Digitalisation of Education

Study of District Dhule

National Commission for Protection of Child Rights (NCPCR)
2nd Floor, Chanderlok Building, 36 Janpath,
New Delhi-110001

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Content

Preface

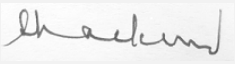
National Commission for Protection of Child Rights (NCPCR) has been mandated under Section 13 of the Commissions for Protection of Child Rights (CPCR) Act, 2005 to undertake and promote research in the field of child rights. Towards realizing its commitment towards quality education as under the Goal4 of Sustainable Development Goals, the Commission has undertaken many activities for providing for equity, inclusive, quality and sustainable education in India.

The Right of Children to Free and Compulsory Education (RTE) Act, 2009 outlined the need for good quality elementary education as one of the duties of Appropriate Government and Local Authorities. To achieve this goal, several initiatives have been taken by the concerned Ministry including digitalization of education in schools. E-Pathshalas, Shagun Portal, National Repository of Open Educational Resources (NROER), SWAYAM (Study Webs of Active learning for Young Aspiring Minds) are some of the major programmes initiated by MHRD.

Parallelly, the non-governmental agencies are also promoting use of technology in schools in different manner. One such initiative resulted in digitization of government schools in District Dhule through community participation. This unique model of community participation even resulted in increase in enrolment of government schools in the said District.

Taking note of this significant achievement, NCPCR took up this study to get a deeper understanding of the model. This report is a result of field work in select schools that were digitalized in District Dhule. The report also highlights the areas that may be improved upon for maximizing the benefits of digitalization and for its effective functioning.

Specifically, the report intends to highlight the initiative as an effective community participation model that can contribute towards Government's call for digitalization of education.



(Stuti Kacker)
Chairperson

Acknowledgement

The study undertaken by NCPCR examined the impact of digitalisation in education and how the community participation has helped in setting up of digital classes in the schools. For this District Dhule, Maharashtra, where the Zilla Parishad schools have been digitalised through community participation.

I express my sincere gratitude to Ms. Stuti Kacker, Hon'ble Chairperson, National Commission for Protection of Child Rights (NCPCR) for her constant support and encouragement.

I sincerely appreciate the efforts of Task Based Consultants engaged to conduct the field survey, Ms. Samia Ibrahim; Ms. Rashida Mariam; and Mr. Wasim Alam. I am also thankful to interns in District Dhule that helped the visiting team in conducting interviews and data collection- Ms. Payal Chainani, Mr. Saurabh Patil, Mr. Chetan Atale, Mr. Chinmay Atale, Mr. Bhagyesh Tripathi and Shri Kishor P.Patil, Teacher in a Zilla Parishad School for coordinating the team in Dhule. I express my sincere thanks to Dr. (Ms.) Madhulika Sharma for her contribution in coordinating the study and entire team of Education Division, NCPCR for their support. I am thankful to the District Administration of Dhule for providing support to the visiting team for field survey.

Last but not the least, I express my gratitude to Department of School Education and Literacy, MHRD for providing funds to carry-out the study. I do hope the study will inspire many more to explore different possibilities in contributing towards the goal of quality inclusive education. .

(Priyank Kanoongo)
Member
Education Division

DIGITALISATION OF EDUCATION

Currently, there are several initiatives and schemes in place for providing equal opportunities for all towards quality education. Digitalisation of education is one such mechanism that acts as a catalyst towards achieving the aim of quality inclusive education. Recently, *Digital Initiatives* have been included as an important component in MHRD's flagship integrated scheme for school education- *Samagra Shiksha Abhiyaan*.

ABOUT NCPCR

The National Commission for Protection of Child Rights (NCPCR) has been constituted by the Government of India, as a statutory Body under Section 3 of the Commissions for Protection of Child Rights (CPCR) Act, 2005 (No. 4 of 2006) for dealing with protection of Child Rights and related matters. To realise this aim, section 13 of the said Act assigned certain functions to the Commission that intend to ensure that the legal and constitutional rights of children are protected. Also, the Right to Education Act, 2009 have mandated appropriate government to ensure suitable environment and quality education for completion of free and compulsory education for every child in the age 6-14 years u/s 8 of RTE Act, 2009. For this, the RTE Act, 2009, under section 31 has mandated NCPCR to monitor the implementation of the provisions of the Act. In light of above mandate, NCPCR took up the study to analyse the impact of digitization in government schools.

ABOUT DISTRICT DHULE

Dhule is a tribal district in Maharashtra. There are four Blocks in Dhule district; namely Dhule, Sakri, Shirpur and Shindkheda. There are 1856 schools in the Dhule in which 1137 are Zila Parishad schools and remaining 719 schools are Social welfare, private aided and private unaided schools. There are 555 schools in Dhule block out of which 247 are Z.P schools. Shirpur Block has 371 schools out of which 265 are Z.P schools, Sakri Block has 620 schools out of which 449 are Z.P schools and Shindkheda Block has 310 schools in which 176 are Z.P schools (DISE, 2011-12). As per Census 2011, 19 per cent of children in the age-group 6-14 years was not attending any educational institution.

AIM OF THE STUDY

Given the importance of technology in different fields, an in-depth study to examine the pros and cons of digitalizing classrooms in Indian schools by studying the mechanism adopted, stakeholders involved and its effect on overall quality of elementary education. Specifically, the study was conducted to examine the impact of digitalization in the schools of district Dhule.

METHODOLOGY

Interviews with Officials

Interviews with Z.P. Chief Executive Officer, Gangadharan D; District Education Officer (primary), Mohan Desale; Block Education Officer (Dhule), P.T Shinde, Block Education Officer (Shirpur), P.Z. Ranadive; Block Education Officer (Sakri), B. B. Bhil and Zila Parishad President, Shivaji Rao Namdev Dahite helped in .

Development of Questionnaire

To achieve the objective of the study and understand the impact of digitalisation, questionnaires were developed separately for all important stakeholders such as Headmasters, Teachers, Parents, and Students.

School Visits

To select the Sample for the survey, five percent of the total 1103 digitalised Zila Parishad schools were selected across four blocks of District Dhule, Maharashtra. The block-wise distribution of schools is a follows,

Table 1: Sample of the Study

Blocks	Schools Selected
Dhule	15
Sakri	13
Shindkheda	14
Shirpur	15

ABOUT THE DIGITAL SCHOOL INITIATIVE IN DISTRICT DHULE

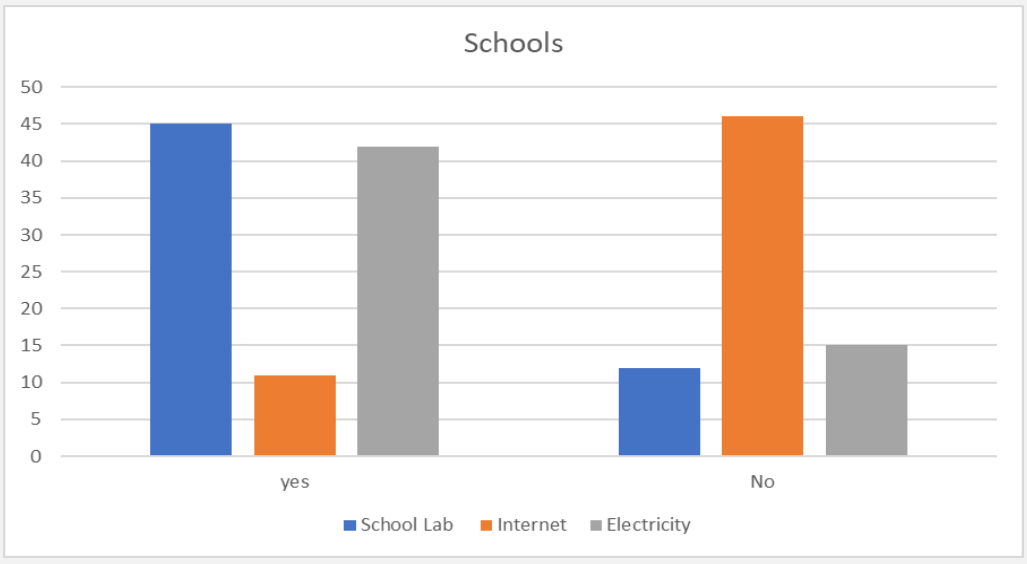
The initiative was taken up by Shri Harshal Vibhandik, a volunteer from Rambhau Mhalgi Prabodhini. He worked along with ZP CEO, District Education Officer, Block Education Officer and School Principals in this initiative. Both principals and teachers were informed about how to set up digital classroom in their school and what its benefits are. More than 500 *Prerna Sabhas* have been organised at both village and district level. Prerna Sabha was gathering of teachers, parents, other community members along with along with District Education Officer, Block education Officer and Cluster officers. More than 1,000 villages and Zila Parishad (Z.P.) schools in rural and tribal areas in Dhule district were visited by

officers and other people in order to create awareness about the importance of Digital Education in Government Schools. The aim of this Sabha was of gathering donations along with creating awareness.

In Prerna Sabha they would explain the importance of digital education by showing the digital classrooms demo and different techniques of digital education by showing the videos of the digital schools and would compare it with their village school. In the end of meeting officers along with teachers and headmasters would declare the amount they will be giving to school. Seeing this effort made by others, people would get motivated and would give the amount according to their capacity. In December 2015, Prerna Sabha was organised at district level in Dhule City to spread the initiative across whole district. For the initiative 70% of the money was given by the community members and remaining 30% came from NRI donors and NGO. For instance, Lupin Foundation contributed 86 lakh for the digital school initiative.

FINDINGS

1) Availability of school lab, internet connection and electricity in schools.



Majority of schools have separate school labs in their schools. Most of the schools don't have internet connection. In these schools, teachers use their own mobile internet connection to show educational videos and pictures to their students. It was only in few schools where Wifi connection was available. In majority of schools electricity was mostly available during school time, yet there were some load shedding problem. Because of digitalisation school electricity cost has increased and there is limited or no funds available for electricity bills in

the schools. In some schools; teachers, headmaster and community members pay electricity bill. While there are few schools in which there is no one to pay electricity bill, so due to non payment of electricity bills school electricity connection has been cut off.

2) Medium of learning and curriculum followed in schools

The medium of instruction in school is Marathi and the curriculum used for digital classes is based on the State Board curriculum. Also, the e-content is available for English, Marathi, Maths Science, Hindi, Social Science and Drawing.

3) Equipment available in school laboratory

Based on the number of students in a school, availability of electricity and villagers ability to donate the fund for digital classroom in the school, the type of equipment to be used was decided. Majority of the schools used computers and projector in the digital classrooms.

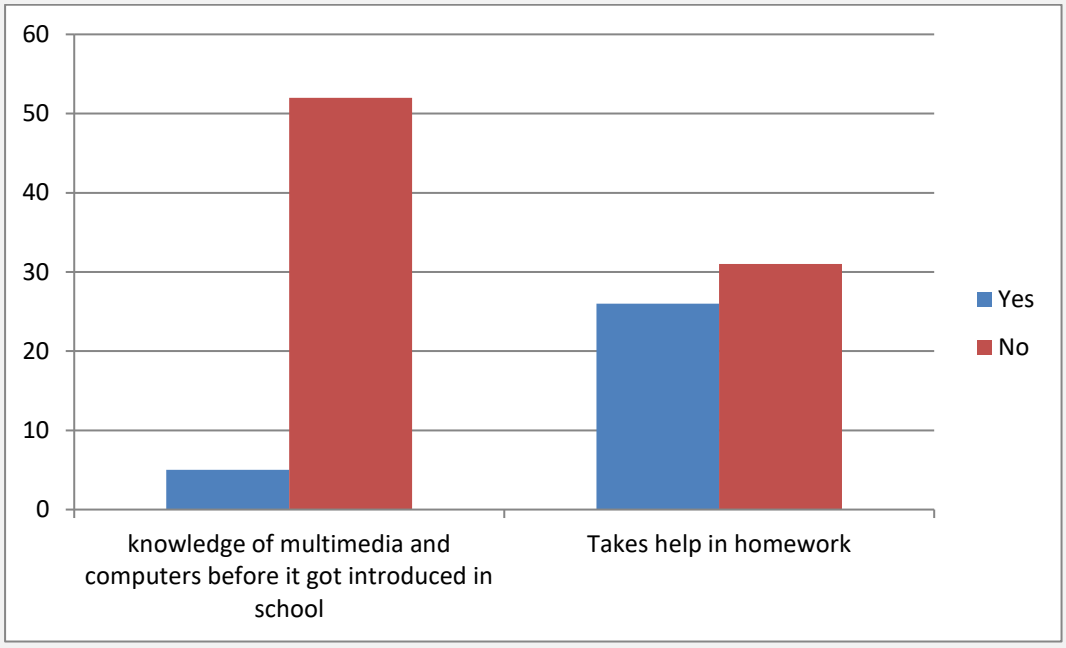
Equipment available in school laboratory	**Percentage of schools**
Computer	8.9
Projector	20.0
Computer & Projector	46.7
Smart TV	6.7
Computer & Smart TV	4.4
Computer, Projector & Smart TV	2.2
Computer, Projector, TV & Interactive Board	2.2
Computer, Projector & Interactive Board	4.4
Laptop & Projector	2.2
Projector & Interactive Board	2.2

4) Preferred style of learning

Use of multimedia is a preferred style of learning for 84% of students. They understand better when they see pictures and videos related to the content. The use of media made the lessons more interesting and easily comprehensible.

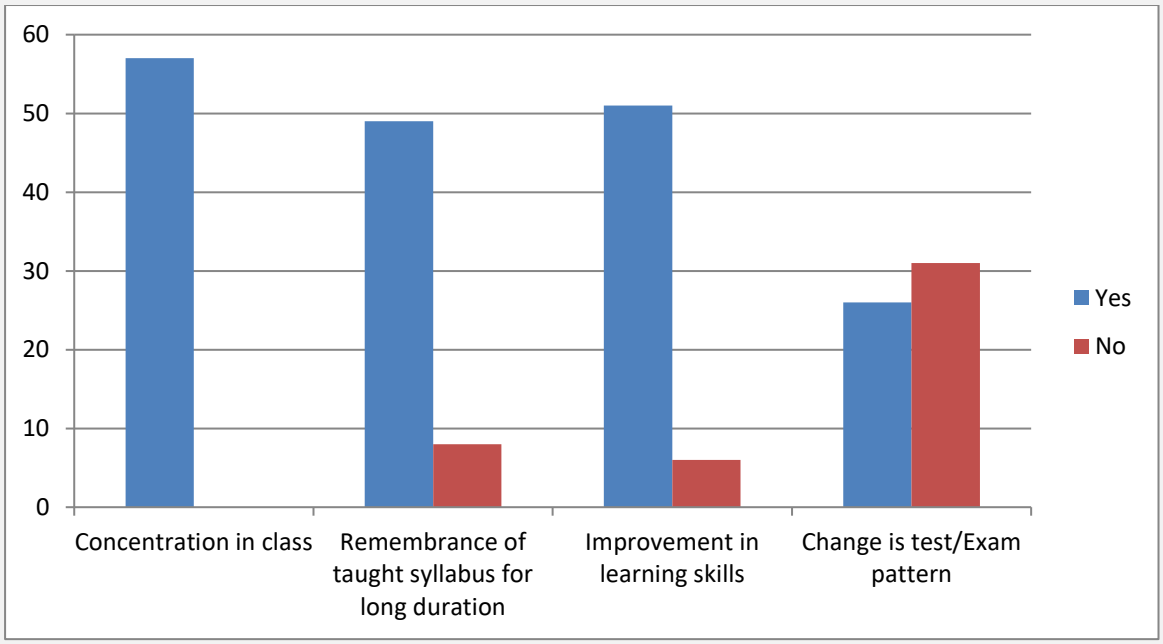
5) Effect of using technology in classrooms

Majority of students had no prior knowledge about computers and multimedia. Children take their elder siblings help or other literate person in the family during home works.



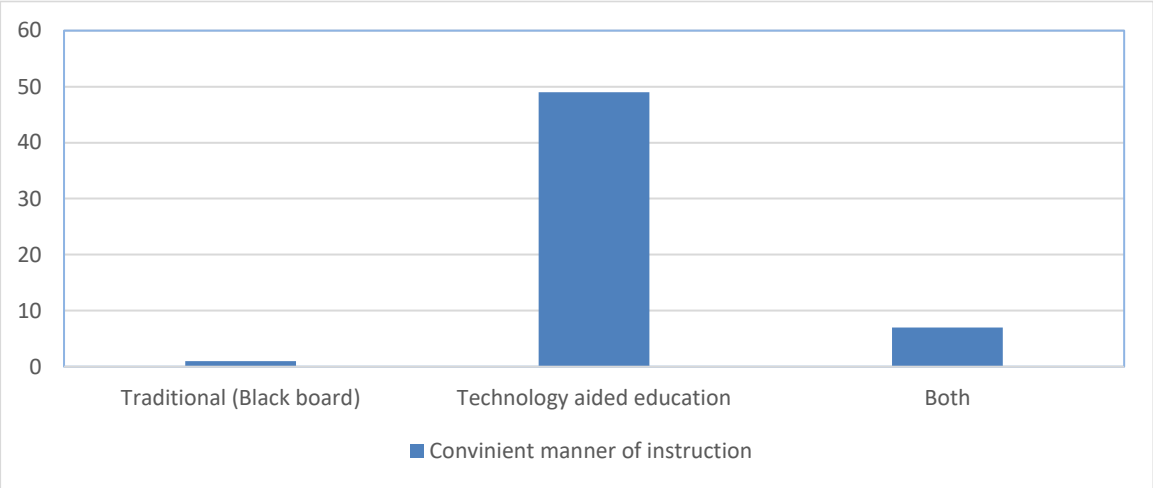
Students enjoy almost all the subjects in school through multimedia. Language, especially Marathi, and Maths are the two common subjects' children like studying the most.

6) Students' performance



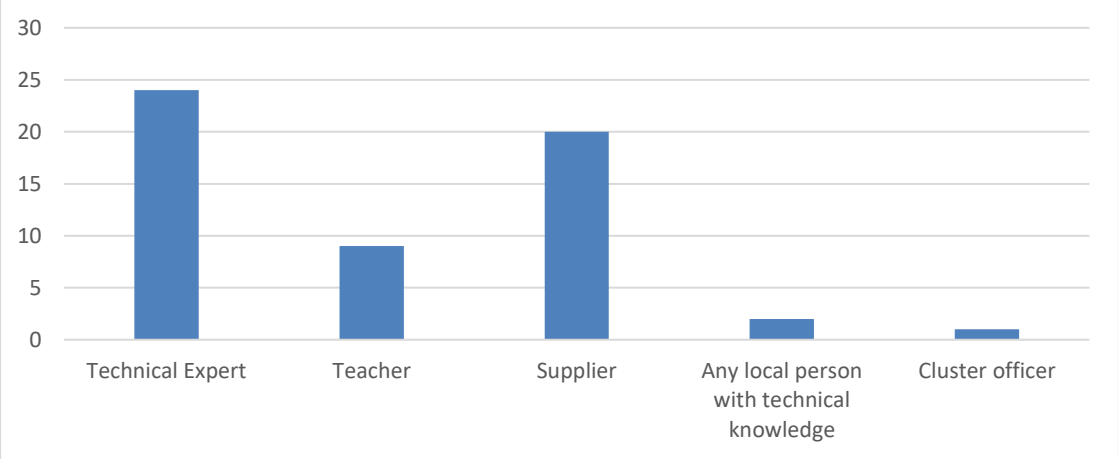
Student's concentration in school and understanding of what is taught has increased, as can be seen in Figure.4. They are paying more attention to what they are being taught and are able to remember to it for longer duration of time. Their learning skills have also improved. Above figure also shows that there have been some changes in test/exam pattern in some schools. They now have some online test. After every chapter there will be some objective test.

7) Convenient manner of instruction



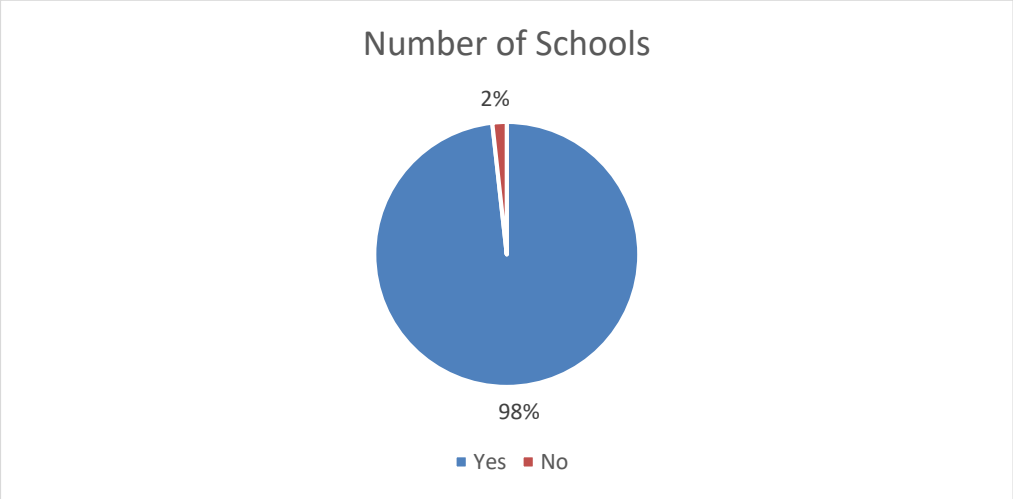
For majority of teachers, technology aided education is the most convenient manner of instruction. Children understand more easily when they are shown visual display of things taught to them. As mentioned by one teacher, it is easy to teach that earth is round, how it rotates and revolves through multimedia than blackboard. Students understanding of things have increased because of multimedia.

8) Resolution of technical problem



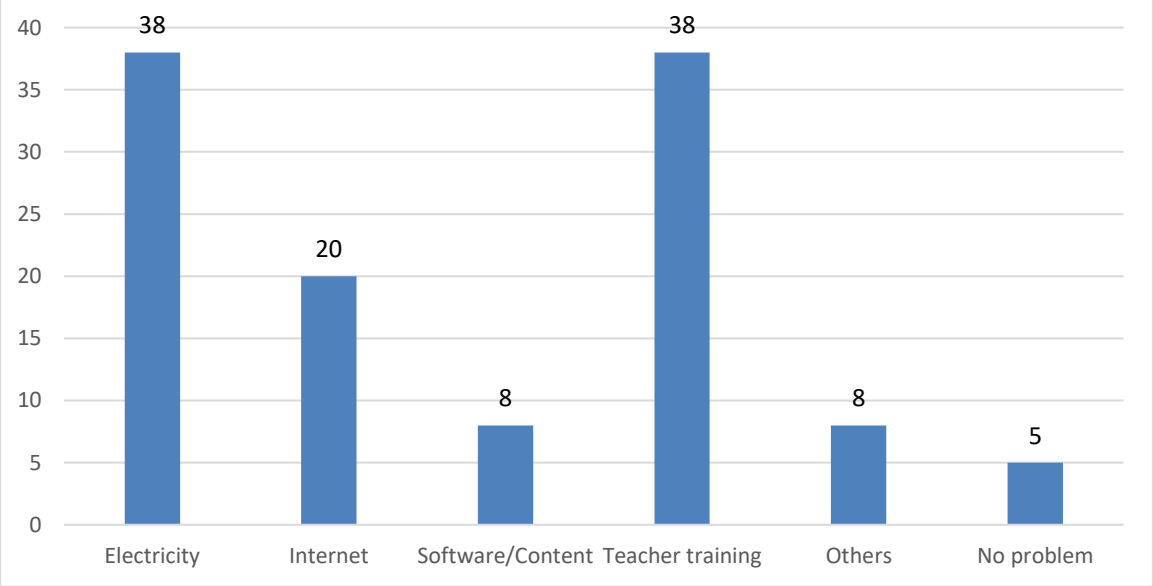
During technical problems, most of the schools would call a technical expert or supplier. The technical expert would reach them same day or next day while supplier would take 1-2 days. There are some schools in which teacher themselves try to solve any technical problem.

9) Multimedia approach led to individualized attention



Around 98% of teachers say that multimedia approach has led to individualized attention. They are able to give equal attention to the students.

10) Problems faced by teachers



Many different problems were mentioned by teachers which they are facing using technology aided education. Teacher training and electricity are a major problem being faced by teachers. Though demonstration and orientation training was conducted by the supplier and in some schools, training programmes by the school and Zila Parishad have also been organised, however, more intensive and regular training programmes are required for teachers for optimal use of technology based education.

They have load shedding problem because of which they are not able to use multimedia properly. In few schools because of non-payment of electricity bill, electricity connection has been cut off. Because of electricity they are not able to use multimedia for teaching. There is no availability of internet connection in schools; teachers use their own mobile connection when using multimedia. They also face content problem, either content is too vast or it needs to be updated. Other problems are improper infrastructure, need of more projectors and funds. Schools have fewer classrooms and no proper infrastructure. For digital classroom they need proper infrastructure.

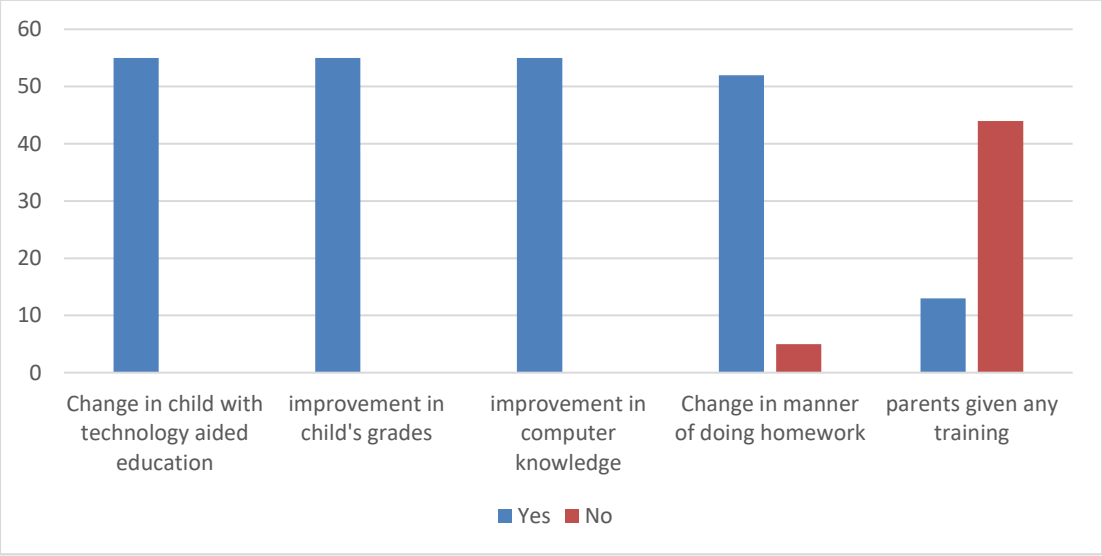
11) Teacher's Suggestions

The major suggestions were to improve content and to provide more devices like projector and interactive board to make more class digital. Content is also a problem faced by teachers, they want better content for children and software should be regularly updated. Proper internet and electricity connection is also some of the suggestions mentioned by the teachers. They want solar panels or some kind of funds for schools which could solve electricity and electricity bill problems. More and regular teacher training opportunities and refresher courses should be extended.

12) Impact on parent's involvement in schools after school got multimedia

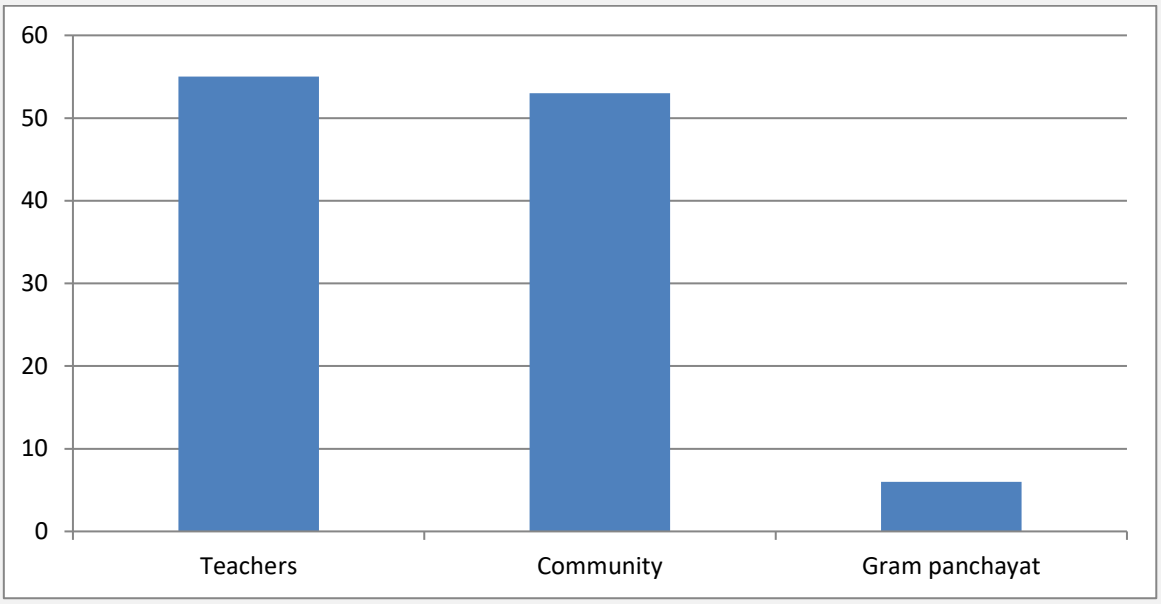
In the last two years along with student's performance and grades, parent's involvement has also increased. Parents are now paying attention towards their children's education. They are regularly asking teachers about their child's growth and whether they are using multimedia for teaching or not. They are sending their children regularly to schools. Parents are also supporting schools in extracurricular activities. In one school they even have a WhatsApp group where teachers, parents, SMC and headmasters are member. In this group, parents regularly ask about their child's progress. The issue is now regularly been discussed in SMC meetings.

13) Observation of Parents

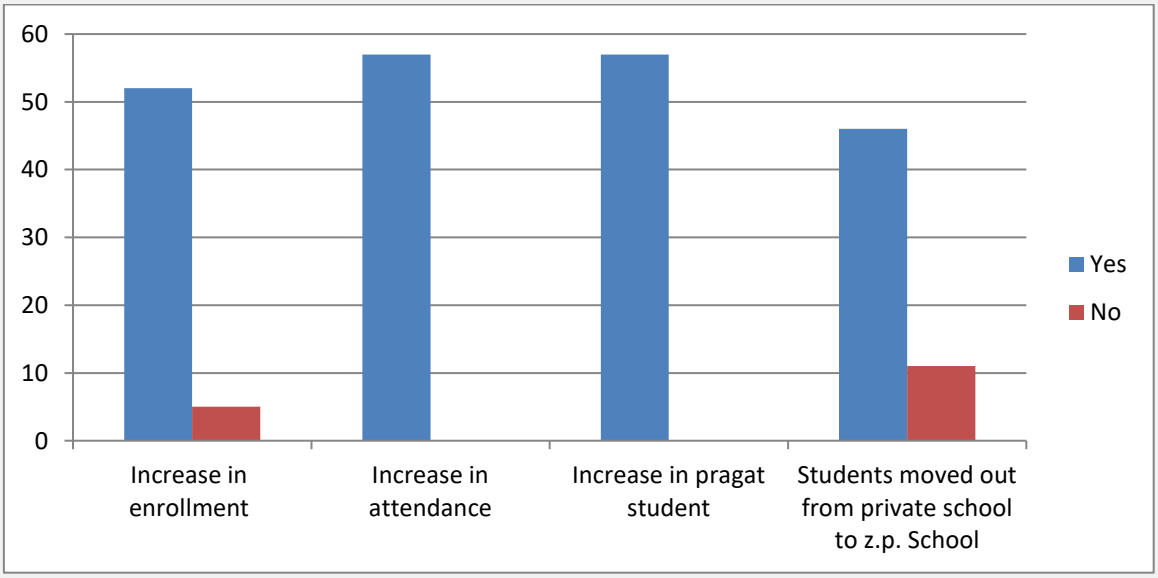


Majority of parents say that there has been positive changes in their child with technology aided education. There grades, performance and computer knowledge has improved. Children are now regularly going to school. They are now paying more attention to what is being taught to them. Few of the parents have been given training along with teachers by supplier.

14) Contribution of funds



Most of the schools funds were given by teachers and community. More than 59 lakhs rupees were collected from the schools covered under the survey through community, teachers and Gram Panchayat contribution. Gram Panchayat in most of the schools instead of giving money has contributed by providing projectors, and various supporting devices.



There is increase in student enrolment in majority of schools. There is increase in attendance and *Pragat* category students in schools after schools have been digitalised. *Pragat* students are those students who have acquired age appropriate language and mathematical skills.

- Impact on learning outcome of students after school got multimedia

In the last two years student's grades, performance and concentration have increased. This could be seen in schools *Pragat* student number. Students are now more attentive and active in classroom.

Conclusion

- This analysis of the study shows that digitalisation of schools have **positive impact on education of children.** Students prefer multimedia education as compared to traditional lecture method and are enjoying more. Their concentration in school and understanding of what is being taught in the class has increased along with their learning skills.

> "*It is better to give money to a government school instead of spending it on a private school."*
>
> - Parent (Z.P School, Mordad) who donated one smart TV to the school

- For teachers, technology aided education is a convenient manner of instruction. Also, there is increase in enrolment, attendance and *Pragat* category students in the last two years. As a result of the Digital School Initiative more than 760 students came back from English Medium Schools to *Zilla Parishad* Schools in 2017.

- This initiative was supported by community people, 59 lakh rupees were contributed by them along with teachers and headmasters of the schools.

Recommendations

1) The Ministry of Human Resource Development under its Digital India e-learning initiative passed budget of Rs.451.64 Crore in the 2016-17, Rs.518 Crore in 2017-18 and Rs.456 Crore for 2018-19 (Department of Higher Education, MHRD). Also, the Information and Communication Technology in schools have been included in the Rashtriya Madhyamik Shiksha Abhiyan (RMSA) to provide opportunities to secondary stage students to mainly build their capacity on ICT skills and make them learn through computer aided learning process. According to this scheme, the non-recurring expenditure for school is Rs. 6.4 lakh, whereas annual recurring expenditure is Rs. 2.70 lakh for a school. (Department of School Education & Literacy, MHRD).

   However, on an average close to one lakh contribution was made for digitalization of one school. Comparing it with the amount sanctioned for use of ICT in schools shows that Dhule model of digitalization is cost effective and hence, if implemented, more number of schools can be digitalized.
2) Provision of electricity is an important challenge in using technology in schools. With digitalisation of schools comes the problem of load shedding and increased electricity bill. In order to make this project more self sustainable self-sustainable with uninterrupted electricity supply in especially in tribal villages, "Solar School Project" was launched by Rambhau

Mhalghi Prabodhini in August 2017; so far they have successfully donated Solar Kits to 180 Z.P Schools in tribal villages of the district. However, electricity remains one of the important concerns in implementation of the initiative. Hence, the use of solar panels needs to be promoted. This will also be useful in ensuring free and uninterrupted electricity supply, which will be helpful to successfully run the digital classrooms during school hours.

3) Proper mechanism for training of in-service teachers through DIETs and pre-service teachers training through NCTE should be established in digital schools.

4) Concerned Ministries/Departments should develop mechanism to expedite support and funding from these kinds of social initiatives.

5) Uninterrupted internet facility should be provided in all Zila Parishad Schools where the classes have been digitalized.

6) Given the positive impact of use of technology in classrooms, other States may adopt this mechanism of digitalization through community participation in their States.

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NCPCR

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