savvy, TALP friendly through this arrangement.

**Medium of Training (Feedback from 750 Lecturers)**

63 per cent lecturers received Level I training through English Medium. Another 36 per cent received through a mix of English and Kannada medium. Mix of both languages is relatively more (41 per cent lecturers report) in Kalburgi division.

**Possession of Hand-outs and Videos issued by CIET/NCERT**

The CIET/NCERT had issued 140 hand-outs/and 52 video lessons as advanced learning materials for use in schools/PU colleges. They were expected to be distributed by DIETs during the training programme. 38 per cent and 22 per cent report that they received the hand-outs and video cassettes, respectively.

**Completion of Assignments/Projects during Level I Training**

32 per cent lecturers report that they completed assignments/projects, that is hands-on-practice/application of skills, during their training programme. This exposure varied across divisions as 37, 33, 30 and 25 per cent lecturers reported on this across Bengaluru, Belagavi, Mysore and Kalburgi divisions respectively. This exposure is relatively low in Kalburgi division.

**Table 67: Overall Utility of Level I Training for TALP/Computer Education**

Divisions	Bengaluru	Mysore	Belagavi	Kalburgi	State
80 to 100%	54	45	37	19	155
% Response	24	23	21	13	21
60 to 79%	75	85	58	56	274
% Response	33	42	33	37	37
40 to 59%	72	52	67	57	248
% Response	32	26	38	38	33
< 40%	24	18	13	18	73
% Response	11	09	08	12	09
Total Lecturers	225	200	175	150	750

Source: Primary Data.

58 per cent of Lecturers report that the Level I training has been useful to them by over 60 per cent. Among them it is useful by 80 per cent and more (up to 100 per cent) to 21 per cent of lecturers. Percentage of usage refers to both skills/competencies and coverage of syllabus. 60 to 100 per cent utility is reported by highest proportion of lecturers, 65 per cent lecturers from Mysore division.

08 to 12 per cent lecturers across divisions report that, Level I training is useful by less than 40 per cent of requirements.

**Level I Training is reported to be useful by a great majority of lecturers, to a high degree of requirements.**

It needs to be noted (reminder) that this training is hardly of 10 days duration. Hands-on-practice is also limited.

#### **7.14.6 Problems/Issues in Maximization of Utility of Training: A Feedback**

Lecturers have reported on various degrees of utility of training. Why is the utility not of maximum degree, 80 to 100 per cent for all 750 lecturers? Here are a few significant reasons: Lack of subject knowledge or comprehension skills for TALP mediated teaching is a constraint among students as reported by 56 per cent of lecturers. Problem is not with technology completely. 15 per cent lecturers find it difficult to integrate TALP with regular teaching. 13 per cent lecturers report that the computers go out of order often. 10 per cent lecturers report that the training is not completely relevant to their subjects. Lack of subject knowledge is relatively not a major issue in Belagavi division.

**Bottom line is that success of TALP depends upon a few factors which are extraneous to technology related concerns.**

#### **7.14.7 Summative Observations on Feedback from 750 Lecturers [Sample as per ToR]**

There is a balanced spread of Lecturers with respect to their age in years. 37 per cent are female lecturers. 80 per cent teach through English Medium. DSERT/DIETs have preference for English Medium lecturers for purposes of training under TALP. Lecturers are well qualified and trained to teach. There is a heavy tilt towards science/mathematics lecturers in training programme (TALP). Lecturers are also well experienced.

DIETs have chosen middle aged, well qualified, experienced, English Medium College Lecturers for TALP training.

#### **7.14.8 Findings:**

**Level I Induction Training is well received by the Lecturers.**

**TALP training has been fully effective as reported by almost all trained teachers for Classroom teaching-learning transactions, even while coverage of lecturers across 150 colleges is not full/complete.**

**Maximization of time and effort savings in use of TALP is needed through additional input support from the Department.**

**Overall, Level I Training is reported to be useful by a great majority of lecturers, to a high degree of requirements.**

**Final Insights:**

Feedback from lecturers reveals that they have integrated themselves with TALP to the best of their opportunities. Training exercises for them are inadequate, support/facilitation is sub-optimal, hands-on-practice is wanting. Overall, training received is useful as reported by majority of Lecturers.

**Soft-ware personnel engaged on contract basis, in every taluk/district can visit PU Colleges, on a peripatetic arrangement and provide hands-on-practice, develop competencies/skills among lecturers in real time contexts when they teach units/syllabi of their subjects**

## **7.15 PU STUDENTS**

### **7.15.1 Preview:**

There are 1500 students, as sample from 150 PU Colleges. Higher proportions of students are drawn from 12<sup>th</sup> standard as they have longer period of exposure to TALP. 92.7 percent students are from 12<sup>th</sup> standard. There are 10 students from each college.

### **7.15.2 Profile of PU Students:**

#### **Age and Sex of Sample Students:**

Students are in age groups 17 and 18 years of age. Under/over aged students are negligible. 36 percent are boys.

#### **Commutation to College:**

91 percent students attend College from their homes. Rest of the 09 percent students are staying in hostels from where they attend College. College is at a distance of 2 and less than 2 kilometers, walkable distance to 603/1500, 40 percent students. 615/1500 students; 41 percent walk to college. 48 percent use public bus. 06 percent use bicycle. Mode of travel is reported as 'others', by 05 percent students (may be two wheelers).

#### **Educational Background of Parents**

It should be of interest to know the proportion of students who are first generation learners.

Table 68: Educational Level of Parents of PU Students

Divisions↓	Illiterate	1 to 4	5 to 7	8 to 10	12 <sup>th</sup>	Degree	PG	Ph.D.	Total
[A] FATHER									
Bengaluru No.	65	76	54	138	58	54	05	0	450
%	14	17	12	31	13	12	01	-	-
Mysore No.	45	58	91	125	47	30	04	0	400
%	11	13	23	31	12	08	01	-	-
Belagavi No.	44	61	48	92	60	38	06	01	350
%	13	17	14	26	17	11	02	-	-
Kalburgi No.	81	35	44	68	44	28	0	0	300
%	27	12	15	23	15	09	-	-	-
State No.	235	230	237	423	209	150	15	01	1500
%	16	15	16	28	14	10	01	-	-

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[A] MOTHER									
Bengaluru No.	72	68	111	116	62	20	01	0	450
%	16	15	25	26	04	14	-	-	-
Mysore No.	43	47	107	139	47	15	02	0	400
%	11	12	27	35	12	04	01	-	-
Belagavi No.	55	45	87	105	37	15	06	0	350
%	16	13	25	30	11	04	02	-	-
Kalburgi No.	121	46	59	56	09	08	01	0	300
%	40	15	20	19	03	03	-	-	-
State No.	291	206	364	416	155	58	10	0	1500
%	19	14	24	28	10	04	01	-	-

Source: Primary data.

14 percent fathers and 16 percent mothers are illiterate. **It is of significance that at least 14 percent students in this sample who learn through the use of Computer technology are from first generation learner homes.**

Leaving out illiterates, 60 percent students are studying (PUC stage) beyond the level achieved by their fathers. This proportion in case of mothers appears to be 66 percent. In effect, at least 60 percent students are from homes where both parents must have studied upto 10<sup>th</sup> standard. Their children are at PU stage, learning through Computers. [Marginal variations of level of schooling across parents may be possible].

There are 10 percent graduate fathers and 04 percent graduate mothers. There is also a sprinkling of post-graduates among them.

Illiterate fathers (27 percent) and mothers (40 percent) are quite high in Kalburgi division. Across the divisions and in the State as a whole, fathers are more educated than mothers, as expected.

**Table 68.1: Occupational Background of Parents of PU Students:****FATHERS**

Occupations → Divisions ↓	Agriculture	Coolie	Construction	Business	Driver	Government Servant	Male Ayah	Others	Total
Bengaluru (No.)	189	142	32	37	29	07	01	13	450
%	42	31	07	08	06	02	-	03	-
Mysore (No.)	134	141	30	43	24	09	02	17	400
%	34	35	08	11	06	02	01	04	-
Belagavi (No.)	160	78	21	38	07	23	02	21	350
%	46	22	06	11	02	07	01	06	=
Kalburgi (No.)	120	79	24	34	15	10	02	16	300
%	40	26	08	11	05	03	01	05	-
State	603	440	107	152	75	49	07	67	1500
%	40	29	07	10	05	03	-	04	-
<b>MOTHERS</b>									
Bengaluru (No.)	168	104	53	78	20	05	22	450	
%	37	23	12	17	04	01	05	-	
Mysore (No.)	191	101	43	39	07	01	18	400	
%	48	25	11	11	02	-	04	-	
Belagavi (No.)	142	48	60	77	03	07	13	350	
%	41	14	13	22	01	02	04	-	
Kalburgi (No.)	129	66	55	36	07	04	03	300	
%	43	22	18	12	02	01	01	-	
State (No.)	630	319	211	230	37	17	56	1500	
%	42	21	14	15	02	01	04	-	

Source: Primary data.

42 percent fathers are in agriculture. This proportion is slightly on higher side in Belagavi division and lower side in Mysore division. 31 percent fathers are coolies, 07 percent construction workers and 06 percent are Drivers.

08 percent are in business while 02 percent are in Government jobs.

13 percent are in ‘others’ category doing a variety of jobs: typists, tailors, peons, conductors, clerks, male nurse, engineers, Bank job, officers and technicians (14 persons out of 1500 total). 01 percent, 14/1500 can be rated as in better jobs, than others.

42 percent **mothers** are home makers in the State. Home makers are relatively in a lower proportion than the State average figure in Bengaluru division [(37%)], while they are higher than that in Mysore division (48%).

21 percent mothers are coolies and 15 percent are maid servants. 14 percent mothers are in agriculture, 01 percent are in Government jobs while 02 percent are tailors. There are 04 percent in ‘others’ category which includes: peons, conductors, clerks, nurse, business, engineer, officer and bank employee.

**Overview of Social Status of Students:**

Income data is not collected as reliability of such data cannot be vouchsafed. Inferences on social status are based on reflections upon educational and occupational background by parents of students.

Students of this study belong to lower strata of society. There are also a considerable proportion of lower middle class strata of society. Those who belong to middle class (upper middle class) are very few in proportion while upper strata is hardly represented.

**TALP project more than satisfies the concerns of EQUITY and JUSTICE, even while the quality of service needs a higher degree of investments.**

**7.15.3 Computer Background Knowledge of Students (before TALP exposure)**

Table 69: Computer Education Exposure of PU Students before TALP

Divisions	Bengaluru	Mysore	Belagavi	Kalburgi	State
Yes	272	245	193	129	839
%	60	61	55	43	56
Total Students	450	400	350	300	1500

Source: Primary data.

56 percent students had Computer Education exposure before they joined XI standard (PUC) and began to get TALP exposure. Adjustment to TALP mediated learning will be easier and smooth with such exposure. Such exposure is slightly higher than State average figure (56 percent) in Mysore (61%) and Bengaluru (60%) divisions while it is quite low (43%) in Kalburgi division.



Out of the 839 students who had computer education exposure, 186 students report that this exposure has been 'very much' useful to them, that is for 22 percent students. Another 459 students, 55 percent reported that the earlier Computer Education exposure was useful 'to some extent'.

Across the divisions, 31 percent of students [exposure for 129 out of 300 students] in Kalburgi division report that their earlier computer education exposure was very much useful. This proportion is only 11 to 13 percent in other 03 divisions. Even while exposure in Kalburgi division was on a limited scale, the quality should be regarded as of a high degree.

Table 69.1: Status in regard to computer laboratory in PU College

Divisions	Bengaluru	Mysore	Belagavi	Kalburgi	State
(a) Have CE Classes (No.)	132	136	91	102	461
% CE who have classes	29	34	26	34	31
(b) <u>CE Theory for Week</u>					
1 to 3 hours (No.)	117	125	85	96	423
%	26	31	24	32	28
4 to 6 Hours (No.)	15	11	06	06	38
%	03	03	02	02	03
No Theory CE	318	264	259	198	1039
(c) <u>CE Practical Classes</u>					
1 Hour (No.)	78	84	56	46	264
%	17	21	16	15	18
2 to 3 hours	40	26	28	17	111
%	12	07	08	06	07
4 hours and > (No.)	05	06	04	31	46
%	01	02	01	10	03
No Practical CE (No.)	327	284	262	206	1079
%	73	71	75	69	72
(d) Time of CE Practical Classes					
Morning (No.)	74	81	42	31	228
%	16	20	12	10	15
Afternoon (No.)	52	44	37	69	202
%	12	11	11	23	13
Both Times (No.)	06	11	12	02	31
%	01	03	03	01	02
Total Students	450	400	350	300	1500

Source: Primary data.

461 out of 1500 students, 31 percent report that they have computer education classes in their colleges. With slight upward and downward variations, this is the norm across divisions.

Theory classes in computer education are normally held for 1 to 3 hours per week as per report of 28 out of 31 percent students who have reported that Computer Education is held. Rest of the students get 04 and more than 04 hours of computer education theory classes. This is also the norm across divisions. Practical classes in computer education are reported by 03 percent students short of theory classes; 28 percent students report that practical classes per week are held. This is an average for the State.

Out of the 28 percent students, for 18 percent students it is one hour practical computer education class per week; for 07 percent, it is 02 to 03 hours and for 03 percent students, it is 04 hours and more than 04 hours per week. 04 hours and more than 04 hours of computer education practical per week is not arranged uniformly across all divisions. In Kalburgi division, 10 percent students have this opportunity. Across the other 03 divisions, such a report is only from 01 to 02 percent students.

**Opportunity for hands-on-practice in Computer Education classes for students is far, far better in Kalburgi than in other divisions.**

Out of the 31 percent students who report that they have computer education classes an equal proportion (not identical) have these classes, either in the morning or in the afternoon.

It is noted that computer education classes for students are over and above the TALP classes, laptop/projector mediated lessons/topics/units conducted by the lecturers.

#### **7.15.4 Attitude to TALP mediated Classes**

Do students like to learn their college subjects through traditional/ regular classes or do they like to learn through Laptop mediated classes that use projectors/screen. Here is the data from students for this query as well as reasons for non-acceptance of TALP method.

Table 69.2: Attitude of PU Students to TALP Classes

Divisions→ Responses↓	Bengaluru	Mysore	Belagavi	Kalburgi	State
Like TALP Classes (No.)	357	284	263	254	1158
%	79	71	75	85	77
Reasons for Dislike> Do not know Basics	115	75	64	66	320
%	26	19	18	22	21
Time Consuming	28	24	22	08	82
%	06	06	06	03	05
Fast, cannot make notes	09	15	22	07	53
%	02	04	06	02	04
Slow, due to Connectivity Problem	47	36	31	11	125
%	10	14	09	07	08
No Response	251	250	211	208	920
%	56	63	60	69	61
Total Students	450	400	350	300	1500

Source: Primary data.

77 percent students like the TALP, Laptop mediated classes. This count is 85 percent in Kalburgi division.

23 percent students who did not have positive attitude towards TALP lessons were asked to choose their reasons for the same. Following reasons are prominent. Multiple choices are accommodated. Hence, total percentage of all reasons will cross 23 percent. 61 percent offered 'No Response'. 39 percent students ticked the reasons even while some of them had liked TALP classes. This is to be noted.

21 percent students 'do not know basics' of Computer Education and the subject. A few of them report that TALP is 'time consuming' (05 percent), presentation will be fast and they cannot take notes, as there will not be much of blackboard work (04 percent), CDs which are pre-loaded face intermittent connectivity problem (note: wi-fi is not needed to use pre-loaded cassettes; it must be power problem or other technical issues) – (08 percent students report on this). It is also noted that there are and will be slow learners in any class.

TALP needs to customize presentation to such students also. Hand-out of lessons also needs to be served to students.

**Choice of Peers for Learning/TALP/Computer Education:**

Due to several logistic reasons, laptop cannot be given to individual students and they need to share it whenever such access is there or in Computer Laboratories (59 out of 150 PU Colleges have Computer Laboratory).

Table 69.3: Choice of Peers for Learning/TALP/ Computer Education

Divisions→ Responses↓	Like to Learn alone	Like to Learn with Friends	Like Group Learning	Total
Bengaluru (No)	64	251	135	450
%	14	56	60	-
Mysore (No.)	68	214	118	400
%	17	54	29	-
Belagavi (No.)	85	188	77	350
%	24	54	22	-
Kalburgi (No.)	69	143	88	300
%	23	48	29	-
STATE No.	286	796	418	1500
%	19	53	28	

Source: Primary data.

81 percent students (53 + 28) are happy to learn in a group or with friends. Hence, computer laboratory can be a better option than distributing laptops/tablets to individual students [Note: There is a Tablet Distribution scheme to College students].

Learning in groups, that is, with or 04 or 05 classmates will be more productive. Proportion of students who would like to learn in a group across the 04 divisions: Bengaluru, Mysore, Belagavi and Kalburgi respectively are: 86, 83, 76 and 77 percent.

Table 69.4: Possession and use of Computers/Smart Phones/ I pad/Laptop, at Home

Divisions→ Responses↓	SMART Phone	I Pad	Laptop	Computer	Total Students
Bengaluru (No.)	433	03	18	16	450
%	96	01	04	04	-
Mysore (No.)	396	04	15	09	400
%	99	01	04	02	-
Belagavi (No.)	344	14	28	15	350
%	98	04	08	04	-
Kalburgi (No.)	292	10	11	07	300
%	97	03	04	02	-
STATE (No.)	1465	31	72	47	1500
%	98	02	05	03	-

Source: Primary data.

It is submitted that students can possess more than one electronic gadget. Hence, row totals may exceed total number of students.

98 percent students have Smart Phones which they use for Computer operations. Government College students cannot afford computers/laptops/ tablets. Students who have these gadgets are an insignificant/negligible proportion: Laptop – 05 percent, Computers (Desktop) – 03 percent and I pads – 02 percent. There is not much difference across the divisions in regard to possession of electronic gadgets. Position of Belagavi division students is relatively better in this respect.

Even while 1465 students have Smart phones and a few others have other gadgets, only 1306 out of 1500 students use the gadgets, 87 percent, to learn school subjects. Other students use it only for on-line classes. 13 percent students may use smart phones of their elders at home for on line classes, and they may not have access to phones at other times, for recapitulation, reinforcement, advanced operations for learning.

There are 443 students, 30 percent, who have an elder at home to guide/help/assist them in use of computer/mobile phone. Such assistance varies across divisions: Belagavi – 35 percent, Bengaluru – 32, Mysore – 26 and Kalburgi – 23 percent.

Here is the data on persons who help/guide/assist students at home. It is either the elder brother (10 percent) or elder sister (10 percent) who help the students in the sample in their school work while they use electronic gadgets. Parents – Father (06%) or mother (02%)

also help. Uncle/aunt (02%) help. In exceptional cases (01%) neighbours also help. At times, more than one person may help. However, **the bottom line is that 1050/1500 students, 70 percent, do not have any one to help/guide/assist them in use of electronic gadgets for learning.**

### **Timing of Use of Electronic Gadgets by Students**

366/1500 students (24 percent) use their gadgets for reinforcement of learning after the teacher transacts lessons in the classroom Proportion of such students is low (18 percent) in Kalburgi division.

Students who use the gadget in advance before the teacher transacts a lesson in class (preparatory learning) and those who use during a class are around 09 each.

Most of the students will not be able to strengthen their classroom learning at home.

### **Receptivity to Learning through Teachers' use of Pre-loaded Laptops in Classrooms – TALP mediation**

How many students understand lessons mediated through preloaded cassettes in Laptops when teachers use them to transact lessons in the classroom along with projectors for the purpose? Degree of understanding may also vary across students.

Table 69.5: Status in regard to Receptivity of TALP Lessons

Divisions→ Receptivity↓	[Level of Understanding]					Total Students
	To a Large Extent	To Some Extent	To a Little Extent	Not Useful	NR	
Bengaluru (No)	43	194	27	07	179	450
%	10	43	06	02	40	-
Mysore (No.)	20	161	11	07	201	400
%	05	40	03	02	50	-
Belagavi (No.)	21	142	19	06	162	350
%	06	41	05	02	46	-
Kalburgi (No.)	08	120	22	06	144	300
%	03	40	07	02	48	-
STATE No.	92	617	79	26	686	1500
%	06	41	05	02	46	-

Source: Primary data.

46 percent students have preferred to gloss over this query. For 06 percent students TALP mediated lessons are useful ‘to a large extent’. This category of students is high at 10 percent in Bengaluru and low at 03 percent in Kalburgi divisions. For another 41 percent students, TALP lessons are useful ‘to some extent’. Hardly a small proportion of students (07 percent) find TALP lessons as useful ‘to a little extent’ or ‘not useful’. Those who find TALP lessons as ‘not useful’ are uniformly present across all divisions.

When students experience difficulty in understanding lessons through TALP technique, 24 percent confer with friends for clarifications; 66 percent students approach their teachers. 65 percent teachers help their students ‘always’, while the rest help ‘sometimes’.

### Usage of Audio-Cassettes in English Language Learning

Table 69.6: Usage of Audio Cassettes

Divisions	Bengaluru	Mysore	Belagavi	Kalburgi	State
Utility (No.)	198	129	131	90	548
%	44	32	37	30	37
No. of Students	450	400	350	300	1500

Source: Primary data.

37 percent students report that the audio-cassettes are useful to them [supplied by the Department] in learning English language. This proportion varies across divisions: Bengaluru (44 percent), Belagavi (37%), Mysore (32%) and Kalburgi (30%).

### Cassettes Usage Purposes:

Audio Cassettes are used to learn the following skills.

Table No. 69.7 : Purposes of Usage of Audio Cassettes

Divisions	Pronun- ciation	Voice Modula- tion	Speed of Speech	Compre- hension	NR	Total
Bengaluru (No.)	54	31	32	81	252	450
%	12	07	07	18	56	-
Mysore (No.)	37	21	14	57	271	400
%	09	05	04	14	68	
Belagavi (No.)	28	25	15	63	219	350
%	08	07	04	18	63	-

Divisions	Pronun- ciation	Voice Modula- tion	Speed of Speech	Compre- hension	NR	Total
Kalburgi (No.)	27	06	10	47	210	300
%	09	02	03	17	70	
State (No.)	146	83	71	248	952	1500
%	10	06	08	17	63	-

Source: Primary data.

Audio cassettes are used for a variety of purposes by the students. Only 37 percent students report that they use the cassettes. Usage for learning pronunciation is high at 12 percent in Bengaluru division where chances of appearing for GATE examination is high and there is a weightage in GATE for pronunciation – TOFEL, a Complement of GATE. Students use the cassettes for purposes of comprehension (17%), to pick up the speed of speech (08%) and for learning Voice modulation (06%). There is a need for motivation for 63 percent students to use audio cassettes.

07 percent students report that the cassettes are ‘always’ useful. It is useful ‘to a large extent’ for 03 percent and ‘to some extent’, for 34 percent students. 33 percent students also report that the cassettes are audible and have clarity.

#### **7.15.5 Use of Computer Laboratory in College**

Number of students who report that they have a Computer Laboratory in their college is as follows: Bengaluru – 195/450, 43 percent; Mysore – 163/400, 41 percent; Belagavi – 78/350, 22 percent and Kalburgi – 38 percent. Average availability of Computer Laboratory in the State is 551/1500, 37 percent. Position of access of Computer Laboratory to Belagavi division students is quite low.

594/1500 students learn through the use of Projectors (on screen) when pre-loaded cassettes are given to them in the Computer Laboratory, (40 percent students). This proportion across 04 divisions is: Bengaluru – 35, Mysore – 42, Belagavi – 40 and Kalburgi – 43 percent respectively.

Composition of 551 students [who have Computer Laboratory in their colleges] as per the number of students/peers with whom they need to share their computers in practical classes is as follows: Solo access – 16 percent; with one more classmate – 19 percent; with 2 more classmates – 28 percent; with 3 or 4 persons – 15 percent and with 5 or more classmates – 22 percent.



### Access to Computers at home for College related Assignments

353/1500, 24 percent students have laptops/desktops/tablets, computers, at home; position is slightly better in Belagavi division and low in Kalburgi division. They use this facility for completing assignments/projects given in the College.

1147/1500, 76 percent students do not have computers at home. Out of them 588 students, 39 percent of total, do projects/assignments at college. That is, a total of 63 percent students (24 + 39) are enabled to complete assignments/projects at home or college. Proportions of students who get exposure/experience to complete projects/assignments at home or college across the 04 divisions are: Belagavi – 68%, Bengaluru – 64 percent, Mysore – 62 percent and Kalburgi – 56 percent. Rest of the students are deprived of this experience/exposure. **Deprived proportions are: 32, 36, 38 and 44 percent students across the 04 divisions Belagavi, Bengaluru, Mysore and Kalburgi respectively, deprived of opportunity for conducting projects/assignments using Computers, either at home or at college.**

Table 69.8: Company for Completion of Projects/Assignments: Students can conduct/complete college projects/assignments either alone or with classmates or even with teachers. An update of the praxis among sample students is here:

Divisions→ Company↓	Do it alone	Do it with Classmates	Do it with Teachers	NR	Total Students
Bengaluru (No.)	39	191	62	158	450
%	09	42	14	35	-
Mysore (No.)	34	150	55	161	400
%	08	37	12	33	-
Belagavi (No.)	33	134	35	148	350
%	09	38	10	42	-
Kalburgi (No.)	16	111	37	136	300
%	05	37	12	45	-
STATE No.	122	596	189	603	1500
%	08	39	13	40	-

Source: Primary data.

Among the students who have opportunity to engage in projects or complete assignments using computers, majority do it with classmates (39 percent). Some of them (13 percent) do it with teachers. It means in 13 percent cases teachers help them. A small

minority (08 percent) do it alone, independently of others. There is not much difference across divisions in this praxis.

### **Development of e-content**

545 students report that they have developed e-content in their subjects (36 percent students). This is quite an impressive percentage in case of Government PU Colleges. This reflects upon the degree of skills acquired by students. The other students, most of them, do not have access to computers and the rest do not possess the skills. Proportion of such students is highest in Bengaluru division, at 43 percent.

Table 69.9: Company for Development of e-lessons

Divisions→ Responses↓	Bengaluru	Mysore	Belagavi	Kalburgi	State
Independently (No.)	25	29	19	09	82
%	06	07	05	03	05
With Classmates (No.)	84	55	55	40	234
%	19	14	16	13	16
With Teachers (No.)	41	23	23	26	113
%	09	06	07	09	08
With Classmates (No.)	43	31	20	22	116
%	10	08	06	07	08
NR	257	262	233	203	955
%	57	66	67	68	64
Total	450	400	350	300	1500

234 out of 545 students, 16 percent of total 1500 students have developed c-lessons with classmates, group project. Another 116/545, 08 percent have done this along with classmates and teachers. For 24 percent, it has been a group project involving peer support. For another 08 percent students guidance has been given by teachers. Only 05 percent students had the skills to do it, develop e-lessons, as a solo effort. [Rounding off decimals has made 36 percent 545 students, as 37 percent here]. Group effort, with classmates, is of the order of 29, 22, 22 and 20 percent respectively across the 04 divisions. It is highest in Bengaluru division.

### **Performance in Computer Education in Previous Examination**

All colleges do not have computer education classes. All those who conduct computer education classes will not hold examination in computer education. 591 students report that they had computer education as an examination subject in their college and reported the marks that they had obtained thereon.

Table 70: Performance of students in Computer Education in Previous Examination

Divisions ↓ % Marks/Grades Obtained →	80 to 100 A, A+	60 to 79 B, B+	50 to 59 C+	40 to 49 C	<30 D	NR	Total
Bengaluru (No.)	39	85	42	11	14	259	450
%	09	19	09	02	03	58	-
Mysore (No.)	22	80	17	20	09	252	400
%	06	20	04	05	02	63	-
Belagavi (No.)	35	74	13	09	07	212	350
%	10	21	04	03	02	60	-
Kalburgi (No.)	15	43	19	29	08	186	300
%	05	14	06	10	03	62	
State (No.)	111	282	91	69	38	909	1500
%	07	19	06	05	03	60	-

05 grades are considered for analysis. 80 to 100 percent marks > A+ and A grades; 60 to 70 percent marks > B + and B grades; 50 to 59 percent marks > C +; 40 to 49 percent marks > C grade and 39 and < 39 percent marks > D grade.

Hardly 07 percent students in the State have secured A + or A grades in Computer Education in their previous PU examination. Those who get B + or B grades across 04 divisions are: Belagavi – 31 percent, Bengaluru – 28 percent, Mysore – 26 percent and Kalburgi – 19 percent. There is no standardized examination in Computer Education for the whole State. Uniform quality of examination across divisions is assumed.

11 percent students in the State have secured C+ and C grades. This incidence is relatively more in Kalburgi division.

There are 02 to 03 percent students who secured D grade in Computer Education across all divisions and the State.

58 to 63 percent students, across divisions did not have examinations in Computer Education.

**Concern is about three fifth of total students in State who do not get exposure to examination in CE and another 14 to 15 percent students who get D, C and C+ grades.**

### **Power and Internet Support for Computer Education**

878/1500 students report, that they get full day electricity (59 percent students) in their colleges. Position is slightly relatively better in Bengaluru division.

485/1500 students report, 32 percent students, that they have internet facility in their college. Another 131/1500 students, 09 percent use Dongle/Blue tooth. In effect 41 percent students can engage in advanced and self-learning activities using computers in the State. **59 percent students are deprived of the opportunity.**

Proportion of students who get internet facility – either wi-fi or Bluetooth – across the 04 divisions of the State are: Bengaluru – 44 percent, Kalburgi – 43 percent, Belagavi – 41 percent and Mysore – 37 percent. Mysore has the lowest proportion.

### **Managing the Computer**

289/1500 students, 19 percent, can operate a computer using a mouse. This is an advanced skill. Students of Belagavi (23%) and Kalburgi (21%) are better in this respect.

412/1500 students, 27 percent, have saved their files/lessons and units of syllabus, advanced learning materials, on the dashboard. This is also a special skill. Students of Bengaluru division are relatively better (31%) in this respect.

### **Exposure to Remedial Classes**

549/1500 students, 35 percent report that Remedial Classes are conducted in their colleges. Proportion of such colleges across the 04 divisions are: Bengaluru – 42 percent, Belagavi – 37%, Mysore – 35% and Kalburgi – 31%. Lowest proportion is in Kalburgi division.

Pre-loaded laptops are used in remedial classes as reported by 182 out of 549 cases who get remedial classes exposure, 33 percent, effective count and 182/1500, 12 percent, nominal count. Effective count across the divisions is nearer State average count in all divisions except in Kalburgi division (27 percent students report on use of laptops in remedial classes).

### **Medium of Computer Education (CE) Instruction (TALP)**

755/1500 students report, over 50 percent, that their lecturers adopt both Kannada and English languages while teaching their subjects using pre-loaded laptops. 384/1500 students report the use of Kannada as medium of teaching (TALP Classes), 26 percent, while 23 percent report that their lecturers use English as the medium of TALP/Computer Education Classes. Kannada as medium is relatively more popular in Bengaluru division while English is more popular in Kalburgi division.

#### **7.15.6 On-line Classes/Pandemic Times**

1425/1500 students report that their colleges/teachers conduct on line classes (95 percent). This is the uniform pattern across all divisions.

Table 71: Comprehension of On-line Classes

Divisions	Yes Understand	Yes To Some Extent	No [NA]	Total
Bengaluru (No.)	276	145	29	450
%	61	32	07	-
Mysore (No.)	226	157	17	400
%	57	39	04	-
Belagavi (No.)	177	154	19	350
%	51	44	05	-
Kalburgi (No.)	170	120	10	300
%	57	40	03	-
State (No.)	849	576	75	1500
%	57	38	05	-

Source: Primary data.

57 percent students in the State do not have any problems/issues in following/understanding on line classes/lessons. This proportion across the 04 divisions are: 61 percent – Bengaluru, 57 percent – Mysore and Kalburgi, 51 percent – Belagavi division.

**38 percent students have difficulty in following on line classes. Department needs to reach out to such students through the schools, get a feedback on possible reasons, do a diagnostic analysis and customize the classes to tailor to individual differences/needs. This includes customization of both content and style of presentation.**

**Parents ‘Cooperation/Atmosphere at Home for on line Classes**

Table 71.1: Atmosphere at Home for on line Classes

Responses↓	Bengaluru	Mysore	Belagavi	Kalburgi	State
Good (No.)	262	237	216	150	865
%	58	59	62	50	58
Satisfactory (No.)	147	130	84	121	482
%	33	33	24	40	32
Not Satisfactory (No.)/NA	41	33	50	29	153
%	09	08	14	10	10
Total Students	450	400	350	300	1500

Source: Primary data.

Children who attend Government PU colleges belong to diverse socio-economic strata. Size of their homes, physical environment in which the house/homes are located, facilities available to children for studies at home, parents support to children in their studies, quality of parents on variety of variables / factors affect receptivity of children to online classes.

In case of 58 percent of children in this sample, parental support/ home atmosphere is reported to be ‘**GOOD**’. It is a little lower than State average position in Kalburgi division (50 percent). In case of another 32 percent students, position is ‘**Satisfactory**’.

For 10 percent students, it is ‘not satisfactory’. This figure includes 05 percent students who have earlier reported that they do not get online classes.

**Students’ Views on Online Classes**

Table 71.2: Students’ Reactions to On-Line Classes

Responses↓	Bengaluru	Mysore	Belagavi	Kalburgi	State
Very Good (No.)	89	67	67	32	255
%	20	17	19	11	17
Good (No.)	191	161	127	118	597
%	42	40	36	39	40
Satisfactory (No.)	108	111	71	100	390
%	24	28	20	33	26
Not Satisfactory (No.)/NA	62	61	85	50	258
%	14	15	24	17	17
Total Students	450	400	350	300	1500

Source: Primary data.

83 percent students do not have negative opinion about on-line classes organized during pandemic times. While 17 percent felt that they were ‘Very Good’, 40 percent deemed them to be ‘Good’ and 26 percent opined them to be ‘Satisfactory’. Dissatisfaction with on-line classes is highest at 24 percent in Belagavi division.

### 7.15.7 Preference Pattern for Regular Classes

Table 71.3: Students’ Preference Pattern for Regular Classes

Divisions→ Responses↓	Bengaluru	Mysore	Belagavi	Kalburgi	State
No Class till end of Covid/ or full vaccination (No.)	89	53	58	43	243
%	20	13	17	14	16
Few days of the week (No.)	104	99	72	59	334
%	23	25	21	20	22
Half-a-day Classes	26	36	16	05	83
% age	06	09	05	02	06
Step-by-Step	231	212	204	193	840
%	51	53	58	64	56
Total	450	400	350	300	1500

Source: Primary data.

56 percent students in the State are definite that they have no preference for regular classes. They can only submit that regular classes should begin ‘step by step’. Proportion of such students is highest in Kalburgi division (64 percent) followed by Belagavi division (58 percent) and Mysore division (53 percent). Students of Bengaluru division (51 percent only), caution on step by step programme for regular classes. COVID-19 havoc is highest in Bengaluru division.

16 percent students do not want regular classes till end of Covid-19 as well as after full Vaccination. Again, proportion of such students is highest (20 percent) in Bengaluru division.

22 percent prefer classes on few days of the week while 06 percent, a small minority, prefer half-a-day classes.

**Bottom line is students are scared to attend regular classes. Effect of the COVID-19 pandemic has deeply wounded their psyche.**

### **7.15.8 SUMMATIVE OBSERVATIONS**

Feedback has been taken from 1500 students of 150 PU colleges. 93 percent students are from 12<sup>th</sup> standard. 64 percent students are girls. Only 09 percent stay in hostels. Only 05 percent students have 02 wheelers to attend college. Students belong to lower middle and lower strata of society. **Implementation of TALP in PU Colleges satisfies concerns of EQUITY and JUSTICE** while Department is moving in the direction of successful Digital Education.

#### **Exposure to Computer Education before TALP**

56 percent students in the sample had exposure to Computer Education before TALP. This proportion was lowest at 43 percent in Kalburgi division. However, considerable proportion of students (31 out of 43 percent) are quite happy about this exposure in Kalburgi division while in other 03 divisions, hardly 11 to 13 percent are happy. Exposure has not been useful to the others.

#### **CE Classes in PU Colleges – Students’ Feedback**

31 percent students get Computer Education classes in their colleges. Theory classes are for 1 to 3 hours. There will be one hour of practical class. Position of Kalburgi division in regard to opportunity for practical classes is better. These Computer Education classes are over and above the laptop mediated classes in college subjects conducted by the teachers.

**Attitude to TALP Mediated Classes** [Teachers teaching college subjects using Laptops and projectors]

77 percent students in State like TALP classes; Kalburgi division – 85 percent. Deficit knowledge in regard to basics of the subjects is the reason for dislike.

#### **Choice of Company for CE Practical Classes**

A great majority (81 percent) are happy to learn in groups/with friends during practical classes. Learning in groups will be more productive.

#### **Possession and use of e-gadgets**

Students can possess more than one e-gadgets. 98 percent have SMART phone, laptop – 05 percent, desk top – 03 percent and tablets/i-pads – 02 percent. Out of these 98 percent, only 87 percent use phones for learning school subjects while 13 percent (total 98 percent) use them only for online classes. 30 percent students get guidance from a knowledgeable elder at home. Alternatively, **70 percent students do not have anybody at home who can guide/help/assist them in college learning through e-gadgets.**



### **Timing of use of e-gadgets**

Only 33 percent use e-gadgets for reinforcement of learning. Out of them 24 percent (24/33) use it after the teacher transacts a lesson. Others do it before or during the class.

### **Receptivity to Classroom Lessons** (TALP Mediated Lessons)

46 percent students have preferred 'No Response'. Among rest of the 54 percent students, only 06 percent find the lessons transacted through pre-loaded laptops with the use of a projector, to be useful 'to a large extent'. For 41 percent, it is useful 'to some extent'. Those who find the lessons to be 'not useful' constitute hardly 02 percent (02 percent of 54 percent). Teachers mostly help students to understand the lessons.

### **Usage of Audio-Cassettes for (English) Language Learning**

37 percent students use audio-cassettes. Multiple uses are possible. They use it for developing 'Comprehension' skills (17 percent), pronunciation (10 percent), pick up speed of speech (08 percent) and for interaction skills (06 percent). 33/37 percent report that the cassettes are audible and have clarity.

### **Use of Computer Lab in College**

Across the divisions, Computer Lab is in 43, 41, 22 and 38 percent – Bengaluru, Mysore, Belagavi and Kalburgi divisions respectively; for Computer Education practical classes. 40 percent students (out of 1500) have access to projectors also in the Computer Laboratory. They learn in groups in computer laboratory.

### **Access to e-gadgets at Home to complete College Projects/ Assignments**

24 percent students have Computers at home. They do projects/ assignments at home. Another 39 percent students do projects/assignments in College. A total of 63 percent students (total 1500) do projects/assignments. 37 percent are not enabled at all.

Significant proportions of students are deprived of experience/exposure to do projects/ assignments using computers/e-gadgets. **Deprived proportions across 04 divisions, Belagavi, Bengaluru, Mysore and Kalburgi are: 32, 36, 38 and 44 percent respectively.**

### **Company for Completing Projects/Assignments**

Majority of students complete projects/assignments in a group with classmates.

### **Development of e-content:**

36 percent students report that they have developed e-content. 32 percent out of these 36 percent have done it with classmates and in some cases involve teachers. Group effort with classmates is 29, 22, 22 and 20 percent across the 04 divisions: Bengaluru, Mysore, Belagavi and Kalburgi respectively.

### **Performance in Computer Education Examination at College**

60 percent students do not have Computer Education examination in their college. Another 14 to 15 percent students get D, C, C+ grades. Performance is satisfactory/good for 60 percent students. **Concern is about these 60 + 15 = 75 percent students.**

### **Power and Internet Support**

41 percent students do not get full day electricity in their colleges. They have internet/Bluetooth facility. **59 percent students are deprived of advanced/reinforcement learning.**

### **Remedial Classes**

37 percent students get Remedial classes in their colleges. Only 12 percent (out of 37 percent) get these classes by teachers who use laptops.

### **Medium of Computer Education Instruction:**

Over 50 percent teachers use both Kannada and English as media of instruction for Computer Education classes. 23 percent teachers use only English medium.

### **On-line Classes**

95 percent students report that their teachers conduct on-line classes. 57 percent students have adjusted smoothly to on-line classes. 38 percent students have expressed difficulty. **E-lessons need to address individual differences in learning pace/style of students.**

### **Parental Cooperation**

For 82 / out of 95 percent, on-line classes are ‘good’ (58 percent) and ‘satisfactory’ (32 percent) in regard to their home support/atmosphere.

82 percent students have positive opinion about on-line classes. Out of them, 56 percent have no preference for continuous regular classes. **Most of the students are scared to attend regular classes. Pandemic/Covid-19 has deeply affected their 'psyche'.**

**FINAL INSIGHTS: On-line classes during pandemic times have been organized with utmost efficiency, as per students' report.** However, exposure of students is not complete: e-gadgets problem, practical classes, experience of completing projects/assignments is not comprehensive, assessments are not done comprehensively, assessments are not done for full set of students, internet/power problems are there and home milieu is not uniformly good.

**On-line Classes are challenged by concerns of regional disparities in provision, individual differences in students' receptivity; of equity and justice. They need to be addressed over time.**

## 7.16 TALP PROJECT – FEEDBACK FROM OFFICERS

**7.16.1 Preview:** 70 Officers from Department of Secondary Education/DSERT and 70 Officers of the Pre-University Directorate were contacted to get their feedback on TALP implementation. List of Officers from the 02 Departments is given here.

### OFFICERS

DSE	Number	DPUE	Number
DDPI	04	Deputy Director	13
BDO	15	Principals	44
BRC	19	Lecturer (Coordinator)	13
BRP	02	Total	70
DIET Principal	06		
Senior Lecturer, DIET	15		
HM	07		
IT Coordinator	02		
Total	70		

Wherever possible, data was collected through IDI – In Depth Interview Technique. Cross-sections of officers are contacted. Summative analysis of officers at various levels will provide holistic perceptions and feedback of the Departments. Whenever necessary, differential analysis across School Education Department and PU Directorate will be made. Otherwise comparative analysis will be made. This is because some of the TALP interventions are specific to School Education. They have no relevance to PU Education (E.g. of VIDYAGAMA schooling). Conclusions will be arrived at and recommendations made separately for each sector.

**7.16.2 Profile of the Officers** (sample): Profile includes age, sex and experience.

#### Age and Sex:

Table 72: Age of Officers [State Figures]

Age Range→	< 45	46 to 50	51 to 55	>55	Total
(a) School (No.)	25	14	18	13	70
%	36	20	26	18	-
(b) PUC (No)	08	08	20	34	70
%	11	11	29	49	-

Source: Primary data.

56 Per cent of Officers in School Education (SE) are within 50 years while the figure for PUE [Pre-University Education] is only 22 per cent. Conversely, 44 per cent of SE are over 50 years. While the figure for PUE is 78 per cent. This is because DSE has grassroots level officers who are close to the scene of action – TALP implementation – like CRCs, BRCs, BRPs who will be young, while PUE has no such structure; younger Officers in DSE are more in Bengaluru division, Very senior (in age) Officers in PUE are in Belagavi division.

21 per cent Officers in both DSE and PUE are women.

### **Experience in Years**

Table 72.1: Experience of Officers

Experience Range →	< 10 years	11 to 20	21 to 25	26 +	Total
DSE (No.)	09	23	15	23	70
%	13	33	21	33	-
PUE (No.)	08	09	10	43	70
%	11	13	14	62	-

Source: Primary data.

46 per cent officers of DSE have less than 20 years of experience while the figure for PUE is 24 per cent. Elderly Officers, with longer duration of experience, 26 + years are 62 per cent in PUE while they constitute 33 per cent in DSE. Reasons for the differences in experience across ranges and across DSE and PUE are the same as has already been advanced for differences in age.

### **7.16.3 Departmental Provision of Basic Infrastructure Facilities for on-Line Classes**

DSE has provided preloaded laptops, projectors, Smart Boards (not all schools) to schools (not full coverage) for TALP and for on-line schooling (pandemic times). Depending upon size of schools → small, medium and big – Computer units – 11, 15, 21 computers have also been given to schools (by the DSERT). This is the basic infrastructure facility provided to high schools in the State (not all schools).

DSERT provided pre-loaded laptops to PU Colleges also (not full coverage), at the rate of one computer/laptop per college. Colleges (many of them) purchased projectors out of their general contingency fund.

Data about infrastructure facilities has already been given and discussed in respective sections in the report. As of now, feedback from officers about their perceptions on supply/provision of infrastructure facilities for schools/DSE and PU Colleges/PUE is discussed.

Table 73: Provision of Basic Facilities for TALP/On-line Classes – Officers’ Perceptions (No. of Officers)

Responses (Provision)	Yes for all Schools/Colleges	Yes, for most of the Schools/Colleges	Yes for all Children	Yes for most of the Children	No. Not possible	NR	Total
DSE (No.)	06	11	07	20	19	07	70
%	09	16	10	29	27	10	-
PUE (No.)	06	04	14	21	25	-	70
%	09	06	20	30	36	-	-

Source: Primary data.

It is of significance to note that a great majority of Officers report that it has not been possible to provide sufficient infrastructure facilities to schools/PU Colleges. Proportion who say ‘Yes’, it has been possible to a large extent/full extent are 25 per cent in DSE and 15 per cent in PUE. This is true of their perceptions of facilities needed for students. 39 per cent DSE Officers and 50 per cent PUE Officers feel that, children have been provided with basic facilities for TALP/on line classes. ‘It has not been possible’ response, for both institutions and students is relatively more (36 per cent officers) in PUE than in DSE (27 per cent Officers).

#### **7.16.4 Facilities Provision – Schools/Colleges, Parents and Officers**

If the Department cannot provide basic facilities to students for on-line classes during pandemic times (SMART phone is a basic facility), then do officers guide/instruct/advise/direct/insist on parents to get it (Smart phone) for their children in order for efficient conduct of online classes. Such guidance/insistence is not a part of duty of the Officers. Still some Officers may engage in such actions on their own initiative. Here is the data on what officers are up to.

Table 73.1: Officers, Parents and Students Interface for on-line Education Guidance/ Insistence on Purchase of Smart Phones[No. of Officers]

Responses	Yes, we have insisted	No, we should not insist	Cannot meet all Parents	NR	Total
DSE (No.)	16	39	11	04	70
%	23	55	16	06	-
DPUE (No.)	29	26	15	-	70
%	41	37	21	-	-

Source: Primary data.

DPUE Officers appear to be more strict (41 per cent) than DSE Officers (23 per cent) in regard to their insistence on parents to purchase SMART phones to their children for attending on line classes. In a complementary way 55 per cent DSE Officers feel that they should not insist on the parents to purchase SMART phones for their children as they think that they are ‘not capable’ of this purchase [IDI finding]. In contrast 37 per cent PUE Officers think so. The socio-economic background of parents of children who are in PU Colleges is marginally better than those whose children are in high schools. Even officers of DSE, many of those who are at grassroots levels – CRCs/BRCs/BRPs, having a deeper understanding and empathy for parents who are not better off. In fact, 41 per cent PUE Officers report that they cannot meet all parents while such a proportion among DSE Officers is 23 per cent.

**DSE Officers have a better Reality Orientation than DPUE Officers.** [Reality in regard to purchasing capacity of children and adjustment to pandemic problems].

#### **7.16.5 Officers’ opinion regarding supply of Mobile phones (SMART phones) or Tablets to Students by the Department [to Economically Backward Students]**

Government of Karnataka has a scheme to supply Tablets (Computers) to students of degree colleges. There is no such scheme for high school or PU College students who are also constrained to attend on-line classes. How do officers of DSE and DPUE feel about the downward extension of this scheme (phone or tablet) to students of high schools and PU Colleges.

Table 73.2: Learning Tools to Students of Economically Backward Students – Officers Views [Responses by Number of Officers]

Responses	Welcome this	No Opinion	No Response	Total
DSE (No.)	64	03	03	70
%	91	04	04	-
DPUE (No.)	62	08	-	70
%	89	11	-	-

Source: Primary data.

Empathy for students of economically backward students is at its peak both among officers of DSE (91 per cent) and DPUE (89 per cent) in their support for on-line education to them. This Departmental empathy needs to step up down to the Finance Department of the Government. This will be a matter of time.

#### **7.16.6. Survey of Regular vs. On Line Classes during Pandemic Times**

##### **Officers' Views**

Educational Officers are better aware of the concerns of safety in regard to logistics of online vs. regular schooling/college for students as they are closer to field level issues/concerns/problems and operations. Here is the data on their views in regard to online vs. regular schools [IDI findings].

Table 73.3: Safety of Regular Vs. On Line Classes Officers Views –Pandemic Context  
[No. of Officers]

Responses	Regular Classes Safe/ No Problem	Regular Classes Not Safe	No Response	Total
DSE (No.)	51	-	19	70
%	73	-	27	-
DPUE (No.)	26	44	-	70
%	37	63	-	-

Source: Primary data.

Officers of the 02 Departments – DSE and DPUE – have divergent views on conduct of regular vs. on line classes in the context of COVID-19 pandemic. 73 per cent Officers of DSE are in favour of regular classes (they think it is safe), while only 37 per cent officers of DPUE think so. **63 per cent Officers of DPUE explicitly are ‘not in favour’ of regular classes.** There is no such view among officers of DSE.



### **7.16.7. M and S Reports of Schools/Colleges**

When Officers visit schools, colleges, they supervise the conduct of TALP/on-line classes apart from their other duties. Reports of their supervision of the conduct of TALP classes are discussed here.

### **7.16.8. Students' in TALP Classes: (TALP Classes)**

Only a few students are deeply serious in their attentiveness to TALP classes in the report by DSE (17%) and DPUE (13%) Officers. Otherwise, they are routinely serious is the observation report by around 75 to 80 per cent Officers. PUC students are less serious (report by 10% PUE Officers) than high school students (report by 04% DSE Officers).

How do Officers get a feedback on the attentiveness of students in TALP (lessons) classes? 74% DSE Officers go by HT/Teachers' reports on this concern while 56% PUE Officers resort to this method.

43 per cent DSE Officers (CRPs) did household surveys to learn about the possession/ accessibility of mobile phones to students in their homes (smart phones).

Different types of measures are adopted by officers of DSE and PUE to address learning needs of students who have no access/part time access of mobile (smart) phones at home. While DSE advises schools/teachers to compensate in VIDYAGAMA Classes, DPUE Officers advise colleges to conduct weekend classes.

DSE Officers depend upon the school HT and CRP (44 per cent officers) to check on students' addiction to mobile phones. DPUE officers (59 per cent) interact with parents to ensure that students do not get addicted to mobile phones, beyond academic needs.

96 per cent of DPUE Officers opine that excessive use of mobile phones creates health problems to students while in case of DSE Officers, this opinion is among 66 per cent Officers.

### **7.16.9 Officers' awareness of websites/application available for students**

Table 73.4: Officers' Awareness of Student Websites

Websites	Google	Geo	MS Word	Byjus	Allens	Excel	PPT	Web Browser
DSE (No.)	63	22	49	26	06	50	60	48
%	90	31	70	37	09	71	86	69
DPUE (No.)	63	59	38	24	13	42	56	41
%	90	84	54	34	19	60	80	59

Source: Primary data.

The overall impression that one gets from an observation of data regarding officers' awareness about studies related websites – open sources and market sources as well as applications for wi-fi uses is: DSE Officers are relatively better knowledgeable about wi-fi applications (Internet uses) and study related websites. Users of TALP is at a higher degree and range in high schools than at PU stage. This may be a possible reason.

#### **7.16.10. Officers' Views on SAMVEDA and VIDYAGAMA classes (Data only from DSE Officers]**

67/70, 96 per cent officers report that Vidyagama classes are 'Beneficial' to students. Again, 94 per cent offices give a good report on Samveda classes as supplement to school/classroom transaction of lessons.

Almost all the officers have regularly discussed with HTs and Margadarshi teachers (in their jurisdiction) about the organization and conduct of Vidyagama classes. 84 per cent officers are also aware of testing of students in public places (pandemic times) by schools/teachers. They are satisfied with this initiative.

Only 59 per cent of officers are aware of cybercrimes in the larger society.

#### **7.16.11. Summative Observations on Officers' Feedback**

**Pre-view:** There are 70 officers each from DSE (Department of School Education) and DPUE (Department of Pre-University Education). They work at various levels of the Department. IDI, In-Depth Interviews have been held with various officers while some of them have responded on line. Analysis of data and discussion of results have been done in a comparative framework, wherever concerns/issues are similar.

**Profile:** Officers of DSE are relatively young as the DSE has grassroots level officers like CRP and BRP/BRC. 21 per cent officers in the sample are women – both DSE and DPUE. Officers with larger duration of experience are more in DPUE.

#### **Provision of Basic Infrastructure Facilities for TALP/on-line Classes**

Pre-loaded laptops, projectors, Smart Boards are the infrastructure provided to TALP by DSE. There are Computer Laboratories in DSE high schools under TALP. Only Pre-loaded laptops are provided for PU Colleges by DPUE. Officers of both DSE and DPUE report that sufficient infrastructure is not provided to both schools/colleges and students.

### **Students' Readiness for on-line Classes (Pandemic Context)**

A significant proportion of officers' report – both DSE and DPUE – that majority of students' do not have exclusive possession of SMART phones for on-line classes. They share the phones of elders at home. DSE depends on CRPs for home based information. DPUE gets information from sample of parents.

### **Supply of Smart Phones/Tablets to Students by the Department – Officers' views**

91 per cent DSE and 89 per cent DPUE officers welcome supply of learning tools to economically backward students.

### **Regular vs. Online Classes – Officers' Choice**

63 per cent DPUE officers are 'not in favour' of regular classes. There is no such majority view among officers of DSE.

### **M and S Reports on TALP/on-line classes**

DSE Officers (43 per cent) did household surveys. DPUE Officers depend upon college reports.

PU students are less serious in TALP/on-line classes than high school students – Officers' report.

DSE officers are relatively better aware about internet/web-site study sources – OER and market included as well as smart phone applications than the DPUE Officers [Google, Geo-Gebra Allens, Byjus, Excel, ppt., etc.].

96 per cent and 94 per cent DSE Officers report that VIDYAGAMA and SAMVEDA classes are beneficial supplements to regular schooling. They are satisfied with the management of these initiatives.

Only 59 per cent officers – DSE and DPUE are aware of cybercrimes in larger society.

It is recommended that all officers of both DSE and DPUE are given basic training about M and S of TALP/on-line classes, OLR (Open Learning Resources), and digital education concerns only, with SoP for M and S.

## 7.17 Recommendations

Two types of recommendations are submitted in this evaluation study report: (i) Short Term which can be implemented immediately and (ii) Long term which need deliberations at higher levels of governance in the State.

### 7.17.1 Short term Recommendations

#### **Infrastructure:**

1. Facilitate development of (digital) CD/DVD library in all TALP schools using DLR, OLR and audio cassettes for language learning.
2. It is recommended that DSERT provide Interactive Video-Conferencing Facility to all the schools, supply SMART LED Television Sets, integrate AMC for: all TALP activities, e-gadgets for (TALP) IT schools, IT @ PUC, EDUSAT and other e-gadgets in schools. Let the AMC be a State floated service with franchisees in all District/Taluqa Head Quarters that can reach schools within a day for maintenance, repairs and service of all e-gadgets. Provide training in use of EDUSAT to all HTs/teachers without any deficits.
3. Department needs to upgrade the EDUSAT/Tele Education Programme through supply of LED televisions (many students complained of eye-strain due to regular viewing of ordinary TVs for lessons), Video-conferencing facility (Convert all RoT schools to VCF) and issue of handouts of TV lessons.

#### **Training:**

1. There are Inter-district differentials in TALP training performance of DIETs (See Section 5.4). Standardize quality of training programmes, bring uniformity in training (E.g.: Hands-on-practice sessions differ). Roll out a SoP for DIETs. Ensure full complement of staff for DIETs.
2. Provide training to all HTs and IT coordinators in management of MIS in schools. Provide training in school base MIS to educational officers for M & S of MIS.
3. Provide Basic Training /orientation to all officers of Both DSE/DPUE on M and S of TALP and online classes and digital learning opportunities. Give SoP for M & S.
4. Give Training to teachers and Lecturers 2 sessions, Level I Induction Training which is already there and 2<sup>nd</sup> session on advanced digital skills with hands-on-practice and project work.

### **Curriculum:**

1. Maximize the integration of Lessons in all subjects with school syllabi and review the quality of lessons from the perspective of end users (students) (See e-content review workshop report).
2. Quality of TV lessons-visibility audibility, language and style of presentation, relevance to syllabi need a thorough and systematic review from the perspectives of students – end users of the programmes

### **Monitoring and supervision:**

1. Facilitate setting up of computer laboratory in schools in a systematic way Issue SoP, get State level audit of computer laboratory in TALP schools.
2. Develop a handbook of TALP e-lessons, subject-wise, and distribute to students (and teachers). Involve DIETs in this exercise in a workshop mode.
3. Standardize management techniques of e-waste in schools using an environment friendly framework. Develop a SoP in this context for all end users.
4. **Develop and distribute a SoP for integration of lessons to EDUSAT teachers, (DSERT); give them a day's orientation, subject wise.**
5. There is no uniformity in DIETs in regard to strict implementation of time-table, specifically for hands-on-practice and project work. A SoP to all DIETs on TALP training is desirable.

### **Individual Differences:**

1. Ensure remedial classes for slow learners of TALP lessons wherein computer mediated teaching /learning is there.
2. **EDUSAT/CIET/DSERT need to recognize individual differences among students in learning deficits, learning style, learning atmosphere at home and learning capacities of students, to maximize the utility of lessons.**

### **Others**

1. **Upscaling: 90 per cent teachers rate the lessons as of 'Very Good' (25 per cent teachers) or 'Good' (65 per cent teachers) quality. 'Very Good' or 'Good' certificate given by teachers indicates that the EDUSAT programme is successful in the State. It needs upscaling, systematization and enrichment support from DSERT.**
2. **Motivation:** Develop criteria of BEST TALP School; in a district and give rewards/incentives to such schools, one from each district and top 05 for the State. This

will promote competitive performance for digital learning and promotion of digital skills, use a workshop mode involving variety of stakeholders and experts for the purpose.

3. Provide orientation to parents PTA meeting on the need and significance of online learning. Impress upon the needed home milieu for the same
4. **Assessment:** Develop a subject-wise, standard wise **Battery** of e-projects and assignments for use by schools, teachers and students. Specify number of projects/ assignments to be completed, periodicity of these exercises ensuring balance across subjects and time-use pattern of students. As an annexure, provide a list of school based 8 to 12 standards DLR web –sites and their special features.
5. **Publicity:** Facilitate publication and publicizing exercises of very good quality e-lessons developed by school teachers and students across the state. Roll out a Quality regulations mechanism. Publish information about good quality e-lessons from schools in ‘Shikshana Vaarthe’ magazine of e-lessons.
6. EDUSAT is an extremely useful intervention in Elementary Education, provided it is accorded a higher level of systematized attention and marginal increases in investments.

### **7.17.2 Long Term Recommendations:**

#### **Infrastructure:**

**There is a need for a systematic implementation of TALP programme.**

State of the Art AIO Laptops (as per norms), LED projects (as per norms – strength of the school), SMART Boards with pens, colour printer with scanner, pen drives, computer tables with chairs (as per norms), UPS (generator for large schools), contingency fund for purchase of cartridges, printing paper, service/maintenance and repairs, Wi-Fi monthly telephone bills, installation costs etc. Then only TALP implementation will be wholesome (all items of a kit/package), comprehensive (all schools of the DoE) and systematic (addresses all teaching-learning concerns). Cost Estimate of a TALP tool kit is as follows: lower estimate, basic prices-Rs. 55000/-, a little higher, moderate estimate- Rs, 94000/-, with one laptop and done projector, one smart board. Details are given in the report

#### **Monitoring and Supervision**

There is a need for a **CLOUD NETWORK** in the Department of Education with a spread across all wings of the Department, the DSERT/DIETs specifically, the TALP monitoring wings across all levels of governance, for MIS and SATS management and finally, most significantly the high schools (and PU Colleges). A Wi-Fi network should be

built for the service of all schools/students/teachers. School TALP management will be smooth, efficient and effective with a cloud network. Distinguished software firm/firms can be involved in this work through tendering the service. The department of Schools/PU Education should approach Centre for e-Governance (CeG) of the government to get the feasibility report, get funds from the government after a detailed network plan and get the tendering done through CeG.

**Quality of Training:**

**Soft-ware personnel engaged on contract basis, in every taluk/district can visit PU Colleges, on a peripatetic arrangement and provide hands-on-practice, develop competencies/skills among lecturers in real time contexts when they teach units/syllabi of their subjects.**





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# **Annexure 1: Terms of Reference of the Study**

## **Concurrent Evaluation of the Implementation Processes and Achievements of the Technology Assisted Learning Programme in Karnataka State**

### **1. Title of the study**

Concurrent Evaluation of the Implementation Processes and Achievements of the Technology Assisted Learning Programme in Karnataka State

### **Department implementing the scheme**

Education Department-State Project Director SSA/ RMSA & DSERT

### **2. Background and Context**

#### **2.1 About TALP programme–(Ref: G.O. ED 64 Mahithi 2016)**

Primary and Secondary Education Department is implementing EDUSAT project covering primary schools, Computer Aided Learning (CAL) in primary schools and Tele-Education project covering high schools. In the past, the department has implemented Mahithi Sindhu project, Eleventh Finance commission project, Revised CLASS project, ICT1 and ICT2 projects.

Based on the experience gained from these projects, it has been decided that existing initiatives should be brought under a common programme, which should be teacher driven and focus on the subject related content. This programme called “**Technology Assisted Learning Programme**” (TALP), will cover all Government primary and secondary schools and pre-university colleges. The programmatic approach is expected to provide flexibility and operational efficiency for subject related content creation, teachers’ training and delivery mechanisms.

Following objectives are envisaged for the programme:

#### **2.1.1 TALP programme Objectives:**

The main objectives of the TALP programme are:

- Ensure Digital Literacy for all students of Classes 8 to 12 in Government schools and colleges as per NCERT curriculum for ICT in education (year 1);
- Complement normal classroom teaching with ICT enabled teaching and learning in all subjects
  - a) Use technology and e-content for improving teaching pedagogy in classes 1 to 7
  - b) Use technology and e-content for improving teaching pedagogy as well as for enhancing learning outcomes through hands-on practice of e-content by students in classes 8 and above

- Build teachers' capacity for their role of drivers of the project at school and college levels as per NCERT curriculum for teachers
- Track students' learning achievements including that in ICT enabled learning
- Enhance learning achievements by way of improving mean score of high school students by 5 percentage in SSLC examination
- Establish school / college management information system

### 2.1.2 TALP Components:

There are six key components under the TALP programme:

- EDUSAT:** This component will continue with its current coverage of 2601 primary schools, but the focus will be on development of class and subject specific content, proper maintenance of ROTs (Receive only Terminals) and up-linking facility at DSERT, and establishment of mobile sms-based monitoring system.
- Computer Aided Learning in Primary Schools (CAL):** This component will seek to develop class and subject specific content, and to provide equipment (a laptop and a LCD projector) for delivery of the content to supplement normal classroom teaching in around 5325 primary schools with students' strength of above 200.
- Tele-Education in High Schools:** This component covering 1000 high schools is being implemented in collaboration with IIM Bangalore and its consortium since the academic year 2014-15. Subject to the resolution of copyright issues & contract conditions, this component will be implemented for the contract period of five years.
- IT@Schools\* in Karnataka:** All Government high schools and P.U. colleges\*\* will be covered under this component. During the first year of this programme (2016-17), priority will be given to Government high schools included under ICT 3 project and to other Government high schools from which teachers show willingness for training and use technology for IT enabled teaching and learning.  
\* The ICT@School component will replace the ICT 3 project. While responsibility for training of teachers from aided high schools and providing e-content may be taken by the State Governments, those schools will be asked to fund, procure and maintain the required hardware and connectivity arrangements. This limitation has become necessary due to the lack of adequate funding from Govt. of India and other higher primary demands on the funding available from the State's resources for primary and secondary education.  
\*\* P.U. Colleges will be covered from second year (2017-18) onwards.
- Student Achievement Tracking System (SATS):** Web-based UDISE system, developed with funding from Infosys foundation, will be used as the base for tracking students' learning achievements. In addition, open source applications installed in State Data Centre and school level PCs will be used to monitor usage

of e-content by students. If required, customized applications will be procured following competitive process.

- vi. **Management Information System (MIS):** Web-based UDISE system, developed with funding from Infosys foundation, will be used as the base. In addition, more customized applications will be developed.

### 2.1.3 TALP programme activities:

There are six major activities, which are to be taken up under the TALP programme:

- i. **Teachers' Training:** As the programme is to be driven by the teachers, capacity building of teachers is the major and prime activity. Based on the NCERT curriculum for the teachers, following three levels of trainings are envisaged:
  - a) Level 1 – Induction 01 (Basics) with ten basic refresher modules (01 to 10)
  - b) Level 2 – Induction 02 (Intermediate)
  - c) Level 3 – Advanced refresher modules (11 to 20) and Induction 03 (Advanced)
  - Induction training will be imparted through face-to-face mode, while refresher modules will be delivered through a mix of online and face-to-face mode.
  - Subject teachers and lecturers (Science, Mathematics, Social Science and English in high schools; Physics, Chemistry, Biology, Mathematics, English, Economics, Accountancy and Business studies in P.U. colleges) will be encouraged and facilitated to complete at least Level 1 of the teachers' training.
  - One teacher or lecturer per high school/P.U.college will be encouraged to complete Level 2 of the teachers' training; thereafter perform the role of IT coordinator in that high school/P.U.college.
  - About 70 teachers and lecturers (at least 2 per district) will be trained to complete all the three levels (Level 1, Level 2 and Level 3) of the teachers' training; leading to a diploma certificate from NCERT, and thereafter perform the role of 'District IT coordinator'. The training for these 70 teachers and lecturers will be on full-time basis, without responsibility of classroom teaching during the training duration. The duration will be compressed to about nine months.
  - Head Masters/Head Mistresses (H.M.s) and Principals will be given short-term training in management aspects of the TALP programme.
  - During the first year (2016-17), training of at least 2000 high school teachers (1000 Mathematics teachers and 1000 Science teachers in same high school) up to Level 1. 1000 teachers up to Level 2 and 70 teachers up to Level 3 will be completed.
  - Each of these trainings will have formative and summative assessments.

For the teachers who complete the training programmes successfully and performing the roles envisaged for them (District IT coordinator, School IT coordinator, IT trained subject teacher), suitable incentives on monthly basis will be provided from the programme budget in consultation with Finance Department.

- ii. **Content Development:** e-content for computer/digital device related competencies and for subject related competencies will be developed largely through appropriate adaptation of the content already developed by NCERT, other State government and not-for-profit organizations using free and open source software.

Fresh content development will be mostly in the form of recording of teaching lessons/lectures delivered by expert subject teachers/lecturers.

Such content will be hosted at State Data Center and made available to the schools for download in asynchronous mode and repeated use.

FAQ for each subject will be compiled and updated every year. This facility also will be available for download and local storage. Questions asked live by students during IT enabled learning sessions will be answered by their school teachers.

- iii. **Connectivity for schools and colleges:** Broadband connectivity of 2 MBPS for each school has been recommended by CeG. It is a critical component for effective monitoring of the project and distribution of e-content from SDC to the schools.

CeG's suggestion to seek the connectivity from schools up to Taluka PoP of KSWAN will be followed. Between Taluka PoP and SDC, KSWAN will be used as that arrangement is likely to provide better quality of connectivity.

Consultations will be held with BSNL to get their consent regarding feasibility of providing assured connectivity for each of the schools to be covered under the project. This feasibility check will be done before final selection of school and colleges.

- iv. **Operations and Maintenance Support:** Operation and maintenance support will be an integral part of the programme. Expansion of the programme to more government schools and colleges in second and subsequent years will be taken up only after making adequate arrangements and after earmarking funding for O&M in the schools and colleges already covered in the previous years.

- v. **Development of software for SATS and MIS:** Infosys Foundation has provided funding to M/s ICT Infracon for development of web-based UDISE (Unique District Information System for School Education). The software developed under that initiative and made available to the State government free of cost will be used as the base. Further refinements and improved systems will be developed using in-house capabilities of education department and with assistance from NIC.



- vi. **Supply of hardware to government schools and colleges:** The supply of hardware will follow and not precede teachers' training and their readiness to use the technology.

As a first step, a laptop computer with dongle based connectivity and a projector per high school or pre-university college will be provided in those schools and colleges, where at least two teachers are about to complete level 1 of training. Those teachers will be required to use e-content in their class room teaching.

Once these trained teachers become comfortable in IT enabled teaching over a period of 6 months, the concerned high school or pre-university college will be provided hardware for setting up computer lab for the students.

The CeG has recommended setting up a Central ICT Server in the State Data Center and supplying 15 Mini PCs with 1 Desktop Computer to act as Local Cache and Authentication Server, Open Source Software Linux and Open Source Applications in the concerned school or college. The procurement for the above will be taken up following an open competitive process after obtaining approval of TAP and Empowered Committee headed by Chief Secretary.

#### 2.1.4 TALP implementation arrangements:

The TALP programme will be implemented under the following arrangements:

- i. **Empowered Committee headed by ACS & Development Commissioner:** Review the progress on monthly basis during first 2 years and thereafter at quarterly basis and provide approvals for course corrections and changes in component wise allocations within the scope approved by the Cabinet and annual outlay provided in the budget.
- ii. **Steering Committee headed by SPD, SSA & RMSA:** Monitor the progress on monthly basis, resolve inter-agency issues and provide guidance for implementation challenges faced by PMU.
- iii. **Programme Management Unit headed by DDPI or Sr. ADPI rank officer:** Implement the project, meet as a group on weekly basis, and report to Director, DSERT every fortnight. Services of 3 to 4 IT, management and content professionals from the market will have to be taken to complement the team of officers from the department.
- iv. **District Review Committee headed by CEO, ZP:** This committee with District Informatics Officer-NIC, DDPI, DDPU and DIET Principal as members will review the implementation on quarterly basis.

- v. **District Implementation Unit headed by DDPI:** Meet every month to monitor implementation progress and use of project facilities and content by teachers and students, and resolve inter-agency issues.

vi. **TALP Monitoring level:**

<b>Monitoring Arrangement -&gt;</b>	Empowered Committee	Steering Committee	PMU at DSERT	District Review Committee
<b>Headed by -&gt;</b>	Additional Chief Secretary & Development Commissioner	State Project Director, SSA & RMSA	Director, DSERT	CEO, ZillaParishad
<b>Periodicity -&gt;</b>	Monthly – first 2 years Quarterly - thereafter	Monthly	Fortnightly	Quarterly
<b>Scope -&gt;</b>	provide approvals for course corrections and changes in component wise allocations within the scope approved by the Cabinet and annual outlay provided in the budget	resolve inter-agency issues and provide guidance for implementation challenges faced by PMU	Overall TALP Implementation	Overall TALP Implementation

**TALP Implementation level:**

<b>Implementation Arrangement -&gt;</b>	State level PMU	District level	School
<b>Headed by -&gt;</b>	DDPI or SADPI	DDPI	H.M.

**2.1.5 TALP programme funding:**

The budget 2016-17 carries a provision of 85 crore for “Computer literacy in secondary schools”. Finance department is being requested, in accordance with the rationalization exercise for plan schemes, to rename this provision for “Technology Assisted Learning Programme” so as to cover Government Primary and Secondary Schools and P.U. Colleges and to expand the scope from mere computer literacy to IT enabled learning.

The funding available from the Government of India for ICT in Schools component of RashtriyaMadhyamikShikshaAbhiyan (RMSA) and Computer Aided Learning (CAL) under SSA will be appropriately used for supplementing State resources for this programme. An amount of nearly Rs. 18 crore is committed already for EDUSAT and Tele-Education projects, leaving a balance of around Rs. 67 crore for the new components during 2016-17.

During subsequent years, the total outlay will be limited to the budgetary funding available within the plan ceiling of the department.

### 2.1.6 TALP Implementation Schedule:

The programme has been planned for implementation over a five-year period to cover government primary and secondary schools and pre-university colleges as per scope and components detailed in the previous sections. The implementation schedule for the activities for the first year (2016-17) is detailed below:

#### Implementation Schedule

S.No	Activity	Time Schedule
1	Setting up PMU	May to July 2016
2	Development of teachers' training syllabus for all three levels	May to July 2016
3	Identification and selection of agency for imparting training	June 2016
4	Training of Master Trainers	July to August 2016
5	Establishment of systems for online refresher modules	August 2016
6	Training of 70 teachers up to Level 3	July 2016 to March 2017
7	Training of teachers and H.Ms	September to December 2016
8	TAP approval	July 2016
9	e-Gov Empowered Committee approval	August 2016
10	Procurement of equipment for classroom teaching	October 2016
11	Mapping of existing e-content to subject syllabus	July 2016
12	Development of new e-content and adaptation of content from open sources	August to December 2016
13	Start of classroom teaching	November 2016
14	Procurement of equipment for computer labs	January to March 2017
15	Start of hands-on practice for students	June 2017

### 3 Concurrent Evaluation of TALP

The TALP programme is being implemented in Government schools in Karnataka State since academic year 2016-17. Currently, the department is emphasizing on the Technology Assisted Learning in Government Schools. Various Technology Assisted Learning environments and learning objectives (LOs) are under active implementation into general education system.

#### 3.1 Scope and Purpose

The purpose of the concurrent evaluation is to review the LOs of the TALP programme and to examine the impact of the TALP programme on the education of the students in the State, under well-developed pedagogical and technical evaluation frameworks, in order to suggest the most suitable one for effective and wider implementation. The evaluation is for the period 2016-17 to 2019-20. The evaluation is to cover all the **Components and Programme activities** of the TALP programme during this period.

### 3.2 Objectives

The main objective of the evaluation is to examine the efficacy of the TALP programme - the way it is being planned, organized and comprehensiveness of its implementation and the impact on teaching learning activities:

1. To Conduct the Sample Field Survey to obtain the vital information pertaining to the TALP programme To assess the approach towards planning, allocation and utilization of funds under TALP components
2. To analyze and report after comparison, the extent to which the Objectives of the TALP Programme supported and matched with the objectives of the centrally sponsored programmes (whether the right projects which conformed to the objectives actually supported)
3. To assess if the TALP programme activities are in alignment to the effective implementation of the TALP components and in the direction of attaining programme objectives.
4. To suggest corrective measures, if any, in the implementation process of the TALP components
5. To develop indicators (process, output, outcome and risks) so as to assess the effectiveness of the TALP programme at all stages; from planning to implementation; for use at different levels of administration viz., School, District and State
6. To document achievements and analyze to what extent the outputs/ outcomes (evidenced from objectively verifiable data) fulfill the objectives of the programme
7. To document the financial performance of the programme in relation to the approved cumulative budget outlays provided

### 3.3 Periodicity & schedule of Evaluation

The evaluation is to be conducted every academic year, for the completed years starting from 2016-17 to 2018-19 and Concurrent Evaluation for the academic year 2019-20

### 3.4 Evaluation Issues/ parameters

The following TALP activities are to be evaluated for their effectiveness and alignment to the objectives of the TALP programme

The Concurrent Evaluation shall cover various aspects of the TALP components & programme activities, including but not limited to the following:

- Institutional (Governance, Organizational Structure, Stakeholders and Infrastructure);
- Pedagogical (Learner Needs, Content Analysis, Goal analysis, design and strategy aspects of e-Learning, Teacher Driven, Self-Learning etc.);
- Technological (Delivery Solutions, Connectivity, Bandwidth, IT Infrastructure, Hardware, Software, Security etc.);
- Evaluation (Usability, Performance, Outcomes);
- Resources (Human resources, Assets, Solutions including Different Interfaces);
- Ethical (Equal Opportunity, Social and Cultural) and Financial (Budget, Procurement, Expenditure Management)



### 3.5 Evaluation questions

#### 3.5.1 Related to the TALP programme

1. Critically review the progress achieved in terms of –
  - a) Budget allocation
  - b) Expenditure
  - c) Coverage of Schools & PUCs and beneficiaries over the time period based on secondary data.
2. Flow of funds – adequacy - regularity and mode of transfer
3. Performance and attainment of objectives of the TALP programme across the State. Critically examine the processes (in various stages) and their effectiveness in the actual implementation of the TALP programme. Examine them across the divisions/Districts/ rural and urban areas.
4. To analyze the supply of IT infrastructure and its operational status as well as utilization of funds in terms of purchase of contingency and other materials and bring out its impact on implementation and output delivery across different regions

#### 3.5.2 Implementation of the TALP programme

5. Examine the functioning and efficiency of monitoring mechanism under the TALP programme at various levels
6. Examine the following TALP programme process from the point of adequacy, regularity, quality and reinforcements
  - a) Teacher Training- at the completed level/levels.  
Teacher Training: Selection of Teachers- knowledge, access, willingness of teachers
    - i. e-content created by the trained teachers for delivery of lessons through ICT
    - ii. Contribution of the trained teachers to the central e-Content repository
    - iii. Involvement in conducting ICT curriculum to students
  - b) e-Content
    - i. e-Content availability & utilization (pre-loaded e-content on the school laptop)
    - ii. Readiness assessment of the students for ICT curriculum
    - iii. Involvement of other teachers (not trained under TALP) in ICT based teaching
  - c) IT Infrastructure
    - i. Availability & utilization of Laptop, Projector and Internet (internet dongle – SIM based)
    - ii. Availability & utilization of All-in-One systems in the school computer lab
    - iii. Availability & Utilization of EDUSAT equipment (where ever applicable)
  - d) Internet connectivity
    - i. Availability & utilization of broadband internet connection in the school computer lab
  - e) Maintenance
    - i. Up-time and down-time of all the IT infrastructure
    - ii. Up-time and down time of EDUSAT equipment (wherever applicable)
    - iii. Up-time and down-time of broadband internet connection in the school computer lab

- iv. Formation of ET Cell at the school and its functions as per the guidelines provided to the schools
  - v. Availability & updation of all Asset Management Registers as per the guidelines provided to the schools
  - vi. Identification & disposal process of e-Waste as per the guidelines provided to the schools
- f) SATS and MIS
- i. Availability & live updation of desired data on the dashboard
  - ii. Users of the software applications required for Academic & Administrative purposes
  - iii. Daily Attendance capture of Students
  - iv. Daily Attendance capture of Teachers
  - v. Updation of data as required by the applications on desired periodicity

### 3.5.3 Impact of the Programme

7. Analyze the impact on teaching activity, in the school in terms of time spent by the teachers HM during school hours on attending the TALP Teacher Training programmes across regions & gender.
8. Assess the quality of e-content. What is its impact on interactive learning processes?
9. Assess the quality of EDUSAT content and its impact on the teaching learning processes.
10. Examine the change in teaching methods and approach to children before and after TALP implementation.
11. Impact analysis of the TALP programme on the academic performance of the students in schools at different levels of learning (Comparative analysis of students' average marks of the last 3 years (pre and post TALP implementation) across regions, social groups and gender. Compare the results with control group.
12. Assess the impact on students at pre University level. (Comparative analysis of students' average marks of the last 3 years (pre and post TALP implementation) across regions, gender and social groups. Compare the results with control group.
13. What has been the change in the following (analysis on both primary & secondary data) - Categories of students, gender and across the regions.
  - a) Enrolment at high schools & PUCs
  - b) Attendance at high schools & PUCs
  - c) Transition rate – Government High School to PUCs
  - d) Dropout rate at high schools & PUCs
14. Students' feedback on the TALP interventions in the schools & PUCs:
  - a) Frequency of ICT classes per week
  - b) ICT curriculum
  - c) Ratio of Theory to Practical sessions
  - d) Computer to Student Ratio in Computer Lab
  - e) Frequency of ICT based teaching/learning for subjects per week (e Content)
  - f) Learning experience through e Content for subjects.
- 13 Assess the opinion of teachers regarding the programme. What is the change observed by them in their teaching skills and learning environment in the class room?

**3.5.4 Other Issues:**

1. Document the Best practices in the implementation of the TALP programme at all levels
2. Examine the School Audit reports of the TALP programme and their findings.
3. Make some case studies about TALP implementation at all levels –
  - a) Cases where non-availability of Electricity, Broadband Internet, theft cases, teachers not trained under TALP, non-availability of IT infrastructure are reported / not reported and action taken on these issues -- resolved / unresolved, time taken to address these issues etc.
4. Examine whether the SOP (Standard Operating Procedures) are followed strictly in the schools & Pre University Colleges. Examine the duties discharged by the concerned officials as per SOP.
5. Give concrete suggestions for improvement of the TALP programme for enhancing the outcomes at various levels- teacher training, e- content, monitoring and other components of the programme.
6. Review the models adopted in other States and the possibilities of their application to Karnataka State.

**3.6. Evaluation Methodology**

Qualitative and Quantitative research methodologies should be used together so as to back up one set of findings from one method of data collection underpinned by one methodology, with another very different method underpinned by another methodology.

The Evaluation study has to collect the data both from primary and secondary sources. The data requirement and methodology is presented below (tentative)

**Data collection**

Data Type	Method of data collection	Source of information	Methodology and Tools
Primary	Quantitative data	Key Stakeholders & Beneficiaries School / DIET / DSERT /DPI	Surveys, Observations
	Qualitative data		Focused Group Discussions
			Content analysis
			Interviews
Secondary	Periodical reports, proceedings of meetings (TALP Steering Committee, TAP committee etc.)	Key Stakeholders DSERT / DPI	On selected indicators relevant for the evaluation

### 3.7 Sample Design

#### 3.7.1 Schools & Pre University Colleges (for TALP Implementation)

Total Schools + PUCs where TALP programme is implemented 3250

Total Educational Districts = 34

#### 3.7.2 Sample for the study

Years	Total Schools	Schools in Sample	Sample Students	Sample Teachers	Total Colleges	Sample colleges	Sample Students	Sample Teachers
2016-17	1000	200	2000	1000	-	-	-	-
2017-18	750	150	1500	750	250	50	500	250
2018-19	750	150	1500	750	250	50	500	250
2019-20	750	150	1500	750	250	50	500	250
Total	3250	<b>650</b>	<b>6500</b>	<b>3250</b>	750	<b>150</b>	<b>1500</b>	<b>750</b>

\* Schools - All the 34 Educational Districts to be covered, with at least 2 Talukas per district randomly. The sample schools should have at least 15 schools where EDUSAT programme is being implemented 10 students and 5 teachers (including 1 H.M) per school to be taken randomly for the final sample.

\*\* P.U.Colleges- All the 34 Educational Districts to be covered, with at least 2 Talukas per district randomly. 10 students and 5 teachers (including 1 H.M) per school to be taken randomly for the final sample

Control sample of 1%

**Note: Random sampling will be done at KEA**

**Sample for Implementing Officers**

#### 3.7.3 BEOs & BRCs (for TALP Implementation)

No. of BEOs & BRCs = 204 (each)

Sampling Size for BEOs & BRCs = 3 per district = 3 X 34 = **102**

#### 3.7.4 DIETs / District DDPI –Admin (for TALP Implementation & Monitoring)

No. of Divisions = 4 (Bengaluru, Belagavi, Kalaburagi, Mysuru)

No. of Educational Districts = 34

Total DIETs = 34

Sampling size for DEITs = **20** (5 districts per division to be covered)

#### 3.7.5 DSERT (for TALP Implementation & Monitoring)

Director = 01

Joint Director = 01

Deputy Director = 01

Sr. Asst. Directors (SADPI) = **06** SADPIs

#### 3.7.6 SSA (For TALP Monitoring)

State Project Director, SSA & RMSA = 01

Programme Manager-SATs & MIS =01

**Total IDI=133 (approximately135)**



**FGDs= 34 (1 per district)**

### 3.8 Expected output from Evaluation

A comprehensive report highlighting, but not limited to, the following aspects:

- Effectiveness of the overall implementation of TALP programme in achieving the defined objectives as envisaged
- The specific contribution to the effective use of technology in order to comprehend the efficiency of the training inputs and e-content availability
- Quality of e-content and its contribution towards interactive learning processes
- Gap between approved physical and financial targets vis-à-vis achievements
- Infrastructure development and maintenance along with power supply and internet connectivity
- Effectiveness of programme management system
- Roadblocks/congestions/constraints in the implementation of the programme, in terms of availability of personnel's, budget, support system, monitoring system, etc.
- Suggestions and recommendations
- Separate reports for each year and a consolidated report.

### 3.9 Deliverables & Time schedule

The Department of Public Instruction and KEA will provide the necessary information pertaining to the concurrent evaluation study and also co-operate with the consulting organization in completing the assignment task within the stipulated time period. The concerned officials (at all levels) will be instructed by the department for providing the required information/data at the respective levels.

#### Deliverables vs Timelines:

Inception Report	1 month after signing the agreement
Field Data Collection	4 months after the inception report
Draft report submission	1 month after Field Data Collection
Final report	1 Month after Draft report submission
<b>Total duration</b>	<b>7 Months</b>

### 3.10 Qualities Expected from the Report

The evaluation report should generally confirm to the United Nations Evaluation Guidelines (UNEG) "Standards for Evaluation in the UN System" and "Ethical Standards of Evaluations".

The report should present a comprehensive review and assessment of the TALP programme in terms of the content, implementation process, adequacy, information and impact on the beneficiaries.

The qualitative data should be used in unbiased manner to support or for further analysis of the reflections from the quantitative data. The analysis should provide adequate space for assessing the variations across the regions. Case studies to be presented to bring out the realities at the field level.

This is a concurrent evaluation. Therefore, the report should come out with specific recommendations based on adequate field evidence for any modifications in the programme design, content, implementing procedures; and any other modifications to take up mid course corrections to improve the access and impact of the Programme.

### 3.11 Structure of the report

The following are the points, only inclusive and not exhaustive, which need to be mandatorily followed in the preparation of evaluation report:

The report should be complete and logically organized in a clear but simple language. Besides confirming to the qualities covered in the Terms of Reference, report should be arranged in the following order:

#### 1. Preliminary Part

- a) Title and Opening Page
- b) Index
- c) List of acronyms and abbreviations
- d) Executive Summary- A section that describes the program, purpose and scope of evaluation, research design and methodology, key findings, constraints and recommendations.

**2. Background** - A section that briefly covers the history or genesis of the sector under which the programme being evaluated is covered. It should give recent fact sheets taken from reliable and published sources and review of the progress of the programme at all levels.

**3. Objectives and performance of the program** - This section includes the Stated objectives of the program and the physical and financial achievements of the selected program in the period of evaluation. It should cover the description of the target group, aim of the program and method of selection of beneficiaries and the physical and financial achievements.

**4. Review of literature/past evaluation reports and their findings**

**5. Evaluation Methodology** - This should include research design, sample design and size, questionnaire design and pilot test, data collection and quality assurance plan.

**6. Limitations/constraints in the evaluation study**

**7. Case Studies & Best Practices**

**8. Findings of the evaluation study**

**9. Recommendations that flow from the evaluation**

**10. Annexure**

- a) Sanctioned Terms of Reference of the evaluation study
- b) Survey tools and questionnaires
- c) List of persons with addresses personally interviewed.
- d) Place, date and number of persons covered by Focus Group Discussion (if applicable).
- e) Table showing details of major deviations, non-conformities, digressions of the program.

**4. Study Team- administrative arrangements**

Principal Investigator	I Class Postgraduate in Education/ /Ph.D in the subject is preferable.	05 & more years of experience in Education/ and related sectors./ experience in education training, content development
1 <sup>st</sup> Core team member	Postgraduate in Education.	Should also possess a minimum of three (3) years of experience in Education/ / allied sector projects/

2 <sup>nd</sup> Core team member	Postgraduate in MCA / MSc. Computer Science /Statistics with knowledge of Statistical analysis	3 years' experience in data analysis
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The department and KEA will arrange to provide all the necessary data and information to conduct the evaluation study.

## 5. Cost and Schedule of Budget release

The Output based budget release will be as follows-

1. The **first instalment** of Consultation fee amounting to 30% of the total fee shall be payable as advance to the Consultant after the approval of the inception report, but only on execution of a bank guarantee of a scheduled nationalized bank, valid for a period of at least 12 months from the date of issuance of advance.
2. The **second instalment** of Consultation fee amounting to 50% of the total fee shall be payable to the Consultant after the approval of the Draft report.
3. The **third and final instalment** of Consultation fee amounting to 20% of the total fee shall be payable to the Consultant after the receipt of the hard and soft copies of the final report in such format and number as prescribed in the agreement, along with all original documents containing primary and secondary data, processed data outputs, study report and soft copies of all literature used in the final report.

Taxes will be deducted from each payment, as per rates in force. In addition, the evaluating agency/consultant is expected to pay service tax at their end

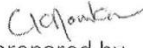
## 6. Selection of Consultant Agency for Evaluation

The selection of evaluation agency should be finalized as per provisions of KTPP Act and rules without compromising on the quality.

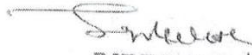


**7 Contact person for further details**

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- Consultant (Evl.) KEA

  
ToR prepared by  
(Dr. Chaya Degaonkar)

Chief Evaluation Officer  
Karnataka Evaluation Authority

  
**DIRECTOR**  
**DSERT**  
DSERT  
Education Department  
Bangalore

**Annexure**  
**TALP PROGRESS – As on July, 2018**

**I. IT@SCHOOLS IN KARNATAKA**

**1. Teacher content development and training**

During 2016-17, 2000 Teachers (Mathematics and Science) and 1000 HMs from 1000 selected Schools were trained with GOK prepared Induction-1 content.

During 2017-18, 2000 teachers (Social Science and English) of the same schools have been trained using content prepared by CIET for Induction-1. This programme consists of instruction session, hands on activities, assignments for e-portfolio submission. All the contents are made available on a MOODLE platform ([ictcurriculum.gov.in](http://ictcurriculum.gov.in)) and handouts are available for all these activities. 3000 Mathematics, Science, Social Science & English Teachers and 750 HMs of schools selected during 2017-18 were trained this year using the same content. 320 MRPs (10 from each educational district) have also been oriented on Induction-1 content developed by CIET. In all as against the target of 5750 teachers, 5116 have been trained during 2017-18, a progress of 90% has been achieved. 90 MRPs of PU Board have been trained in Induction-1 for 10 days trained lecturers of 250 colleges selected during 2017-18.

A two day orientation on mentoring online refresher course was conducted by CIET faculty for 143 including MRPs and SRPs. The Refresher-1 Course for 8 SRPs was launched on 13<sup>th</sup> Nov 2017. During the course of SRP training on Refresher-1 through online mode, CIET experienced challenges in providing online training course that would have to cover thousands of teachers in the due course. Hence, CIET has suggested the course to be redesigned as face-to-face training of 5 days with submission of around 20 assignments. This redesigned model is yet to reach the state from CIET and the same is supposed to get imparted to SRPs and MRPs in the month of April 2018. This will be in turn taken up for training of teachers at DIETs for those teachers of 2016-17 and 2017-18 who have completed Induction-1 training.

For Induction-1 training as prescribed by CIET, 140 hand-outs in Kannada have been developed by the content development team consisting of Government School teachers and in collaboration with APF. The same have been aligned with CIET curriculum with 52 video contents. These 52 videos have been shot in English and published on YouTube channel for wide utility provision with a link to DSERT website.

The videos, nearly up to 120 in number, which were developed for Refresher-1, before CIET revisited the format, are being edited for publishing for the use of teachers. The videos on Apps and Tools like **Geogebra**, **Stellarium**, **PhET**, **Google Earth** etc are being edited for ready reference of teachers. APF is assisting in shooting and editing of these videos. The videos are under final review before publishing the same on **YouTube**.

**Progress during 2018-19:**

Under Induction-1 training, each trainee is supposed to submit 39 assignments. The assignments of 8026 trainees submitted under this training programme are being reviewed by mentors. 225 mentors have been identified for evaluating these assignments by assigning the assignments of 30 to 35 trainees to each mentor. The mentors and trainees are to be registered in the MOODLE platform by the state resource persons and only then mentors can evaluate the assignments. This process was delayed due to non-functioning of the CIET portal for more than 15 days in the month of June 2018. The portal is allowing just the view of assignments and assessment is being carried out through recording on Google sheet in few districts from the end of July 2018. The evaluation of assignments is significant for announcing the teachers to be eligible for Refresher-1 training based on the grading of Induction-1 training programme.

It is very necessary to carry out assessment on the portal for complete monitoring and grading of individual trainee. Presently CIET is developing a new cloud based portal (In-service Teachers Professional Development) to sustain the load of huge number of trainees and assessments of Karnataka. This is under auditing stage at CIET and may be made available shortly. This will further help in conducting online courses.

During April and May 2018, Induction-1 training was conducted in 2 teams for DIET and DSERT faculty from April 9 – 18, 2018 and from May 16-25, 2018 covering 75 members.

Based on the instructions from Government, teachers of Tele-Education Government High Schools are being giving Induction-1 training. 4 subject teachers from 444 schools of 23 DIETs are being given Induction-1 training at 23 DIETs from July 2018. 527 teachers have been trained so far out of 1776 schools with 30% progress. The training of these teachers will be completed by the end of August 2018.

#### **Refresher-1 training:**

11 days Refresher training for State Resource Persons was conducted by CIET at RIE Bhopal from 19.06.2018 to 29.06.2018. A team of 15 Resource Persons were sent to this training programme. These 15 Resources Persons are training 126 MRPs in three batches at Bangalore with 4 MRPs from each district. There are 36 Sessions and 33 e-portfolio assignments in the course. Training is being conducted at DSERT, Bangalore and DIET Bangalore Rural from 30.07.2018 to 08.08.2018 and at DIET Bangalore South from 06.08.2018 to 15.08.2018. These MRPs will have to submit their assignments within August 2018 and SRPs will grade these assignments. District level training of teachers will start from August 2018.

A request has been raised with PMCU of TALP project to assist in designing the online tracking system to assess the impact of training programme in the classroom processes. However there is also an effort to collate the information received through google.com. This monitoring format is capturing the school practices in Technological Pedagogical Content Knowledge by teachers. The DIETs are using these formats to review the progress in schools and the same are getting updated on google.doc. About 750 schools have been visited so far and training related information of these schools is readily available. Many google forms are being updated using hard copies which were not entered online due to network issues. 80% Assignments of 2016-17

batch teachers have been submitted so far. There is a continuous effort in motivating the teachers to complete their assignments. DIETs and MRPs are following it up with teachers and extending support to complete their assignments through interactive sessions after the school hours.

## 2. Mapping and developing Digital Learning Resources / e-contents

**a. Pre-loading of e-contents on laptops:** Digital Learning Resources (DLRs) have been shared with 1000 schools so far under the project as pre-loaded content on laptops supplied to these schools in the first phase. Same will be done with another 750 schools who will receive laptops in the last week of March 2018. The contents so far preloaded cover Mathematics and Science subjects. These contents are mapped on the offline webpage for an easy navigation for teachers and students in schools. The available DLRs from Tele-education, Edusat, CALC, Olabs, Khan Academy, KOER, Radio, Agasthya Foundation have been mapped and integrated to class 8 to 10 syllabus for the preloading of contents. A google form was circulated to schools where laptops were supplied for feedback on the contents pre-loaded. 377 teachers have responded so far. The teachers are finding it useful for classroom interactions.

**b. Curation of 45 Olab Experiments:** Curation of 45 Olab Experiments including animations, simulations and videos is completed and the offline version of Kannada videos that were developed in convergence with AmruthaVidyaPeetham, Kerala, has been provided to DSERT. These are hosted on AmruthaVidyaPeetham website.

**c. e-Resource development for Social science and English Language:** The task has been taken up and two meetings were held with Social Science and English teachers to identify the resources.

Mapping of available e-resources and need analysis workshop was organized from 17.07.2018 to 21.07.2018 at DSERT, Bangalore, 8 resource teachers from each of English, Social Science, Science and Mathematics. English team is of the opinion that if they were trained in "Animation Skills" and "Audio and Video Editing Tools" they can create the resources suitable for language teaching in the classroom.

### **d. e-Reflection with e-Reflectors:**

e-Question Banks with self evaluation package in English, Science, Mathematics and Social Science has been developed for class 10 syllabus with macros enabled excel sheet. This was developed for English subject by Mr.SathyanarayanHegde, AM, GHS, Ummachagi, Yellapura Taluk, Uttara Kannada District. Further, DSERT has asked other districts to design similar e-Question Banks in subjects like Science, Mathematics and Social Science. This was developed between Aug 2017 and Nov 2017 and shared with DIETs through emails during Dec 2017. DIETs have been directed to circulate it to all schools and the schools are already using these e-Question Bank. Feedback has been received from teachers on the utility of e-reflectors. 377 teachers have given their feedback through google form. Most of the teachers are finding this useful, particularly in schools where computers are available for the ready use of students.

### **e. ICT student course content for year-1:**

ICT student curriculum for all the 3 years is available in English in CIET website which is developed as per the National ICT Curriculum. ICT student course for year-1 has been translated to Kannada language at DSERT. The first phase of peer review of the translated content has been completed.

One Brainstorming Workshop was organized to discuss and decide on the ICT content to take up in the State. ICT content by CIET-NCERT, ICT content followed by the States of Kerala, Telangana, Mahiti Sindhu and NSQVF are compared and Analyzed.

Follow up meeting was held and it was agreed to follow ICT content by CIET-NCERT and the Structure of Telangana ICT Text Book.

**f. Localisation of Khan Academy e-content:**

Government of Karnataka has partnered with Khan Academy to make available the educational content including videos, exercises, articles and teacher tools, in Kannada by signing an MOU on 13.09.2017. Under the partnership, DSERT, Karnataka will translate and localize the contents in Kannada. This process includes localizing already available 5,500+ videos and 20,000+ exercises in Mathematics and Science, including dashboards.

A Government Order for Localization of Khan Academy Resources- ED 09, Mahiti 2018, Bengaluru, Dated 01.02.2018 is issued. In the Month of April Inperson meeting with 5 shortlisted resource teachers was held out of which 2 teachers were selected for Video creation and all the 5 for translation of Math Practice teachers. 2 resources teachers were selected as Approvers of translated Math practice sheets and 2 DIET lecturers are working on translation and approving KA Website.

Video Creation:Steps were taken to deploy 2 teachers selected for Video creation on fulltime deputation.

Text Translation: Translation work is in Progress. Website translation as complete, approval is yet to be done. About 30% of Math practice sheets is done.

**3. Procurement of hardware/software and technical human resource:**

**a. LCD projectors and Laptops:**

For 1000 schools selected under the project during 2016-17, 400 LCD projectors (600 schools had reported the availability of working LCD projectors) and 1000 Laptops have been supplied in the month of Sept, 2017. For 750 schools selected under the project during 2017-18, LCD Projectors have been supplied to 365 schools (385 schools had reported the availability of working LCD projectors) 365 LCD Projectors and 750 Pre loadedLaptops supplied and installed in the month of March for which 80% out of 70% of the tender amount has been released to the vendor. The detailed circulars and guidelines were issued to all the schools through DIETs. Feedback and usage of these materials is being collected from DIETs.

**b. School Computer Labs:**

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Entry level All-in-One computers have been approved by the TAP committee and a Government Order dated 27.02.2018 has been issued. The Tender committee prepared draft RFP. The approved tender document floated in E-Procurement on 27<sup>th</sup> of March 2018 as long term tender. According to schedule of tender the technical proposal opened on 20<sup>th</sup> July 2018 for two bidders participated in this. It is being evaluated by the Tender Committee. Each school will get All-in-One computers (under the slabs of 10 computers, 15 computers and 20 computers depending on the student strength), a Server, BSNL FTTH connection and Content Delivery Network (100 schools on pilot basis). The school labs will be functional and will be available to impart student curriculum from October, 2018 onwards.

**c. DIET Computer Labs:**

340 laptops to 34 DIETs, with 10 computers to each DIET, have been supplied during 2017-18 and all DIETs are using these laptops in their training programmes. 30 DIETs received the laptops during Dec, 2017 and 4 DIETs received the laptops during Feb, 2018.

**d. Data cards to 1000 schools and 30 DIETs:**

A meeting with BSNL officials was held on 30.11.2017 to discuss the feasibility for the supply of Data Cards to schools and DIETs. BSNL suggested for having the Fiber Optic Network Connectivity in place of providing 2G Data connectivity as it would not be possible to have tower connectivity in rural areas and particularly the 2G connectivity would not even make possible the downloading of any webpage/e-content. Hence the proposal to provide Data cards to schools and DIETs has been dropped and DSERT is considering the suggestion by BSNL to provide Fiber Optic Network Connectivity.

**e. DSERT Computer Lab:**

A state level computer lab with a capacity of 40 All-in-One computers has been created at DSERT. The computers have been supplied and the lab will be inaugurated in the 3rd week of March, 2018. This lab will be used for state level training programme and development activities under TALP project. Till the date five state level training programmes have been successfully carried to MRPs and DIET faculty.

**f. BSNL connectivity to school computer labs:**

FTTH connections have to be provided to 1000 schools selected during the year 2016-17. A monthly plan of Rs.1091/- for broad band connections with 8 Mbps speed has been approved for 1000 schools. A one-time cost of Rs.14500/- towards ONT and Rs.750/- towards installation has been proposed by BSNL in its proposal dated 14.02.2018. However, based on the decision of the 6<sup>th</sup> Steering Committee meeting held on 08.01.2018, the action has been initiated to purchase a single unit RJ45 connector and BSNL NTU that will replace a separate switch and modem but it was tested by BSNL officials and opinioned thus not compatible. A meeting will have to be held with BSNL for deciding on the required modem.

**g. Establishment of Programme Management Consultancy Unit – PMCU**

PMCU has been setup in DSERT for the implementation of TALP activities. NISG, Hyderabad is providing the required support for constituting this unit by deputing required personnel. MoU



has been signed with NISG in this regard. PMCU will have a Project Manager, Functional Consultant, Technical Consultant and E-Content consultant. The PMCU supports the department in implementing the various activities like Teachers' training, Content development, broadband Connectivity to schools and colleges, Operation and Maintenance Support, Development of software for SATS and MIS, Supply of hardware to government schools and colleges and TTMS and Examination management system for secondary and higher secondary (pragathi), etc. According the MoU DSERT paid the fund till Feb 2018. The functionality of the PMCU (NISG) resource team received by Hon'ble Principle Secretary and TALP nodal officer also Director DSERT on time to time.

The PMCU is now assigned with the complete IT architectural development of the department as per the note of the Principal Secretary, Primary and Secondary Education, on 22.01.2018. The Project Manager and the Technical Consultants are placed at SSA state office as the team is part of the Project Monitoring Unit of the State Office.

#### **h. Selection of schools for 2018-19:**

A ToR for selection of schools for implementing IT@Schools in Karnataka programme is being prepared. 750 schools will be selected based on the availability of infrastructure and required number of teachers. Funds will be released to DIETs for status check of these schools based on which site preparation cost will be paid including 750 schools and last 2 years 1750 schools status check of UPS, Battery, LCD Projectors will try out through OEM which supplied the previous equipment. Tenders will also be invited for supply of hardware to 250 colleges as per the directions from Government.

#### **i. Room/site preparation in 1750 schools selected under IT@Schools during the last 2years:**

All 37 non-ICT schools have utilized the site preparation cost of Rs.179352/- released during July 2017. The other 939 ICT schools had placed their requirement of funds for repair and replacement under room preparation activity. Rs.529 lakhs has been released based on the requirement received from the DIETs during Feb 2018. A detailed guideline has been issued regarding the utility of funds for site preparation and directions have also been provided in the video conference held on 17.02.2018 with DIET Principals. Progress in this regards has been reviewed and 940 schools have presented the documents of to establish completion.

#### **j. Verification of computer labs in schools selected in 2017-18**

A ToR is being developed for status check of 2250 schools. A meeting held with OEM's of previous projects supplied equipments. The status report is expected to get compiled by the 2<sup>nd</sup> week of August 2018 for which funds will be released by the end of August 2018. These schools will have the computer lab established by Oct, 2018 for imparting digital literacy to students.

## **II. TELE-EDUCATION**

The Tele-Education project is based on SAME model i.e., streaming of Tele-lessons using Satellite Advancement Multimedia Education (SAME/Tele-education). IIMB Consortium is providing the technology platform for remote rural school student interaction with Subject

## Concurrent Evaluation of the Implementation Process and Achievements of the Technology Assisted Learning Programme in Karnataka State

Matter Experts (Moderator) during Tele-education classes to clarify their doubts after LIVE sessions. This facility has undergone transformation from the initially visualized model owing to the challenges of broadband connectivity in the field.

1000 rural schools were selected for the action research project by IIMB during 2013-14. The programme covers 700 High Schools and 300 Higher Primary Schools. The MoU was signed on 06.03.2014 between DSERT and IIMB. The studio located in DSERT is being used to telecast the programme through EDUSAT hub. Two-way connectivity is a key component required for interactivity and learning can occur in interaction method.

The Project is under consideration of the Government and hence is not being implemented in 2017-18.

### III. EDUSAT

- a. Telecast of video lessons under EDUSAT programme is being implemented in collaboration with ISRO since 2004-05. The programme is being implemented in five districts, Bangalore Rural, Chamarajanagar, Kalburgi, Ramanagar and Yadagiri. This programme is being implemented in 2547 schools from Class IV to Class VIII in the current academic year. The transmission of Edusat Lessons has begun from 20.07.2018.
- b. Supply of equipments and installation in 41 centres for Video Conferencing is completed from the Centre of e-Governance. KSWAN connectivity for all 41 centres is being provided by CeG for Video Conference facility. Components like VC Endpoint, Display, UPS (1KVA) and KSWAN 2 Mbps Connectivity are part of this infrastructure. These equipments have been supplied and installed in all 41 locations. Till the day of this report preparation 21 DIET's, 6 DDPI's office, C.P.I Office, P.U.Board & DSERT locations have been given connectivity. It is assured to complete the connectivity by 2nd week of August 2018. A DO letter has been drafted to be sent to Centre for e-Governance through the Principal Secretary, Primary and Secondary Education for completion of the work without further delay as the work is taking more than 15 months.
- c. The Up-gradation of Krishna Studio, SIT Studio and Audio Room located at DSERT has been completed. In this regard, DSERT has formed a Technical Committee for checking the Installation, Commissioning and quality of audio and studio equipments as per the specifications. The Installation, commissioning and acceptance test was conducted on 28.07.2018. The Technical committee has submitted the report regarding the observations done for the acceptance of Studio equipments. Completion of Installation and Commissioning is awaited from the supplier as per the Committee report.
- d. For real time monitoring and analytics on the success of EDUSAT programme, Automated Monitoring System is being built into the project in convergence with Centre for e-Governance. The Pilot testing at Ramnagar district was done in the 1st week of April 2018 and used from 20.07.2018.
- e. CIET, New Delhi, MHRD sent offer letter to start DTH TV channel under the Umbrella of "SwayamPrabha". The Government of India has decided to bear 2.05 crores as one time cost to set up channel. In this regard Hon. Principal Secretary, P. and Sec Govt. of Karnataka



ordered to submit the proposal to start DTH TV channel at DSERT under the umbrella of "SwayamPrabha". In this connection DSERT requested to provide necessary technical support to assess the existing facilities and suggest any further equipments for upgrading/upgrading/modernizing the facilities at DSERT to begin the education channel.

- f. On DSERT's request Joint Director, CIET sent Smt.PushpalathaKumari, Sr.Engineer from CIET(NCERT), New Delhi. She visited DSERT on 28.07.2018 and 30.07.2018 and inspected the Studio's existing equipment, Bandwidth and available content. She informed that the report will be submitted on 01.08.2018. Proposal will be submitted to CIET, New Delhi, MHRD after receiving report from Smt. PushpalathaKumari, Sr.Engineer from CIET(NCERT), New Delhi.

#### IV. Radio Programme:

The Radio Programme was started in the year 2000-2001. It was being implemented for class 1 to class 8. The department sponsored the broadcasting of radio lessons to schools on payment mode. The programme had to be evaluated for its effectiveness in Nali-Kali classroom where Class 1 to 3 students learn in a joyful learning atmosphere and integrating radio lessons is a challenge. Further, preparing classes for radio lessons and providing time in multi grade primary schools is an added challenge in allowing the lessons to be heard by students. In this regard, the Government decided to conduct an evaluation of the programme to understand the effectiveness in these classrooms and improvisation required. A letter has been written to the Karnataka Evaluation Authority for evaluating the programme for which a ToR has also been submitted. KEA is seeking 8 to 10 months time to complete the evaluation and submit a report after which decision on the further course of action may be taken.



## Annexure 2: Evaluation Matrix of the Study

CRITERIA	EVALUATION QUESTIONS	SUB-QUESTIONS	INDICATORS	DATA SOURCES	DATA COLLECTION METHODS	DATA ANALYSIS
EFFECTIVE	<p><b>1. What is the progress achieved in terms of:</b></p> <p><b>(A) Budget Allocation</b></p> <p><b>(B) Expenditure</b></p> <p><b>(C) Coverage of schools and PUCs and beneficiaries over the time period based on secondary data.</b></p>	<p><b>A (i) What is the budget allocated under TALP?</b> Amount released and spent under various components in 2016-17, 2017-18, 2018-19, 2019-20</p> <p><b>A (ii) What are the Components of Allocation (year-wise)</b></p> <ul style="list-style-type: none"> <li>• E-content Development</li> <li>• Training</li> <li>• Hardware Supply</li> <li>• Connectivity</li> <li>• Maintenance</li> <li>• Others</li> </ul> <p><b>B (i) What is the yearly expenditure under TALP?</b> NOTE: <i>These breakups will be taken for EDUSAT, SATS, MIS and IT@Schools/PUCs for both schools and PUCs</i></p> <p><b>C(i) What is the coverage of the</b></p>	<ul style="list-style-type: none"> <li>• Structure of allocation in plan/proposal and actuals.</li> <li>• Efficiency of the fund allocation process (As per Timely releases from ED/ DoE to DSERT, DSERT to DIETs, DSERT to Schools- hardware)</li> <li>• Efficiency of fund utilization across the components.</li> <li>• Expenditure for the above components in schools and PUCs for the years 2016-17, 2017-18, 2018-19, 2019-20</li> <li>• Spatial coverage of schools and PUCs under TALP for years 2016-17, 2017-18, 2018-19, 2019-20</li> </ul>	<ul style="list-style-type: none"> <li>• Education Department</li> <li>• DoE/CPI</li> <li>• DSERT/ PU Board</li> <li>• Budget documents from above departments</li> <li>• Students</li> <li>• Teachers/Lecturers</li> <li>• HM/Principal</li> </ul>	<ul style="list-style-type: none"> <li>• Secondary data (IT@Schools, IT@PUCs, EDUSAT, SATS, MIS for years 2016-17, 2017-18, 2018-19, 2019-20)</li> <li>• Review of documents for E-content development</li> <li>• Interviews of SPD-SSA2, Director-DSERT, DIET Principals, PU Commissioner (IDIs) for any clarifications.</li> <li>• Desk reviews with above departments</li> <li>• Review of e-</li> </ul>	<ul style="list-style-type: none"> <li>• Documentary Analysis of data</li> <li>• Secondary data analysis</li> <li>• Progress Review-proportional expenditures/ allocations to components (average per capita allocation and expenditure per student)</li> <li>• Interview Data Analysis</li> <li>• Review of published studies from Education</li> </ul>

		<p><b>following components for the years 2016-17, 2017-18, 2018-19, 2019-20?</b></p> <ul style="list-style-type: none"> <li>• Schools and PUCs under TALP (division-wise)</li> <li>• Teachers/ Lecturers trained under TALP</li> <li>• Students in TALP schools/PUCs</li> <li>• E-Content/ Digital Learning Resources available for teaching/ learning purposes.</li> </ul>	<ul style="list-style-type: none"> <li>• Number of teachers trained.</li> <li>• Student to computer ratio in schools.</li> <li>• Division-wise coverage of teachers/ lecturers trained under TALP.</li> <li>• Comparison of yearly targets to actual coverage of schools/PUCs</li> <li>• Review of topics are taught with computer aid in schools/ PUCs.</li> </ul>		<p>content with teachers/ lecturers</p> <ul style="list-style-type: none"> <li>• Questionnaire</li> <li>• Review of E-content material.</li> </ul>	<p>Department.</p> <ul style="list-style-type: none"> <li>• Incidence of public expenditure on TALP.</li> </ul>
<b>SUSTAINABILIT</b>	<p><b>2. FLOW OF FUNDS</b></p> <p><b>A. Are the funds adequate?</b></p> <p><b>B. Are the funds regular?</b></p> <p><b>C. What is the mode of transfer of the funds?</b></p>	<p>A. Are the allocations adequate for you- as per your plan proposals, (allocation vs release matches)?</p>	<ul style="list-style-type: none"> <li>• Allocation and release plan proposal</li> <li>• Amount released well within expected time</li> <li>• Release through Direct Bank Transfer</li> <li>• Timeline for flow of funds</li> </ul>	<ul style="list-style-type: none"> <li>• Records and documents from ED/ CPI/ PU-CPI/ DSERT/ DIETs/ SSA2</li> <li>• Feedback from Stakeholders</li> </ul>	<ul style="list-style-type: none"> <li>• Examination of Records</li> <li>• Interview of Stakeholders</li> </ul>	<ul style="list-style-type: none"> <li>• Documentary Analysis</li> <li>• Ratio of release allocation</li> <li>• Delay analysis</li> </ul>

<p><b>EFFECTIVENESS AND IMPACT</b></p>	<p><b>3. (A) How is the performance of TALP across the state? Have the objectives of the TALP been attained?</b></p> <p><b>3.(B) How have the processes (in various stages) been effective in the implementation of TALP across Divisions/ Districts/ Rural and Urban areas.</b></p>	<p>A. What was the process followed for development of the e-content for IT@Schools (PU Colleges) developed?</p> <p>B. How is the e-content delivered to students, schools/ colleges? What are the contents of the package?</p> <p>C. What are the principles of selection of schools/ colleges and Induction eligible teachers/ lecturers?</p> <p>D. How many teachers/ lecturers are trained in Induction 1, across the years 2016-2020, year by year (gender, social composition)?</p> <p>E. What is the hardware provided to schools/ PUCs (laptops (pre-loaded), projections, mouse, dongles etc.)</p> <p>F. What is the e-connectivity arrangements made available?</p>	<ul style="list-style-type: none"> <li>• Workshops conducted</li> <li>• Sources of materials collected and compiled.</li> <li>• Records of training completion (as per plan/ shortfall, if any)</li> <li>• E-content development- as per estimated time-plan</li> <li>• Proper time-table (within/ outside school hours)</li> <li>• Supply of hardware</li> </ul> <p><i>NOTE: These data are needed year-wise, 2016-2020, Division/ District/ R-U wise.</i></p> <ul style="list-style-type: none"> <li>• Number of teachers/ lecturers trained under TALP (division, gender and social category wise)</li> <li>• Academic background of teachers trained under TALP.</li> <li>• List of hardware supplied to schools/ colleges for years 2016-17, 2017-18, 2018-19, 2019-20</li> <li>• Wi-Fi or internet connection provider (service provider, speed)</li> <li>• Criteria for stakeholders of schools as per guidelines and in actual.</li> <li>• Criteria for selection of schools</li> </ul>	<ul style="list-style-type: none"> <li>• Records from DSERT/ DIETs</li> <li>• Records from SSA2 (RMSA)</li> <li>• Schools/ Colleges</li> <li>• Teachers/ Lecturers</li> <li>• Marks Registers from schools/ PUCs</li> <li>• Students</li> <li>• Field Reports</li> </ul>	<ul style="list-style-type: none"> <li>• Review of documents from various departments.</li> <li>• E-content analyses through review-workshop with expert validation.</li> <li>• Comparison of e-content to syllabus taught in schools/ PUCs</li> <li>• Observation in classrooms or computer labs</li> <li>• Questionnaire</li> </ul>	<ul style="list-style-type: none"> <li>• Documentary technique</li> <li>• Descriptive Analysis</li> <li>• Comparative Analysis</li> <li>• Content Analysis</li> <li>• Average availability of hardware per student.</li> </ul>
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<b>EFFICIENCY</b>	<p><b>4A. How efficient is the supply of IT infrastructure? What is the operational status and utilization status of the funds for contingency and other materials?</b></p> <p><b>4B. How is the implementation and output delivery across different divisions?</b></p>	<p>A. How many pre-loaded laptops were provided to schools/ PUCs in years 2016-17, 2017-18, 2018-19, 2019-20</p> <p>B. What is the availability of computers to students?</p> <p>C. What is the functional status of computers?</p> <p>D. Who are the stakeholders involved in provision of services?</p> <p>E. Which are the low-performing and high-performing divisions in the State?</p>	<ul style="list-style-type: none"> <li>• Number of computers in the lab</li> <li>• Number of functional computers on the day of the visit.</li> <li>• Entries/ Tickets raised for service/ repairs.</li> <li>• Contingency funds claimed</li> <li>• Funding of TALP infrastructure (Contingency funds) Schools with functional computers in computer labs</li> </ul>	<ul style="list-style-type: none"> <li>• Sample schools/ Colleges, Schools (Computer Labs)</li> <li>• DSERT/ PU Board</li> <li>• Contingency Register of schools/ PUCs</li> <li>• Maintenance Register</li> <li>• Sample school data</li> </ul>	<ul style="list-style-type: none"> <li>• Observation</li> <li>• Desk reviews with DSERT</li> <li>• Secondary data</li> <li>• Questionnaire/ Survey of schools/ PUCs Checklist for schools/ colleges.</li> </ul>	<ul style="list-style-type: none"> <li>• Descriptive Survey Analysis Techniques</li> <li>• Documentary Analysis technique</li> <li>• Ratio of functional vs non-functional computers</li> <li>• Availability of internet service (number of hours of internet time)</li> <li>• Ratio of functional computers</li> <li>• Proportion of availability of internet facilities (in total school hours)</li> </ul>
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<b>EFFICIENCY</b>	<p><b>4A. How efficient is the supply of IT infrastructure? What is the operational status and utilization status of the funds for contingency and other materials?</b></p> <p><b>4B. How is the implementation and output delivery across different divisions?</b></p>	<p>F. How many pre-loaded laptops were provided to schools/ PUCs in years 2016-17, 2017-18, 2018-19, 2019-20</p> <p>G. What is the availability of computers to students?</p> <p>H. What is the functional status of computers?</p> <p>I. Who are the stakeholders involved in provision of services?</p> <p>J. Which are the low-performing and high-performing divisions in the State?</p>	<ul style="list-style-type: none"> <li>• Number of computers in the lab</li> <li>• Number of functional computers on the day of the visit.</li> <li>• Entries/ Tickets raised for service/ repairs.</li> <li>• Contingency funds claimed</li> <li>• Funding of TALP infrastructure (Contingency funds)</li> <li>• Schools with functional computers in computer labs</li> </ul>	<ul style="list-style-type: none"> <li>• Sample schools/ Colleges, Schools (Computer Labs)</li> <li>• DSERT/ PU Board</li> <li>• Contingency Register of schools/ PUCs</li> <li>• Maintenance Register</li> <li>• Sample school data</li> </ul>	<ul style="list-style-type: none"> <li>• Observation</li> <li>• Desk reviews with DSERT</li> <li>• Secondary data</li> <li>• Questionnaire/ Survey of schools/ PUCs</li> <li>• Checklist for schools/ colleges.</li> </ul>	<ul style="list-style-type: none"> <li>• Descriptive Survey Analysis Techniques</li> <li>• Documentary Analysis technique</li> <li>• Ratio of functional vs non-functional computers</li> <li>• Availability of internet service (number of hours of internet time)</li> <li>• Ratio of functional computers</li> <li>• Proportion of availability of internet facilities (in total school hours)</li> </ul>
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<b>EFFICIENCY</b>	<p><b>5. How is the functioning and efficiency of monitoring mechanism under the TALP programme at various levels?</b></p>	<p>A. Who is responsible for the monitoring of TALP and maintenance of the learning time- use by students in school subjects using pre-loaded laptops?</p> <p>B. Who maintains the functioning of pre-loaded laptops in the computer lab?</p> <p>C. Who attends to repairs of dysfunctional systems?</p> <p>D. Who monitors the service conditions and maintenance of projector/ UPS?</p> <p>E. How many faculties are there in your DIET?</p> <p>F. How many High Schools are there with CL in your district?</p> <p>G. Who is responsible for the maintenance and analysis of M&amp;S reports from DIETs?</p>	<ul style="list-style-type: none"> <li>• M&amp;S records maintained by School staff</li> <li>• AMC services register/ tickets maintained by HM</li> <li>• TALP M&amp;S reports maintained by DSERT</li> <li>• TALP M&amp;S reports maintained by DIETs</li> <li>• Monitoring mechanism at state/ district and school level.</li> <li>• Meetings conducted</li> </ul>	<ul style="list-style-type: none"> <li>• Schools/ PU Colleges</li> <li>• Teachers/ Lecturers/ Students (Records)</li> <li>• DIETs</li> <li>• DSERT</li> </ul>	<ul style="list-style-type: none"> <li>• Observation in schools</li> <li>• Schools/ PU colleges (Records)</li> <li>• Interaction/ observation with students</li> <li>• Questionnaire</li> <li>• Meeting precedence</li> </ul>	<ul style="list-style-type: none"> <li>• Documentary Analysis technique</li> <li>• Descriptive Survey Analysis techniques</li> <li>• Level- wise Analysis</li> <li>• Content Analysis</li> </ul>
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<b>RELEVANCE, EFFICIENCY AND IMPACT</b>	<p><b>6. What is the programme process from the point of</b></p> <p><b>(i) Adequacy,</b>  <b>(ii) Regularity,</b>  <b>(iii) Quality</b>  <b>(iv) Reinforcements</b></p>	<p><u>Adequacy, Regularity, Quality and Reinforcements</u> will be evaluated in the below programme process points:</p> <p><b>A. Teachers</b></p> <ul style="list-style-type: none"> <li>• How many teachers have been trained so far? Have the planned targets been met?</li> <li>• Was the quality of the training satisfactory?</li> <li>• See Annexure 1: 2 PAGE: 85, Adequacy of Induction I training</li> <li>• See Annexure 1: 3 PAGE: 85, Regularity in Induction I training</li> <li>• See Annexure 1: 4 PAGE: 86, Details of Refresher Training Conducted</li> <li>• Time period training</li> </ul> <p><b>B. Students</b></p> <ul style="list-style-type: none"> <li>• Was the E-content available to students adequate and of good quality?</li> <li>• Does it cover all subjects and topics in the syllabus? (topics vs e-content)</li> <li>• Is there any improvement in the performance of students before and after TALP?</li> </ul>	<ul style="list-style-type: none"> <li>• Perspective Plans, Annual Plans (of training) from DSERT: Training Schedule</li> <li>• DIET Records</li> <li>• Details of teachers/ lecturers who underwent training.</li> <li>• M&amp;S reports on training</li> <li>• Feedback from teachers/ students</li> <li>• Feedback from HM/ Principal</li> <li>• Feedback from students</li> <li>• Teaching/ Lesson plans of teachers</li> <li>• Content/ textbooks/ topics/ syllabus are matching</li> <li>• Availability of computers/ laptops for training.</li> <li>• Computer skills demonstrated by students.</li> </ul>	<ul style="list-style-type: none"> <li>• DSERT/ DIETs</li> <li>• Schools/ PU Colleges</li> <li>• Computer Labs in Schools</li> <li>• HM office</li> <li>• Teachers/ Lecturers</li> <li>• Other secondary stakeholders involved (NGOs)</li> <li>• Test will be conducted</li> </ul>	<ul style="list-style-type: none"> <li>• Desk Review</li> <li>• Observation</li> <li>• Secondary data from DSERT/ PUB</li> <li>• Physical verification</li> <li>• Review of documents</li> <li>• Questionnaire</li> <li>• Conducting tests</li> </ul>	<ul style="list-style-type: none"> <li>• Documentary techniques</li> <li>• Observation data analysis</li> <li>• Descriptive Analysis</li> <li>• Test Results Analysis</li> </ul>
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		<ul style="list-style-type: none"> <li>• See Annexure 1: 5 PAGE: 86, Coverage of subjects for E-content</li> <li>• See Annexure 1: 6 PAGE: 86, Quality of E-Content (Feedback from Students)</li> </ul> <p><b>C. IT Infrastructure</b></p> <ul style="list-style-type: none"> <li>• Are the computers provided adequate and of good quality?</li> <li>• Have projectors and laptops been provided?</li> </ul> <p><b>D. Internet Connectivity</b></p> <ul style="list-style-type: none"> <li>• Is there internet connectivity in the school?</li> <li>• What are the specifications of the provided internet connectivity?</li> </ul> <p><b>E. Maintenance</b></p> <ul style="list-style-type: none"> <li>• How often do you face issues with the provided systems?</li> <li>• What is the process followed to repair such a system?</li> <li>• How do you manage E-waste?</li> </ul>	<ul style="list-style-type: none"> <li>• Assignments/ Projects completed by students with computer aid-records examination</li> <li>• Progress of students in learning (over the years)</li> </ul>			
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IMPACT	<p><b>7. What is the impact on teaching activity, in the school, in terms of time spent by the teachers HM during school hours on attending TALP trainings (across regions and gender)</b></p>	<p>A. Alternative arrangement for classes</p> <p>B. Impact on coverage of syllabus</p> <p>C. Who manages the MIS systems and how was the training carried out?</p>	<ul style="list-style-type: none"> <li>• Time-table during training period of teachers.</li> <li>• Mode of coverage of syllabus</li> </ul>	<ul style="list-style-type: none"> <li>• HM/ Principal</li> <li>• Teachers/ Lecturers</li> <li>• Students</li> </ul>	<ul style="list-style-type: none"> <li>• Desk Review</li> <li>• Questionnaire</li> <li>• Field Observation</li> </ul>	<ul style="list-style-type: none"> <li>• Descriptive Analysis</li> <li>• Time-table analysis</li> </ul>
EFFECTIVENESS	<p><b>8. Is the quality of the E-content satisfactory? What is its impact on interactive learning process?</b></p>	<p>A. Do the subject teachers guide the students and clear doubts during e-learning transactions?</p> <p>B. Does the e-content improve transactions between teachers and slow learners?</p> <p>C. Is the E-content available in suitable languages?</p>	<ul style="list-style-type: none"> <li>• Feedback from teachers/ students/ Head teacher</li> <li>• Progress of students</li> <li>• Feedback about slow learners</li> <li>• Project work/ assignments done with computer aid</li> </ul>	<ul style="list-style-type: none"> <li>• Teachers/ students/ School records</li> <li>• Slow learners</li> </ul>	<ul style="list-style-type: none"> <li>• Quality of E-content will be examined at an E-content review workshop planned by the client</li> <li>• Questionnaire</li> <li>• Interviews</li> <li>• Records</li> </ul>	<ul style="list-style-type: none"> <li>• Descriptive Analysis</li> <li>• Workshop Report Analysis</li> <li>• FGD Analysis</li> </ul>
IMPACT	<p><b>9. Is there a change in teaching methods and the approach to children before and after TALP implementation?</b></p>	<p>A. What methods of teaching were you adopting before or after TALP in your school?</p> <p>B. What approaches are adopted in teaching?</p> <p>C. Methods of Teaching before/ after TALP in school (For Teachers)</p>	<ul style="list-style-type: none"> <li>• Feedback from students/ teachers</li> <li>• Change in methods of teaching</li> </ul>	<ul style="list-style-type: none"> <li>• Students, Teachers</li> <li>• FGD</li> </ul>	<ul style="list-style-type: none"> <li>• Questionnaire</li> <li>• Interviews</li> </ul>	<ul style="list-style-type: none"> <li>• Descriptive Analysis</li> <li>• FGD Analysis</li> <li>• Workshop report analysis</li> </ul>

<p style="text-align: center;"><b>EFFECTIVENESS</b></p>	<p><b>10. What is the impact the TALP programme on the academic performance of the students in schools at different levels of learning?</b></p>	<p>A. What is the performance of students in schools? B. Percentage marks obtained by students for Mathematics, Science, Social Studies, English and Kannada (Only for students in 10th in 2020-21)</p>	<ul style="list-style-type: none"> <li>• An average of progress of 5% per year in each subject during 3 years performance.</li> <li>• Comparative analysis of students' average marks of the last 3 years (pre and post TALP implementation) across regions, social groups and gender.</li> <li>• Comparison of the results with control group.</li> </ul>	<ul style="list-style-type: none"> <li>• Mark Registers of sample students and control group students of the study</li> <li>• FGD</li> </ul>	<ul style="list-style-type: none"> <li>• Desk Review</li> <li>• FGD</li> </ul>	<ul style="list-style-type: none"> <li>• Percentage change over the years</li> <li>• Region-wise, District/ Division wise, gender, social group wise analysis.</li> <li>• FGD analysis</li> </ul>
<p style="text-align: center;"><b>EFFECTIVENESS</b></p>	<p><b>11. What is the impact of TALP on students at PU level. (Comparative analysis of students' average marks of the last 3 years (pre and post TALP implementation) across regions, gender and social groups. Compare the results with control group</b></p>	<p>A. What are the computer skills acquired?</p>	<ul style="list-style-type: none"> <li>• Skill acquisition</li> </ul>	<ul style="list-style-type: none"> <li>• Sample students</li> <li>• FGD observations</li> </ul>	<ul style="list-style-type: none"> <li>• Performance of first year (if available)</li> </ul>	<ul style="list-style-type: none"> <li>• Analysis of knowledge/ skills across regions.</li> </ul>

<b>SUSTAINABILITY</b>	<p><b>12. What has been the change in the following (analysis on both primary and secondary data)- Categories of students, gender and across the regions.</b></p> <p><b>(i) Enrolment at High Schools and PUCs.</b></p> <p><b>(ii) Attendance at High Schools and PUCs</b></p> <p><b>(iii) Transition Rate- High Schools and PUCs</b></p> <p><b>(iv) Dropout Rate at High Schools and PUCs</b></p>	<p>A. Data on enrolment, attendance, transition and drop-outs.</p> <p>B. District-wise data: Secondary Data for schools/ PUCs, Primary Data (650 High Schools and 150 PU Colleges)</p> <p>C. Data will be collected from 2016-17, 2017-18, 2018-19, 2019-20 and 2020-21</p> <p>D. See Annexure 1: 9 PAGE: 87, Enrolment Numbers</p> <p>E. See Annexure 1: 10 PAGE: 88, Average Attendance (%)</p> <p>F. See Annexure 1: 11 PAGE: 88, Transition Table</p> <p>G. See Annexure 2: L PAGE: 88, Drop-out table</p>	<ul style="list-style-type: none"> <li>• Gross Enrolment Ratio (i) 8th - 10th and (ii) 11th and 12th (95-100% of base year 2016-17)</li> <li>• There is equity-gender/ social groups/ regions in steady enrolments</li> <li>• Average attendance Total, B/G, Social categories, regions.</li> <li>• Transition is smooth for total and categories- sex, social, regions</li> <li>• Number of drop-outs</li> </ul>	<ul style="list-style-type: none"> <li>• Sample schools/ PUCs</li> <li>• CPI/ PU Board</li> <li>• DSERT</li> <li>• SATS</li> </ul>	<ul style="list-style-type: none"> <li>• Desk review</li> <li>• Questionnaire</li> <li>• Checklists</li> </ul>	<ul style="list-style-type: none"> <li>• Documentary Analysis</li> <li>• Trends in Gross enrolment ratios, transition rate and drop-outs.</li> </ul>
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<b>EFFECTIVENESS</b>	<b>13(A). What are the students' opinions about interventions in the schools and PUCs?</b>	A. Opinion of students about ICT classes, ICT curriculum process and learning experience.	<ul style="list-style-type: none"> <li>• Computer Lab arrangements</li> <li>• Ratio of students to computers in the labs.</li> <li>• Students' feedback</li> <li>• Frequency of ICT classes per week</li> <li>• ICT Curriculum</li> <li>• Ratio of theory to practical classes</li> <li>• Computer to Student ratio in computer lab</li> <li>• Frequency of ICT based teaching/ learning for subjects per week (e-content)</li> <li>• Learning experience through e-content for subjects</li> </ul>	<ul style="list-style-type: none"> <li>• Schools/ Computer Labs</li> <li>• Students</li> <li>• Teachers/ Lecturers</li> <li>• HM/ Principal</li> </ul>	<ul style="list-style-type: none"> <li>• Observation</li> <li>• Questionnaire</li> <li>• Interviews</li> <li>• FGD</li> </ul>	<ul style="list-style-type: none"> <li>• Descriptive Techniques</li> <li>• Ratio Analysis</li> <li>• FGD Analysis</li> </ul>
<b>EFFICIENCY</b>	<b>13(B). What is the teachers' opinion? What is the change observed by them in their teaching skills and learning environment in the class room?</b>	<p>A. How has TALP influenced your teaching in school/PUC life?</p> <p>B. Can you do better with a full-fledged computer lab?</p> <p>C. Utility of lab facility</p> <p>D. Change in learning environment</p>	<ul style="list-style-type: none"> <li>• Feedback from teachers/ lecturers</li> <li>• Feedback from review of progress of students in tests/ examinations</li> <li>• Observation of classrooms- Activity orientation</li> <li>• Comparison of lessons with class-room teaching and e-learning</li> </ul>	<ul style="list-style-type: none"> <li>• Teachers/ Lecturers</li> <li>• Students</li> <li>• HM/ Principal</li> <li>• FGD</li> </ul>	<ul style="list-style-type: none"> <li>• Questionnaire</li> <li>• Interviews</li> <li>• Observation</li> <li>• FGD Checklist</li> </ul>	<ul style="list-style-type: none"> <li>• Descriptive Survey Analysis techniques</li> <li>• FGD Analysis</li> <li>• Qualitative Analysis</li> </ul>

IMPACT	<p><b>14. Document the Best Practices in the implementation of the TALP programme at all levels</b></p>	<p>A. What are the best practices observed during field and data analysis stages?                      B. What are the best practices in training programme?                      C. Learning environment/ development of self e-content</p>	<ul style="list-style-type: none"> <li>• Reports received from Schools/ Colleges/ DIETs/ DSERT/ PU Board</li> <li>• Observation of practices during field work</li> <li>• State records</li> <li>• Training reports</li> <li>• E-content</li> </ul>	<ul style="list-style-type: none"> <li>• Schools/ Colleges</li> <li>• DIETs/ DSERT/ PU Board</li> </ul>	<ul style="list-style-type: none"> <li>• Observation</li> <li>• Interviews</li> </ul>	<ul style="list-style-type: none"> <li>• Case Study Analysis Technique</li> </ul>
SUSTAINABILITY	<p><b>15. Examine the School audit reports of the TALP programme and their findings.</b></p>	<p>A. Have your school/ PUC got audited by Chartered Auditors?                      B. Is there a visitor's book maintained in the school/ PUCs?                      C. Are the supervision reports of DIET faculty/ officers maintained?</p>	<ul style="list-style-type: none"> <li>• References to TALP in audit/ review/ supervision reports/ visitors' books</li> <li>• Observations in Audit Report</li> <li>• Utilization of Audit report</li> </ul>	<ul style="list-style-type: none"> <li>• Schools/ College review reports</li> </ul>	<ul style="list-style-type: none"> <li>• Desk Review</li> </ul>	<ul style="list-style-type: none"> <li>• Documentary Analysis Technique</li> </ul>
EFFICIENCY	<p><b>16. Make some case studies about TALP at all levels.</b></p>	<p>A. Cases where non-availability of Electricity, Broadband Internet, theft cases, teachers not trained under TALP, non-availability of IT infrastructure are reported/ not reported and action taken on these issues- resolved/ unresolved, time taken to address these issues etc.</p>	<ul style="list-style-type: none"> <li>• Recordings in stock/ maintenance registers of the school</li> <li>• Reports by HT/ Principal/ Teachers</li> <li>• Observation of Computer Labs</li> <li>• Time analysis of electricity connectivity</li> <li>• Cases of theft reported</li> <li>• Adequacy Inadequacy of TALP infrastructure</li> </ul>	<ul style="list-style-type: none"> <li>• School/ College (HT/ Principal/ Teachers)</li> <li>• DIETs/ DSERT/ PU Board</li> <li>• Primary data</li> </ul>	<ul style="list-style-type: none"> <li>• Examination of Records</li> <li>• Interview</li> <li>• Questionnaire</li> <li>• Observation</li> </ul>	<ul style="list-style-type: none"> <li>• Time analysis of availability of facilities</li> <li>• Status quo Analysis</li> <li>• Case Analysis</li> </ul>

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EFFICIENCY	<b>17. Has the SOP been followed strictly in the schools and PUCs? What the duties discharged by the concerned officials as per SoP?</b>	<p>A. What are the components of SoP?                      B. What are the compliances followed by Schools/ Colleges and Teachers/ Lecturers?                      C. What is the status of M&amp;S reports from the DIETs?</p>	<ul style="list-style-type: none"> <li>• Responses of HT/ Principal/ Teachers/ Lecturers to SoP questions</li> <li>• SoP components in sample schools</li> <li>• Compliance to SoP</li> <li>• M&amp;S Reports</li> </ul>	<ul style="list-style-type: none"> <li>• Schools/ PUCs</li> <li>• Teachers/ Lecturers</li> <li>• SoP guidelines</li> <li>• IDIs with stakeholders</li> </ul>	<ul style="list-style-type: none"> <li>• Checklist</li> <li>• Desk Review</li> <li>• Checklists for IDIs</li> </ul>	<ul style="list-style-type: none"> <li>• Documentary Techniques</li> <li>• Descriptive Analysis Techniques</li> <li>• Ratio Analysis</li> </ul>
SUSTAINABILITY	<b>18. Give concrete suggestions for improvement of the TALP programme for enhancing the outcomes at various levels- teacher training, e-content, monitoring and other components of the programme</b>	NOTE: This will be done after analysis and interpretation of fieldwork, e-content review workshop, case studies analysis	<ul style="list-style-type: none"> <li>• Specific findings and recommendations</li> </ul>	<ul style="list-style-type: none"> <li>• Primary data</li> <li>• Secondary data</li> </ul>	<ul style="list-style-type: none"> <li>• Review of findings of analysis</li> <li>• Preparation of report</li> </ul>	<ul style="list-style-type: none"> <li>• Results and discussions</li> </ul>
SUSTAINABILITY	<b>19. What are the models adopted in other States? Are there any possibilities of their application to Karnataka State?</b>	A. Study of TALP models in other states	<ul style="list-style-type: none"> <li>• TALP indicators and parameters of other states</li> </ul>	<ul style="list-style-type: none"> <li>• Google</li> <li>• Available reports from other states.</li> <li>• MHRD</li> </ul>	<ul style="list-style-type: none"> <li>• Online reports</li> <li>• Checking with DSERT/ PU Board</li> </ul>	<ul style="list-style-type: none"> <li>• Relevance/ harmony of comparative contexts of other states with Karnataka State</li> <li>• Analysis of applicability of the parameters to Karnataka</li> </ul>

\*Evaluation Matrix will be revised after finalisation of tools.



## **Annexure 3: Methodology of the Study**

### **Method of Data Analysis:**

Analysis will be both qualitative and quantitative. There will be district-wise and division-wise analysis of data relating to all Evaluation Questions in the ToR and Evaluation Matrix specific questions.

Evaluation will have the following Components: Detailed plan of Analysis is given in Inception Report.

### **Activity Evaluation (Inputs):**

- Evaluation of IT at schools
- Planning / Management / M & S /Reviews/Feedback/Corrective Mechanism reporting

Analysis of Variance will be adopted to examine changes in enrolments, changes in academic performance. ANOVA / MANOVA (Statistician's contribution) Chi-square analysis will be done where applicable.

### **Process Evaluation:**

- In schools/colleges -ongoing programmes - Efficiency, Regularity, Equity in access, Involvement of students
- Project /assignments, Computer Skills; inclusiveness in skills; academic supervision

### **Output Evaluation:**

- Students learning outcomes analysis
- Attendance/Dropout analysis

## **SAMPLING**

**Sample will be defined as per the ToR specifications and will be done in consultation with KEA.**

### **SAMPLING A: IT@SCHOOLS / IT@PUCS:**

**LEVEL I:** Among 34 educational districts, 2 talukas will be chosen each. 1 (Kasaba Taluk) and 1 (farthest away from District HQ) will be chosen to make up 68 talukas.

**LEVEL II:** 3 types of schools will be chosen, namely:

- Small TALP schools: 5 computers

- Medium TALP schools: 11 computers
- Large TALP schools: 20 computers

NOTE: TALP schools will be in Hobli Taluk HQ

This will add up to 650 institutions from 34 districts (Number of schools will vary depending on the size of the district or the number of TALP schools available in the districts)

LEVEL III: The TALP schools will be selected in a 2:1 ratio for urban and rural.

**NOTE: Most of the TALP schools are in urban, semi-urban areas. Only a few are present in rural areas.**

Number of schools in cities like Bangalore, Mangalore, Hubli, Kalburgi, Belgaum and Mysore will be proportionately increased from the urban quota.

LEVEL IV: For the year-wise strata, 650 TALP schools will be chosen across 2016-17, 2017-18, 2018-19 and 2019-20 in the proportion of 52:16:16:10 and remaining 6% will be covered with EDUSAT and a few more urban schools.

NOTE: 150 colleges will be chosen from 2017-18 as laptops and projectors were provided to colleges only during that year.

### **SAMPLING B: STUDENTS AND TEACHERS:**

#### LEVEL I:

##### A: STUDENTS

- 10 students have to be chosen from each IT@School sample, making it 6500 students. This will be done in the ratio of 3: 3: 4 across 8<sup>th</sup>, 9<sup>th</sup> and 10<sup>th</sup> standards.
- In colleges students will be equally distributed between 11<sup>th</sup> and 12<sup>th</sup> Standards.
- CONTROL GROUP: 1% sample is specified in the ToR which and 12<sup>th</sup> in 2020-21 in a 5:5 ratio will be maximum 80 students. 4 districts with 4 divisions, division HQ will be selected for control sample. 4 schools in 4 divisions, non TALP High Schools will be chosen, 20 students across 8<sup>th</sup>, 9<sup>th</sup> and 10<sup>th</sup> will be chosen to add up to 80 students. Likewise, 5 students will be chosen from 4 districts of 4 divisions to add up to 20 students for PU Colleges.

**B: TEACHERS**

- 5 teachers will be chosen across 5 different subjects. Namely, Mathematics, Science, Social Studies, English and Kannada which makes it 3250 teachers. If particular subject teacher is not present, adjustments will be made with other subject teachers.
- In colleges also teachers will be chosen from different subject backgrounds.

**LEVEL II:** Next strata will be across sex and social category. Students will be chosen in a 50:50 ratio for boys and girls. Across SC/ST/OBC/Minorities/Others. Students will be chosen in the ratio of 2: 1: 4: 1: 2 (total 10). If a particular category is not there, it will be adjusted with others.

**SAMPLING OUTLINE FOR HS IT@SCHOOLS:**

Year	No. of sample HS IT@Schools per District	No. of Districts	Total no. of sample HS IT@Schools
2016-17	10	34	340
2017-18	3	34	102
2018-19	3	34	102
2019-20	2	34	68
No. of urban HS IT@Schools:			23
No. of EDUSAT schools:			15
<b>TOTAL</b>			<b>650</b>

- 10 students per school will be considered among which 8<sup>th</sup>, 9<sup>th</sup> and 10<sup>th</sup> standards in the ratio of 3:3:4 (650 schools x 10 students = 6500 students)
- 5 teachers (different subjects) per school will be considered (650 schools x 5 teachers = 3250 teachers)
- 1% from the student sample will be considered for control group.

**SAMPLING OUTLINE FOR PUCs:**

Year	No. of sample PUC IT@PU College per District	No. of Districts	Total no. of sample PUC IT@PU College
2017-18	4	34	136
No. of urban PU Colleges:			14
<b>TOTAL</b>			<b>150</b>

- 10 students per PU Colleges will be considered among which 11<sup>th</sup> and 12<sup>th</sup> standards in the ratio of 5:5 (10 students x 150 PU colleges = 1500 students)
- 5 lecturers (different subjects) per PU College will be considered (150 Colleges x 5 lecturers = 1500 lecturers)
- 1% from the student sample will be considered for control group.

**SAMPLING OUTLINE IN URBAN AREAS FOR HS IT@SCHOOLS PUC IT@PU COLLEGE AND EDUSAT SCHOOLS:**

**A: Urban Schools/ PUCs**

6 Cities	Bengaluru	Mangaluru	Hubli	Kalburgi	Mysore	Belagavi	Total
HS IT@Schools	08	03	03	03	03	03	23
PUC IT@PU Colleges	04	02	02	02	02	02	14

**B: EDUSAT Schools**

Districts	Bengaluru Rural	Chamarajanagara	Yadgiri	Kalburgi	Ramanagara	Total
EDUSAT	03	03	03	03	03	15

Note: Quota sampling will be done in consultation with District Officer.

**DISTRICT-WISE SAMPLING OUTLINE**

- 2 Taluks will be selected in each district. In each Taluk, 9 HS IT@Schools will be covered in the study.
- In each District, 18 HS IT@Schools will be covered.
- Similarly, 2 PUC IT@PU Colleges will be covered in 2 Taluks (each District will have 4 sample PUCs)

**OUTLINE OF SAMPLING FRAMEWORK**

**A. FGDs Contemplated (Total: 37)**

- **DIET Faculty = 1 per district = 34**
- **DSERT-Programme officers = 1**
- **Reviewers/ experts of e-content review workshop = 1**
- **KSQAAC Programme Officer = 1**

**B. IDIs Contemplated (Total: 136)**

1. (BEOs and BRCs (for TALP Implementation) = 3 per district = 3 x 34 = 102.
2. DIETs and District DDPI – Admin = 20 (5 districts per division to be covered).
3. From DSERT,
  - Director = 01
  - Joint Director = 01
  - Deputy Director = 01
  - Sr. Asst. Directors (SADPI) = 06 SADPIs
  - KSQAAC/ DPI = 01
  - Total from DSERT = 10
4. From SSA,
  - State Project Director, SSA and RMSA = 01
  - Programme Officer- SATS and MIS = 01
5. Steering committee, Chairperson = 01.
6. Empowered committee, Chairperson = 01.

**SAMPLING AS PER ToR****(i) Institutions**

[No. of Divisions 04]

Sl. No.		No. of Districts	No. of Schools	Total
1.	High Schools	34	646	650
	<ul style="list-style-type: none"> <li>• 19 per District</li> <li>• One for each Division at HQ</li> </ul>		04	
2.	EDUSAT	05	15	40
	<ul style="list-style-type: none"> <li>• Tele Education</li> <li>01 per District</li> <li>[Revenue Districts only]</li> </ul>		25	
3.	PU Colleges	34	136	150
	04 Colleges per district plus 01 each in 14 big districts		14	
	Total Institutions			840

Notes: The ToR for the study issued in the late 2019 c (sub-section 3.7) had specified a sample of 650 schools, 150 colleges, across 68 talukas of 34 districts and for the years 2016-17

to 2019-20. In addition 15 EDUSAT schools were specified across 5 EDUSAT districts. As there was a delay due to the Pandemic in the full scale launching of the evaluation study, it was decided (as directed) to include 2020-21 within the foci of the study. Further, Tele Education began in 2020-21, as schools could not be open. Hence, 25 Tele Education schools were also included from 25 districts, leaving out 5 districts where EDUSAT schools were in force [There are 30 revenue districts in the State].

In sum, 840 institutions – Elementary and High Schools, PU Colleges form the sample of the study as against a ToR expectation of 815 institutions.

(ii) Individuals:

Questionnaires are administered to the following types of individuals.

Sl. No.	INDIVIDUALS	No. of Sample
1.	HTs of Elementary Schools	[15 + 25]
2.	Teachers of EDUSAT/Tele Education Schools	40
3.	Students of EDUSAT/Tele Education Schools	500
4.	HTs of TALP Schools [HS] - Basic Information	650
5.	HTs of TALP Schools - CE in Schools	650
6.	Teachers of TALP Schools	3250
7.	Parents of TALP Schools	1300
8.	Students of TALP Schools	6500
9.	Principals of PU Colleges- Basic Information	750
10.	Principals of PU Colleges - CE in Colleges	750
11.	Lecturers of PU Colleges	750
12.	Students of PU Colleges	1500

Notes:

- Parents are reached through Heads of Institutions.
- Students are selected after maintaining a balance across sexes and social groups.
- Detailed Sample Matrix is appended to this report.

### **Method of Data Analysis**

As this is an Interim Report wherein only 2 districts data are subjected to Comparative Analysis, quantitative techniques are not adopted. Analysis of data is descriptive and qualitative. Simple percentage analysis is adopted for this purpose along with graphical representation.

Two districts, one from the Northern Region of the State, namely Bagalakote and the other from the Southern Region of the State, namely Bengaluru Rural district are subjected to Comparative Analysis.

Whole analysis is within the framework of Objectives of the Study.

**RATING SCALE ANALYSIS:** However, for the main study report, quantitative analysis of primary data is adopted. A Rating Scale is developed using responses for the tools of the study used for TALP section, concerning the high schools. TALP is relatively systematically implemented by the Department of Education/DSERT/High Schools. Hence, EDUSAT/Tele TV and PU tools are not subjected to Rating Scale analysis.

Rating scale responses of Head Teacher, for Computer Education in schools, of Teachers and Students on TALP related questions are used. There are 50 items which are subjected to ratings. Most of the items in the questionnaire are rated 1, 0 for Yes/No responses. At times when alternatives exceed 2 responses, for example: Very Good, Good, Satisfactory, Not Satisfactory for the question of quality of CDs/DVDs used for TALP lessons, score of 3, 2, 1, 0 are given. There are hardly any questions with negative overloads [meaning 1 for No and Zero for Yes].

Score obtained by a Respondent are summated on respective tools 1,2,3,4 and scores on all the tools are put together, added. These summated scores of each respondent are again pooled for all the respondents, tools, of the district, for each district in the State. The obtained summated score is treated as 'X'. There is a standard maximum score on TALP performance which is comprised of positive responses on all parameters of performance. This maximum score, an indicator of perfection in performance, is treated as 'Y'. 'Y' is a sum of maximum scores of tools 1, 2, 3, 4, which may be termed as Y1, Y2, Y3 and Y4. Likewise, obtained scores on tools 1, 2, 3, 4 can be considered as X1, X2, X3, X4. X is equal to  $X1 + X2 + X3 + X4$ . X score of a district is divided by Y score of the district and percentage taken, that is multiplied by 100, to get a 'standardised' percentage score of performance for the district.

Such standardised score are also possible for each tool when X1, X2, X3, X4 are divided respectively by Y1, Y2, Y3 and Y4, and percentage taken. But this is not done in this report. Only overall performance value of the district is taken.

There will be 34 performance values for 34 districts of the State. These performance values, percentage scores are arranged in descending order of performance. The district on top of the table will be regarded as the Best Performing District. Performance rating goes on decreasing for the succeeding districts along with decreasing percentage scores. This way all the districts of the State are ranked on TALP performance.

Individual districts, DIETs, DDPIs, other officers can look into their relative performances on diverse components of TALP using EXCEL sheets on which TALP data on tools 1, 2, 3 and 4 are available. This report highlights only summative performance of districts on TALP.

IDI/digital mode of educational officers engaged in TALP activities is subjected to a **CHECKLIST** analysis.



## Annexure 04

### RATING SCALE [Quantitative Analysis]

On each of the following parameters are sub-variables therein, a 5 points rating scale is to be used with the following ranges of satisfaction in the reviewers → 60 and <60 percent – 1 score, 61 to 70 percent satisfaction-2 scores, 71 to 80 percent – 3 scores, 81 to 90 percent -4 scores, 91 to 100 percent -5 scores. Tick ✓ on your preferred column.

**Reviewer:**.....**Subjects:**.....

Sl. No.	Variables/Parameters	1	2	3	4	5
<b>A</b>	<b>Language</b>					
1	Simple [no flabbergasting words used]					
2	Easily comprehensible [Content]					
3	No winding sentences					
4	Correct grammatical usages					
5	Voice in video is appealing (soft and melodious)					
6	Videos in DLR are audible [Audio is good]. Recorder serial umbers					
7	Instruction (pauses, full stop pauses, time to reflect for students) is good					
<b>B</b>	<b>Efficacy of Content [all HS Teachers]</b>					
8	Suitability to syllabus needs [NCF 2010] for 8 <sup>th</sup> standard					
9.	Suitability for 9 <sup>th</sup> Standard					
10	Suitability for 10 <sup>th</sup> standard					
	[Only PU Teachers will respond]	-	-	-	-	-
11	Suitability for 11 <sup>th</sup> Std.					
12	Suitability for 12 <sup>th</sup> Std.					
<b>C</b>	<b>Comprehensiveness in coverage of content in syllabus</b>					
	[HS Teachers]	-	-	-	-	-
13	For 8 <sup>th</sup> Standard					
14	For 9 <sup>th</sup> Standard					
15	For 10 <sup>th</sup> Standard					
	[for PU Teachers]	-	-	-	-	-
16	For 11 <sup>th</sup> Standard					

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17	For 12 <sup>th</sup> Standard					
	Note: Score 1 for 60 and <60 %; use scale given for scores	-	-	-	-	-
<b>D</b>	<b>Integration of syllabus→ DLR and Syllabus</b>					
18	Integration is good [use scores/scale]					
19	Topics across different DLR are comparable (harmony)					
20	Model problems (Wherever applicable) are given along with solution					
21	For 8 <sup>th</sup> Standard					
22	For 9 <sup>th</sup> Standard					
23	For 10 <sup>th</sup> Standard					
24	For 11 <sup>th</sup> Standard					
25	For 12 <sup>th</sup> Standard					
26	Steps of solution of problems are given [as applicable]					
27	Applicable for 8 <sup>th</sup> Standard					
28	For 9 <sup>th</sup> Standard					
29	For 10 <sup>th</sup> Standard					
30	For 11 <sup>th</sup> Standard					
31	For 12 <sup>th</sup> Standard					
<b>E</b>	<b>Assignments</b>					
32	Assignments are given in DLR for Students.					
<b>F</b>	<b>Others</b>					
33	Key Answers are given to problems given in text					
34	Transition from one unit to the next unit is taken care of					
35	Simple, no cost/low cost experiments are suggested [Refer OLABS]					
36	Animations are there (Good)					
37	Diagrams used are clear					
38	Graphs are used (Where necessary)					
39	Tables are clear					
40	Photos used are clear					
41	Scientists/mathematicians photos are given with legend					

<b>G</b>	<b>Technical efficiency</b>				
42	'Edit' options given				
43	Advanced Surfing facility given				
44	Additional Sources of information given				
45	All units/topics are given on dash board				
46	Easy storage and retrieval available				
47	Audio in all videos is good				
48	Remediation facility given				
49	Smooth Navigation is possible				
50	Command system is efficient				
	<b>Total</b>				

**Total Scores**

	<b>Maximum</b>	<b>Obtained score</b>
For 8 <sup>th</sup> Standard		
For 9 <sup>th</sup> Standard		
For 10 <sup>th</sup> Standard		
For 11 <sup>th</sup> Standard		
For 12 <sup>th</sup> Standard		
<b>Subject-wise</b>	<b>Maximum</b>	<b>Obtained score</b>
For Core Subject 1		
For Core Subject 2		
For Core Subject 3		
L1 [Kannada]		
L2 [English L1]		
L3 [English L2]		
L4 [Sanskrit]		
L5 [Urdu]		
L6 [Hindi]		
All standards [overall DLR Score]		

**Qualitative impressions****Reviewer:**.....**Subject:**.....**Stage:** High School (PU College)

Write 4 to 5 sentences on DLR language, relevance, integration and other details.



## Annexure 05: Checklist Analysis

### [I] [A] Infrastructure [Tool 1]

Sl. No.	Q. No.	STATEMENTS	RESPONSES [YES] [NO]
1)	48>	Computer Laboratory is there	[ ] [ ]
2)	51>	Type of Tables in the School: Computer Tables – 01, Others – Zero	[ ] [ ]
3)	52>	Children seating in CL Chairs – 01, Others – Zero	[ ] [ ]
4)	56> or 60> or 65>	‘All in one’ Laptops are there – 01, others – Zero	[ ] [ ]
5)	67>	Printer is there	[ ] [ ]
6)	68>	Printer has Scanner	[ ] [ ]
7)	69>	Colour Printer facility is there	[ ] [ ]
8)	70>	Uninterrupted Electricity is there	[ ] [ ]
9)	71>	School has UPS facility	[ ] [ ]
10)	75> or 77>	School has INTERNET Facility/Bluetooth also	[ ] [ ]
11)		School has Projector	[ ] [ ]
12)	81>	School has LCD Projector	[ ] [ ]
13)	83>	School has Server	[ ] [ ]
14)	84>	School has MODEM	[ ] [ ]
15>	85>	Standard at which CE begins 8 <sup>th</sup> Standard – 01 Score, Others – Zero	[ ] [ ]
16>	89>	All children get CE at one place	[ ] [ ]
17>	91>	Management of Slow Learners – Any of the Responses 1 and 2 – 01 score Responses 3 to 4 Zero score	[ ] [ ]
18>	92>	Give Pre-loaded Laptops to Students for Learning	[ ] [ ]
19>	95>	Students use Learning Websites	[ ] [ ]
20>	97>	School has CD (DVD) Library	[ ] [ ]
21>	99>	Use of Computers	
(a)		For Projects	[ ] [ ]
(b)		For web-site uses	[ ] [ ]
(c)		For Software application – Python,/ Geogebra	[ ] [ ]

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(d)		For PPT preparation	[ ] [ ]
(e)		For Graphics/Animations	[ ] [ ]
(f)		For web-designing	[ ] [ ]
(g)		For Copy editing/scanning	[ ] [ ]
(h)		For Photo-editing	[ ] [ ]

**[B] Organisation of CE**

Sl. No.	Q. No.	STATEMENTS	RESPONSES [YES] [NO]
22>	102>	Assessment of children Yes for any of the responses – 01 score; blank – Zero score	[ ] [ ]
23>	103>	Students maintain CE Notebook	[ ] [ ]
24>	105>	CE is there as an examination subject	[ ] [ ]
25>	106>	School records CE marks/Grades in Marks card	[ ] [ ]
26>	107>	School awards weightage for Projects/ Assignments	[ ] [ ]

**[D] School Governance**

27>	108>	School has MIS [HT Trained]	[ ] [ ]
28>	109>	School has SATS	[ ] [ ]

**[E] e-Lessons**

29>	111>	School has developed e-lessons	[ ] [ ]
30>	113>	School has shared e-lessons with DIETs	[ ] [ ]

**[F] SENSITISATION OF COLLEAGUES**

31>	114>	Teachers in the school have sensitized their colleagues	[ ] [ ]
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**[G] USE OF WEB-LINKS**

32>	122>	Teachers use web-links	[ ] [ ]
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**[H] SCHOOL CE/CL BUDGET**

33>	124>	School prepares CE/CL Budget	[ ] [ ]
-----	------	------------------------------	---------

**[I] MISCELLANEOUS**

34>	126>	Used DIKSHA PORTAL	[ ] [ ]
35>	130>	Loaded Textbooks in Computers	[ ] [ ]
36>	131	Organise Remedial Classes	[ ] [ ]
37>	132	Use Computers for Remedial Classes	[ ] [ ]

**Note:** There are 37 questions. Question No.21 has 08 options. Total score 36 for 36 questions plus 08 scores of question 21, will be 44 scores

**[Tool 1] [Section I] Maximum Score = [44]**

**SECTION II: TOOL 02 - CE e-Governance and Learning Process**

Sl. No.	Q. No.	STATEMENTS	RESPONSES [YES] [NO]
1>	54>	Maintain Log Book for use of Computers	[ ] [ ]
2>	62>	Method of Disposal of e-waste Reuse/Recycle – 01 score, all other responses – Zero score	[ ] [ ]
3>	63>	Periodicity of e-waste Disposal – once a month – 01 score, more than that – zero score	[ ] [ ]
4>	64>	Maintain a SoP Register	[ ] [ ]
5>	65>	Use MIS for e-governance	
	(a) (68)	for Student attendance	[ ] [ ]
	(b) (69)	for MDM attendance	[ ] [ ]
	(c) (70)	for Teachers attendance	[ ] [ ]
	(d) (71)	for Computers/CL Stock Register	[ ] [ ]
	(e) (72)	for assets register	[ ] [ ]
	(f) (73)	PTA meetings	[ ] [ ]
	(g) (74)	Students' Progress Report	[ ] [ ]
	(h) (78)	Literary/Cultural/Sports activities	[ ] [ ]
	(i) (79)	Science Lab. Equipments	[ ] [ ]
	(j) (80)	Maps	[ ] [ ]
	(k) (82)	Admission Register	[ ] [ ]
	(l) (83)	TC Register	[ ] [ ]
	(m) (84)	SATS Register	[ ] [ ]
	(n) (85)	Government Circulars	[ ] [ ]
Note: Total 14 scores under Sl. No.5			
6)	90>	All files on Computer dash board	[ ] [ ]
7)	92>	Store previous years' Question Papers.	[ ] [ ]
8)	93>	Upload Students' Performance in Exams.	[ ] [ ]
9)	94>	Analyse Students' Performance in Exams.	[ ] [ ]
10)	95>	Do graphic analysis of Performance	[ ] [ ]
11)	104>	Has AMC for Computer Maintenance	[ ] [ ]

Note: There are 24 questions. Maximum 24 scores.

Tool 2: Maximum Score > [24]

SECTION III – TOOL 3 – TEACHERS’ FEEDBACK

Sl. No.	Q. No.	STATEMENTS	RESPONSES [YES] [NO]
1>	24>	Give Assignments in CE	[ ] [ ]
2>	25>	Periodicity of Assignments – Once a month – 01 score; Other responses – Zero score	[ ] [ ]
3>	35>	Skills Acquired by Teachers	
	(a)	Switching on and Shutting off the system	[ ] [ ]
	(b)	Managing e-mail	[ ] [ ]
	(c)	Surf and download subject/teaching related materials	[ ] [ ]
	(d)	use soft-ware applications	[ ] [ ]
	(e)	use Word documents	[ ] [ ]
	(f)	use of Excel sheets	[ ] [ ]
	(g)	Convert Word to pdf and vice versa	[ ] [ ]
	(h)	prepare ppt slides	[ ] [ ]
	(i)	use graphs/charts for teaching	[ ] [ ]
	(j)	use Panel data	[ ] [ ]
	(k)	use Printer/scanner	[ ] [ ]
	(l)	use Digital Learning Resources – DLR	[ ] [ ]
	(m)	download and share documents	[ ] [ ]
	(n)	upload and retrieve data from Memory	[ ] [ ]
	(o)	attach documents to e-mails	[ ] [ ]
	(p)	work with SATS data	[ ] [ ]
	(q)	do animations	[ ] [ ]
	(r)	develop e-lessons	[ ] [ ]
	(s)	Develop school websites	[ ] [ ]
	(t)	Help HT in MIS management	[ ] [ ]
<u>Note:</u> There are 20 items under Sl.No.3, Question 35.			
4>	43>	Developed e-lessons in their subjects	[ ] [ ]
5>	45>	Shared e-lessons with DIETS	[ ] [ ]
6>	46>	Sensitised Colleagues	[ ] [ ]
7>	55>	Used DIKSHA Portal	[ ] [ ]
8>	58>	Loaded Textbooks in Computers	[ ] [ ]



## SECTION III (contd.)

Sl. No.	Q. No.	STATEMENTS	RESPONSES [YES] [NO]
9>	60>	Conduct Remedial Classes for Slow Learners	[ ] [ ]
10>	61>	Uses Computers even for Remedial Classes	[ ] [ ]
11>	62>	Maintains logbook for use of Computers	[ ] [ ]

Note: There are 11 questions and 20 sub-questions for question 35, serial number 3.

There are total 30 items under Teachers. Maximum Score is [30]

## SECTION IV – STUDENTS FEEDBACK

Sl. No.	Q. No.	STATEMENTS	RESPONSES [YES] [NO]
1>	33>	Skills acquired by Students	
	(a)	Switching on and Shutting off the system	[ ] [ ]
	(b)	Managing e-mail	[ ] [ ]
	(c)	Surf and download subject/teaching related materials	[ ] [ ]
	(d)	use soft-ware applications	[ ] [ ]
	(e)	use of Word documents	[ ] [ ]
	(f)	use of Excel sheets	[ ] [ ]
	(g)	Convert Word to pdf and vice versa	[ ] [ ]
	(h)	prepare ppt slides	[ ] [ ]
	(i)	use graphs/charts for teaching	[ ] [ ]
	(j)	use Panel data	[ ] [ ]
	(k)	use Printer/scanner	[ ] [ ]
	(l)	use Digital Learning Resources – DLR	[ ] [ ]
	(m)	download and share documents	[ ] [ ]
	(n)	upload and retrieve data from Memory	[ ] [ ]
	(o)	attach documents to e-mails	[ ] [ ]
	(p)	work with SATS data	[ ] [ ]
	(q)	do animations	[ ] [ ]
	(r)	develop e-lessons	[ ] [ ]

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	(s)	Develop school websites	[ ] [ ]
	(t)	Help HT in MIS management There are 20 items under Sl.No.1>, question 33. 20 scores for question 33.	[ ] [ ]
2>	40>	There is somebody at home to help/guide students	[ ] [ ]
3>	42>	Use pre-loaded Computers in CE/CL	[ ] [ ]
4>	46>	Understand lessons through preloaded Computers	[ ] [ ]
5>	49>	Clarify doubts with teachers	[ ] [ ]
6>	50>	Use Audio-Cassettes for Language Learning	[ ] [ ]
7>	55>	Use Projector in CE Classes – Practicals	[ ] [ ]
8>	57>	Has Computer at home [Not just Smart Phone]	[ ] [ ]
9>	59>	Use Computers for completing School Projects – 01 score, other uses - Zero	[ ] [ ]
10>	60>	If there is no Computer at home, complete projects in school	[ ] [ ]
11>	62>	Developed e-lessons	[ ] [ ]
12>	65>	<u>Skills in Development of e-lessons</u>	
	(a)	Draw Diagrams in Physics/Chemistry/Biology	[ ] [ ]
	(b)	Locate places in Maps – History and/or Geography	[ ] [ ]
	(c)	Do Construction in Geometry	[ ] [ ]
		Note: 03 sub-items for Qn.65, Sl.No.12, 03 scores to be counted, for a, b, c, 01 each	
13>	67>	Attended CE Course in private training institutes	[ ] [ ]
14>	71.	Marks obtained in previous CE examination. 80 + to 100, A+ grade	[ ] [ ]
15>	72>	Have electricity for whole day in school	[ ] [ ]
16>	74>/75>	Have Internet Facility in School/Dongle	[ ] [ ]
17>	76>	Use Computer without Mouse	[ ] [ ]
18>	77>	Stores all documents on dash board	[ ] [ ]

Note: There are 39 items under Tool 4, Students.

Maximum scores is [39]

**SECTION V - PARENTS FEEDBACK**

Sl. No.	Q. No.	STATEMENTS	RESPONSES [YES] [NO]
1>	8>	Discussed with Teachers about on line Schooling	[ ] [ ]
2>	12>	GB package usage 2 GB = 1 Score; < 2GB = Zero	[ ] [ ]
3>	19>	Children study after on line classes	[ ] [ ]
4>	23>	Have UPS in case of failure of electricity for online classes, also SAMVEDA classes.	[ ] [ ]
5>	24>	Knows about Chandana/You Tube lessons of DSERT	
6>	28>	Discussed with HT/Teachers about their children's school performance	[ ] [ ]
7>	29>	Discussed with 'Margadarshi' teachers of VIDYAGAMA Classes	[ ] [ ]
8>	34>	Children not addicted to Mobiles	[ ] [ ]
9>	36>	Children do not gossip with friends on Mobile	[ ] [ ]

**Note: There are total 09 items. Maximum score is [09]**

## PERFORMANCE TABLES

### Tool 1:

District	Tool_1	No.Questions	No.Schools	Max. Score	%
Madhugiri	345	41	19	779	44.3
Chitradurga	380	41	19	779	48.8
Tumakuru	382	41	19	779	49.0
Sirsi	386	41	19	779	49.6
Bangalore North	386	41	19	779	49.6
Chikkaballapura	392	41	19	779	50.3
Bidar	392	41	19	779	50.3
Koppala	392	41	19	779	50.3
Haveri	394	41	19	779	50.6
Chamarajanagara	395	41	19	779	50.7
Dharwada	397	41	19	779	51.0
Mysore	418	41	20	820	51.0
Raichur	401	41	19	779	51.5
Uttara Kannada	403	41	19	779	51.7
Hasan	406	41	19	779	52.1
Belagavi	428	41	20	820	52.2
Chikkodi	408	41	19	779	52.4
Kolar	408	41	19	779	52.4
Kalaburgi	430	41	20	820	52.4
Dakshina Kannada	415	41	19	779	53.3
Davanagere	416	41	19	779	53.4
Bangalore South	440	41	20	820	53.7
Yadagiri	418	41	19	779	53.7
Mandya	424	41	19	779	54.4
Bagalkot	432	41	19	779	55.5
Vijayapura	434	41	19	779	55.7
Bangalore Rural	446	41	19	779	57.3
Ballari	446	41	19	779	57.3
Gadaga	456	41	19	779	58.5
Ramanagara	457	41	19	779	58.7
Udupi	458	41	19	779	58.8
Shivamogga	461	41	19	779	59.2
Kodagu	464	41	19	779	59.6
Chikkamagaluru	511	41	19	779	65.6
<b>State</b>	<b>14221</b>	<b>41</b>	<b>650</b>	<b>26650</b>	<b>53.4</b>

**Tool 2:**

<b>District</b>	<b>Tool_2</b>	<b>No. Questions</b>	<b>No. Schools</b>	<b>Max. Score</b>	<b>%</b>
Bagalkot	349	24	19	456	76.5
Belagavi	379	24	20	480	79.0
Chikkodi	372	24	19	456	81.6
Dharwada	358	24	19	456	78.5
Gadaga	353	24	19	456	77.4
Haveri	349	24	19	456	76.5
Sirsi	319	24	19	456	70.0
Uttara Kannada	265	24	19	456	58.1
Vijayapura	336	24	19	456	73.7
Bangalore North	348	24	19	456	76.3
Bangalore Rural	368	24	19	456	80.7
Bangalore South	382	24	20	480	79.6
Chikkaballapura	370	24	19	456	81.1
Chitradurga	355	24	19	456	77.9
Davanagere	357	24	19	456	78.3
Kolar	360	24	19	456	78.9
Madhugiri	276	24	19	456	60.5
Ramanagara	363	24	19	456	79.6
Shivamogga	368	24	19	456	80.7
Tumakuru	333	24	19	456	73.0
Ballari	361	24	19	456	79.2
Bidar	371	24	19	456	81.4
Kalaburgi	394	24	20	480	82.1
Koppala	324	24	19	456	71.1
Raichur	363	24	19	456	79.6
Yadagiri	343	24	19	456	75.2
Chamarajanagara	378	24	19	456	82.9
Chikkamagaluru	319	24	19	456	70.0
Dakshina Kannada	283	24	19	456	62.1
Hasan	338	24	19	456	74.1
Kodagu	381	24	19	456	83.6
Mandya	344	24	19	456	75.4
Mysore	345	24	20	480	71.9
Udupi	334	24	19	456	73.2
<b>State</b>	<b>11838</b>	<b>24</b>	<b>650</b>	<b>15600</b>	<b>75.9</b>

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**Tool 2 A**

<b>District</b>	<b>Tool_2A</b>	<b>No.Questions</b>	<b>No.Schools</b>	<b>Max. Score</b>	<b>%</b>
Shivamogga	179	9	38	342	52.3
Udupi	180	9	38	342	52.6
Raichur	198	9	38	342	57.9
Sirsi	199	9	38	342	58.2
Bangalore North	200	9	38	342	58.5
Kolar	200	9	38	342	58.5
Madhugiri	204	9	38	342	59.6
Ballari	206	9	38	342	60.2
Kalaburgi	217	9	40	360	60.3
Belagavi	221	9	40	360	61.4
Bangalore South	223	9	40	360	61.9
Haveri	212	9	38	342	62.0
Yadagiri	213	9	38	342	62.3
Mysore	225	9	40	360	62.5
Dakshina Kannada	216	9	38	342	63.2
Chikkodi	219	9	38	342	64.0
Vijayapura	219	9	38	342	64.0
Chikkaballapura	219	9	38	342	64.0
Dharwada	220	9	38	342	64.3
Chamarajanagara	221	9	38	342	64.6
Chikkamagaluru	221	9	38	342	64.6
Hasan	221	9	38	342	64.6
Chitradurga	223	9	38	342	65.2
Kodagu	223	9	38	342	65.2
Ramanagara	224	9	38	342	65.5
Bagalkot	225	9	38	342	65.8
Bangalore Rural	226	9	38	342	66.1
Bidar	227	9	38	342	66.4
Mandya	227	9	38	342	66.4
Davanagere	228	9	38	342	66.7
Koppala	228	9	38	342	66.7
Uttara Kannada	230	9	38	342	67.3
Tumakuru	231	9	38	342	67.5
Gadaga	242	9	38	342	70.8
<b>State</b>	<b>7367</b>	<b>9</b>	<b>1300</b>	<b>11700</b>	<b>63.0</b>

**Tool 3:**

District	Tool_3	No.Questions	No.Schools	Max. Score	%
Koppala	1356	30	95	2850	47.6
Yadagiri	1399	30	95	2850	49.1
Tumakuru	1407	30	95	2850	49.4
Davanagere	1428	30	95	2850	50.1
Raichur	1495	30	95	2850	52.5
Bangalore North	1499	30	95	2850	52.6
Haveri	1511	30	95	2850	53.0
Bidar	1528	30	95	2850	53.6
Bangalore South	1621	30	100	3000	54.0
Kalaburgi	1621	30	100	3000	54.0
Belagavi	1623	30	100	3000	54.1
Mandya	1552	30	95	2850	54.5
Chikkaballapura	1564	30	95	2850	54.9
Bangalore Rural	1590	30	95	2850	55.8
Chitradurga	1593	30	95	2850	55.9
Uttara Kannada	1607	30	95	2850	56.4
Shivamogga	1612	30	95	2850	56.6
Madhugiri	1620	30	95	2850	56.8
Udupi	1624	30	95	2850	57.0
Chikkodi	1628	30	95	2850	57.1
Bagalkot	1646	30	95	2850	57.8
Dharwada	1657	30	95	2850	58.1
Ramanagara	1675	30	95	2850	58.8
Chamarajanagara	1675	30	95	2850	58.8
Sirsi	1687	30	95	2850	59.2
Dakshina Kannada	1689	30	95	2850	59.3
Kolar	1699	30	95	2850	59.6
Vijayapura	1712	30	95	2850	60.1
Mysore	1824	30	100	3000	60.8
Chikkamagaluru	1764	30	95	2850	61.9
Ballari	1787	30	95	2850	62.7
Kodagu	1795	30	95	2850	63.0
Gadaga	1835	30	95	2850	64.4
Hasan	1853	30	95	2850	65.0
<b>State</b>	<b>55176</b>	<b>30</b>	<b>3250</b>	<b>97500</b>	<b>56.6</b>

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**Tool 4:**

District	T4_Score	No.Questions	No.Schools	Max. Score	%
Sirsi	982	19	190	3610	27.2
Raichur	1342	19	190	3610	37.2
Yadagiri	1348	19	190	3610	37.3
Ballari	1416	19	190	3610	39.2
Bidar	1460	19	190	3610	40.4
Uttara Kannada	1465	19	190	3610	40.6
Madhugiri	1539	19	190	3610	42.6
Kodagu	1544	19	190	3610	42.8
Kalaburgi	1649	19	200	3800	43.4
Mandya	1570	19	190	3610	43.5
Chitradurga	1605	19	190	3610	44.5
Dharwada	1622	19	190	3610	44.9
Haveri	1637	19	190	3610	45.3
Kolar	1654	19	190	3610	45.8
Chikkamagaluru	1679	19	190	3610	46.5
Bangalore North	1685	19	190	3610	46.7
Dakshina Kannada	1693	19	190	3610	46.9
Mysore	1783	19	200	3800	46.9
Vijayapura	1694	19	190	3610	46.9
Udupi	1729	19	190	3610	47.9
Chikkaballapura	1734	19	190	3610	48.0
Koppala	1752	19	190	3610	48.5
Belagavi	1846	19	200	3800	48.6
Hasan	1764	19	190	3610	48.9
Chikkodi	1800	19	190	3610	49.9
Shivamogga	1804	19	190	3610	50.0
Bangalore South	1903	19	200	3800	50.1
Bangalore Rural	1810	19	190	3610	50.1
Ramanagara	1841	19	190	3610	51.0
Davanagere	1867	19	190	3610	51.7
Chamarajanagara	1876	19	190	3610	52.0
Gadaga	1908	19	190	3610	52.9
Tumakuru	1918	19	190	3610	53.1
Bagalkot	1957	19	190	3610	54.2
<b>State</b>	<b>56876</b>	<b>19</b>	<b>6500</b>	<b>123500</b>	<b>46.1</b>



**Total:**

<b>District</b>	<b>All Total</b>	<b>No. Questions</b>	<b>Max. Score</b>	<b>%</b>
Sirsi	3573	123	8037	44.5
Yadagiri	3721	123	8037	46.3
Raichur	3799	123	8037	47.3
Uttara Kannada	3970	123	8037	49.4
Bidar	3978	123	8037	49.5
Madhugiri	3984	123	8037	49.6
Koppala	4052	123	8037	50.4
Kalaburgi	4311	123	8460	51.0
Haveri	4103	123	8037	51.1
Mandya	4117	123	8037	51.2
Bangalore North	4118	123	8037	51.2
Chitradurga	4156	123	8037	51.7
Ballari	4216	123	8037	52.5
Dharwada	4254	123	8037	52.9
Tumakuru	4271	123	8037	53.1
Belagavi	4497	123	8460	53.2
Chikkaballapura	4279	123	8037	53.2
Davanagere	4296	123	8037	53.5
Dakshina Kannada	4296	123	8037	53.5
Kolar	4321	123	8037	53.8
Udupi	4325	123	8037	53.8
Bangalore South	4569	123	8460	54.0
Mysore	4595	123	8460	54.3
Vijayapura	4395	123	8037	54.7
Kodagu	4407	123	8037	54.8
Shivamogga	4424	123	8037	55.0
Chikkodi	4427	123	8037	55.1
Bangalore Rural	4440	123	8037	55.2
Chikkamagaluru	4494	123	8037	55.9
Chamarajanagara	4545	123	8037	56.6
Ramanagara	4560	123	8037	56.7
Hasan	4582	123	8037	57.0
Bagalkot	4609	123	8037	57.3
Gadaga	4794	123	8037	59.6
<b>State</b>	<b>145478</b>	<b>123</b>	<b>274950</b>	<b>52.9</b>



## Annexure 06: Enrolments and Attendance of High schools in the State

<b>ENROLMENTS &lt;STATE&gt; High Schools [Govt. School only]</b>						<b>(in lakhs)</b>
<b>Year</b>	<b>2016-17</b>	<b>2017-18</b>	<b>2018-19</b>	<b>2019-20</b>	<b>2020-21</b>	<b>Total</b>
8th Standard	463373	452135	457543	461454	482208	2316713
9th Standard	422069	417346	430452	434228	473077	2177172
10th Standard	415666	397962	380915	385207	438081	2017831
<b>Total</b>	<b>1301108</b>	<b>1267443</b>	<b>1268910</b>	<b>1280889</b>	<b>1393366</b>	<b>6511716</b>
<b>Attendance &lt;STATE&gt; High Schools [Govt. School only]</b>						<b>(in lakhs)</b>
<b>Year</b>	<b>2016-17</b>	<b>2017-18</b>	<b>2018-19</b>	<b>2019-20</b>	<b>2020-21</b>	<b>Total</b>
8th Standard	314593	312677	315828	316122	345623	1604843
9th Standard	287050	285422	295242	295152	328084	1490950
10th Standard	284250	273345	259015	261173	306959	1384742
<b>Total</b>	<b>885893</b>	<b>871444</b>	<b>870085</b>	<b>872447</b>	<b>980666</b>	<b>4480535</b>



## **Annexure 7: Persons with addresses personally interviewed**

Director,  
DSERT, Bengaluru

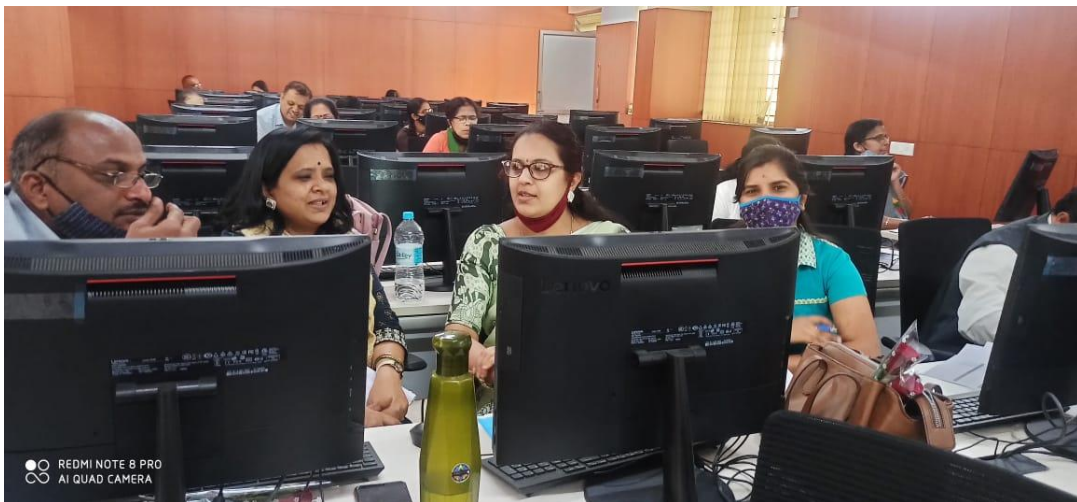
Nodal Officer,  
Senior Assistant Director,  
DSERT, Bengaluru.

Director,  
Department of Pre University Education,  
Malleshwaram, Bengaluru

Director,  
Sarva Shikshana Abhiyan,  
Nripathunga Road,  
Bengaluru

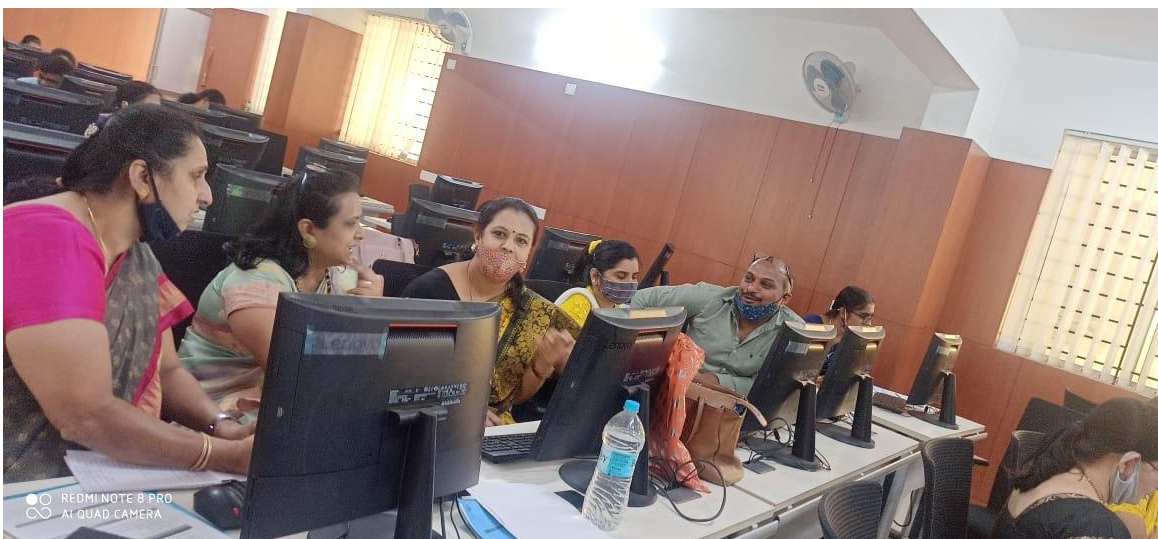


## Annexure 8: Photos of Workshop conducted at DSERT





Concurrent Evaluation of the Implementation Process and Achievements of the Technology Assisted Learning Programme in Karnataka State







**CONCURRENT EVALUATION OF THE IMPLEMENTATION PROCESS AND  
ACHIEVEMENTS OF THE TECHNOLOGY ASSISTED LEARNING  
PROGRAMME IN KARNATAKA STATE**

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Dr. B.R Ambedkar Veedhi  
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Email ID: [keagok@karnataka.gov.in](mailto:keagok@karnataka.gov.in)**