

DIGITAL BOARD FOR ADVANCED TEACHING LEARNING PROCESSES

Smart Classroom in Telangana Social Welfare and
Tribal Welfare Residential Degree Colleges

Impact Assessment
Report of
Educational Project
– A CSR Initiative of
Divi's



Divi's Laboratories Ltd.

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DIGITAL BOARD FOR SMART CLASSROOM IN SOCIAL WELFARE &
TRIBAL WELFARE COLLEGES OF TELANGANA

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DIGITAL BOARDS FOR ADVANCED TEACHING LEARNING PROCESSES

INTRODUCTION

Education is a continuous, lifelong process of learning that instils a spirit of enquiry and curiosity among students. It prepares youngsters for greater challenges in life through capacity building and imparting skills. It plays a remedial role in balancing the socio-economic fabric of the country.

In the past few decades, education system has changed across the world. The learner-centricity has become more prevalent and this opened up new opportunities for teaching and learning. Modernization and digitization are advancing in every aspect of our lives and technology has been embraced all over educational places.

CONTEXT

Learning is now dynamic, stimulating and practical due to the development of the internet and ever-improving technology. In addition to preparing students for future endeavours, a key benefit of digital literacy to college students is that digital skills allow them to engage more fully with their studies. To make learning more precise and interactive, educational institutes are adopting digital boards in classrooms which helps the students to visualize the topic with audio and visual effects.

Believing that education is the strongest weapon with which the lives of the marginalized children can be transformed into social and economic spheres thereby cultivating a new generation that can lead the country in the 21st century Telangana government has been passionately working to place the poorest among the Scheduled Castes and Scheduled Tribes in the prosperous orbit through quality education. Partnerships with private / corporate sector contributed towards creating positive learning environment and imparting quality education using innovative student centric teaching learning material and methods. Divi's interventions in the education sphere are the result of one of such partnerships in pursuance of the sustainable development goal (SDG) of 'ensuring inclusive and equitable quality education for all'.

DIVI'S CORPORATE SOCIAL RESPONSIBILITY

Divi's Laboratories is a leading manufacturer of Active Pharmaceutical Ingredients (API) with its headquarters located in Gachibowli, Hyderabad, Telangana, India. Divi's believes and cares deeply in the Business-Society Ecosystem which forms the basis for its CSR component. Started within a few years of launching its business Divi's has been striving to make a meaningful difference in the lives of the communities around the company and create a positive impact on the society.

Towards this, the Company takes up activities for sustainable growth in the neighbourhood or partner with agencies and provides support for various development activities. Some of the CSR thrust areas are *Promoting Education, Empowering women, Rural development, Preventive health care, Safe drinking water, Animal welfare, Improving the standard of living of the community.*

IMPACT ASSESSMENT STUDY

In compliance with the CSR rules and regulations under the Companies Act, Divi's intended to do impact assessment of its CSR project. Deeksha – Centre for Learning and Action (a non-profit organisation working in the areas of Child Rights, Adolescence issues, Health, Livelihoods and Gender equality) has been identified for taking up the impact assessment of the project of promoting education through digital classroom, implemented through its CSR funds.

DIGITAL BOARDS FOR ADVANCED LEARNING

Telangana Social Welfare and Tribal Welfare Residential Educational Institutions Societies (TSWREIS & TTWREIS) are striving to liberate marginalized children from all forms of poverty, despondency, inferiority complex and eventually placing them in the orbit of higher education and self-respect. The social welfare and tribal welfare colleges stand tall realizing the goal of enabling the young potential from marginalized communities to excel in curricular and noncurricular spheres. To keep up the students abreast with the latest educational practices in a student friendly environment, virtual learning is introduced using digital technology and making the classrooms as smart learning spaces. In this regard, responding to the request by the State authorities to partner in achieving this ambitious goal, Divi's has contributed funds to install digital boards and create smart classrooms for advanced learning in the social welfare and tribal welfare colleges.

SCOPE OF THE STUDY

Divi's provided Digital Boards for making education impactful through blended learning in 67 social welfare & tribal welfare colleges (junior colleges & degree colleges) in the State. Thus, the study aims to assess the overall impact of the digital board on the students' learning and teachers' facilitation.

SPECIFIC OBJECTIVES

The key objective is to understand the impact of the CSR funds expended on providing digital boards on the academic performance of the students, their skill and knowledge enhancement, the ease of teaching, and the teaching learning processes adopted using the new technology.

METHODOLOGY

The study is designed in a participatory and interactive mode to gather perceptions of the teachers and the students; and to analyze the overall impact. Following tools are used to assess the impact of the intervention:

Tool 1 – Classroom Observation

Tool 2 – Small Group Discussion with students

Tool 3 – Semi Structured Interview with teachers and the College Principal

SAMPLE

Since the intervention colleges are more in number located across the State, 10% of the colleges were selected to do the impact study using stratified sampling method. Further, following the same method 10% colleges were identified from social welfare and tribal welfare colleges. While selecting the sample it is ensured that the colleges are spread across different districts. The study team decided to limit the assessment to degree colleges only for ease of interaction and assessing the impact. Thus, the number of colleges to be studied came to 6 – three social welfare colleges and three tribal welfare colleges. While working on the sample the category of women and men's college was also considered. Hence among the 6 identified colleges, 5 were of women and 1 was men's college.

The study team physically visited all the sample colleges, observed the smart classrooms, discussed with the students and interacted with the teachers to understand the impact of the intervention.

Table 1 – Details of the Colleges visited


S. No	Name of the District	Name of the College & Location	Category
1	Bhadradi-Kothagudem	TTWRDC, Kothagudem	Women
2	Jagityala	TSWRDC, Jagityala	Women
3	Kamareddy	TSWRDC, Markhal, Kamareddy	Women
4	Siricilla	TSWRDC, Vemulawada, Siricilla	Women
5	Sangareddy	TTWRDC, Peddakanjerla, Sangareddy	Men
6	Suryapeta	TTWRDC, Suryapeta	Women

FINANCIAL OUTLAY

A total of ₹1,32,81,310.00 has been spent by Divi's towards the intervention under its CSR component in the Telangana Social Welfare and Tribal Welfare Educational Institutions.

KEY OBSERVATIONS

The impact study focused mainly on understanding the utility, accessibility, ease of use, any concerns or challenges in adopting the new teaching learning method, successes and best experiences if any. Pointers for interaction and small group discussions were evolved and used during the study, modifying the questions as appropriate. The assessment team visited all the sample colleges located in different districts and the smart classroom is physically observed to understand the place of equipment, ease of use by the teachers, class arrangement and accessibility to the students, etc. Major findings from the observations, interactions and discussions are presented below:

-  The State government in the unified Andhra Pradesh has established autonomous society called Andhra Pradesh Social Welfare Residential Educational Institutions Society (APSWREIS) in the year 1984 to provide quality education to poor students from scheduled caste, scheduled tribe and other backward castes through residential schools.

- ✚ In the year 1999, Andhra Pradesh Tribal Welfare Residential Educational Institutions Society (APTWRIS) has been established as an autonomous society, bifurcating from the APSWREIS and started its independent journey to accomplish national level educational standards.
- ✚ Subsequent to the formation of Telangana state, with its vision to provide uninterrupted opportunity to the students from poor and marginalized communities, the KG to PG free education policy has been made in the year 2016. Since then, the effort to make it a reality hastened and the autonomous societies have drawn its own vision and mission towards achieving the goal.
- ✚ There are a large number of residential educational institutions in the State, catering to the students from underprivileged families of SC, ST, BC and Minority communities. These institutions pledged to impart quality and equitable education with highest communication skills and human values to transform these students into the fittest persons in today's highly competitive modern world.
- ✚ Many of the residential schools are upgraded to junior college level. But there were no degree colleges providing free education and most of the students from deprived sections are unable to continue their higher education. This gap was recognized by the State government and degree colleges were sanctioned, with a large focus on women students to enable the young women, who were becoming victims of early and forced marriages, pursue their higher studies and accomplish their aspirations.
- ✚ Hence, the State government started 30 exclusively women's degree colleges under TSWREIS, and 22 degree colleges, including one law college, under TTWREIS among which 15 are meant for women and the remaining 7 are men's degree colleges. There are 116 and 27 junior colleges under social welfare and tribal welfare departments respectively.
- ✚ Increase in the number of colleges ready to provide quality education with residential facilities gave an impetus to the education of girls and young women from marginalized communities. These colleges were gradually gearing up to adopt virtual learning modes by setting up smart classrooms.

- ✚ At this stage Divi's contribution towards providing one digital board each in 52 colleges, enabling smart classrooms in these colleges brought a major shift in the teaching learning processes and was a leapfrogging for the students in their learning process.
- ✚ The strength of the colleges that the study team visited varies between 200 to 600 students, the lowest being the degree college for men with 143 in the tribal welfare degree college for men, Peddakanjerla, Sangareddy district and the highest being 575 in the tribal welfare degree college for women, Kothagudem, Bhadradri Kothagudem district. Altogether, these 6 sample colleges are accommodating close to 2,300 students.
- ✚ The number of courses offered by the colleges also varies from 5 to 17 streams in science, arts, commerce, mathematics and technology.
- ✚ It is observed across the colleges that the digital board is being used mostly by STEM (science, technology, engineering and mathematics) courses that include life-sciences, computer courses, physical sciences to show the diagrams and illustrations. In addition, though in a limited way it is used for arts and commerce courses also, with lot of demand for digital board usage in English subject teaching.
- ✚ It is to note that all the branches in a college are utilizing the same board as part of their teaching learning method and also as an additional knowledge gaining asset (TLM). In the colleges where students are more in number and streams are many, each batch would get hardly any time to repeat and frequently use the technology for better learning outcomes.
- ✚ In all the colleges though the study team requested the staff to mobilise 10-15 members representing different years and subjects, more than 25 students enthusiastically came forward to participate in the discussion. Hence, the study team followed interactive method instead of discussion to elicit answers to the questions posed with a view to assess the utility, impact and confidence of operating the device.
- ✚ It is observed that the students coming from better socio-economic background and urban exposure are confident to explore and ready to learn new things without much inhibition. Those who did not have access to smart phones and laptops earlier were reluctant to use the digital board even when the teachers are asking them to touch screen and operate certain simple apps. They might need some more time to gain confidence and inclination to operate the board.

OUTCOME OF SMALL GROUP DISCUSSIONS WITH STUDENTS

About 158 students from different streams and different years of their course have participated in the small group discussion, across 6 colleges. However, the number of participants being more for conducting SGD, it was held more like an interaction exercise and one to one interaction with a few students. They were overwhelming to interact with the study team and demonstrate their learning. This is one clear evidence of the role that the smart classroom or the digital board played.

- ✚ In almost all the colleges the students were provided with laptops for group work but the smart classroom is the best opted source of learning for majority students. They say that the laptops are for project works, assignments and experimenting with different formulas in small groups while learning after classes. But the smart board is for learning new elements and new topics without losing the focus as the audio and special effects help to visualize, leading to sustainable learning, they opined.
- ✚ Students shared that learning using the digital board is very exciting to them as it has a very good impact on their learning and memory because of the visualization of the subject through demos. They eagerly wait for their turn to attend the smart class. However, they say that they are still not confident of operating it independently but only do some activity under the supervision of their computer faculty.
- ✚ They all said that it is interesting to them to participate in the seminars and virtual classes taken by external resource persons. Some of them also give group seminars using this board. They felt that the wideness and the clarity in terms of audio and video of the device gives them a feeling of live participation.
- ✚ They also shared that the learning has become joyful and no stress of listening to the dry lectures. They say that they are able to use their time qualitatively and efficiently to excel in their studies.
- ✚ In all the colleges there are big LED TVs installed prior to the digital board. Some of them opined that when the screen is small the visual affect is less but when the new device is four times bigger than the TVs they have, it is very impactful leaving a strong image on their memory and does not require revision of books.

- ✚ Students of degree college for men shared that they are able to download and read books online, understand subject better than traditional classroom teaching through the demos, and the photo scan method used for explaining subject is helping them to clearly understand and relate the subject, compared to reading text books.
- ✚ Students of computer science felt that it has become easy for them to learn various programs like HTML documents and writing programs using digital board and verify, save or modify them as required.
- ✚ Commerce students shared that they are able to learn Tally and taxation easily now with the smart device and are able to download PDF files of different required literature which would otherwise cost high for them to buy, if not available in the library. One of the men students said, *'earlier we are not clear as to what is GST, how to create a company in Tally. It was all strange and crazy. Now we know it better and easy to do on our own'*.
- ✚ One woman student also expressed similar feeling that she is able to understand the key concepts of the subjects without difficulty. *'It was tough for me to understand physics in my first year, I was unsure whether I would get through my subject in third semester also, fortunately I could pass... now I am so relaxed, it all changed... learning has become so joyful, I am not even bothered about memorizing things as all that I learned is visually there in my mind...'* She claimed that *'the small screens are a menace for group learning, it created difference among the group members also, but with the introduction of the big screen now we all learn together and work in peace'*.
- ✚ Resonating these thoughts, students from Mathematics stream mentioned that the equations and formulas were hard to remember but with the introduction of smart board we are able to follow the teachers and it has become easy for teachers also to draw and explain using 3D visuals. These are helping in understanding the formulas better, especially in solving the problems of mensuration, cones, and spheres.
- ✚ Students from life-sciences responded saying that the learning has become playful and they could draw pictures, download visuals and compare with their drawings, play around images and photos for easy understanding, viz., dissolving, adding new things, highlighting the parts required, zoom the picture and see the inner parts of the organ and minute details. Using the

board for details while using the screen for visual images is the double advantage with this digital board, shared by one of the students.

- ✚ Common feedback from the students was that they could learn English language, improve their communication skills and presentation abilities through PPTs they develop and the presentations they attend through the smart classroom.
- ✚ *One girl from Suryapet tribal welfare college revealed that she was spellbound when she first exposed to the digital board, everything seemed to be a magic and she dreamt almost every-day about the lessons she saw on the board. She could not control herself from touching the screen and experimenting with the board. She had to stay along with her teacher and convince her before she took a chance to operate. She shared with contentment that within couple of months she learnt many things, now she is a group leader and helps others to learn using the device.*
- ✚ Final year students were unhappy that they had very less time before they leave the college and felt sad that they could not use the digital board much. But they are happy for the opportunity they got to interact with popular academicians from across the country, sitting in the classroom because of the big digital screen. Earlier also they attended such programs but the resource persons were not visible due to small screen and big group of students sitting in one place. This large screen made the sessions lively and interesting, they felt.
- ✚ The students are particularly happy that they are getting a chance to learn life-skills practically, listen to personality development and leadership classes, and attend mock interviews organized by premier institutions in the country as part of the soft skills building. They also have sessions on career guidance, placements, employability courses and are exposed to online learning platforms like *Unacademy* and other apps that helps in preparation for competitive exams.
- ✚ Many students informed that they look forward to the smart class and don't want to miss this class... *even if we bunk other classes...* one of the students added amusingly.
- ✚ Fashion designing technology course students in one of the colleges said that with the smart board their learning pace has increased, skills have improved and they are able to think creatively. They are confident about their future opportunities towards building their career in fashion designing. While in another college students of the same stream expressed that they

could not use the board for their learning as their teacher is not equipped with required knowledge to use the digital board, hence pleaded for teacher training.

- ✚ One of the students from fashion designing course shared, *‘my mind always works fast, it used to be difficult to draw the designs that come to my mind, but with the introduction of the digital technology I learnt to create designs on computer. However, computer is no match with digital board, I could learn fast and better by exploring and experimenting with designs using the apps that are readily available in the board. My teacher observed my interest and keenness to create new designs and colour combinations, she taught me to operate the digital board... it is fascinating. When I see my creations on this big screen, I feel thrilled... now sky is my limit...!’*
- ✚ Many final year students informed that the digital board is highly useful for them in their preparation for competitive exams in terms of subject information, download model papers, get online classes and read e-books while preparing for the exams. It was heartening to see many of the students from these colleges aspiring for ‘groups’ and confident of cracking the TSPSC and UPSC exams.
- ✚ Almost all the students mentioned that the multipurpose usage of the digital board is amazing with the facility to write on the board using it as a blackboard without chalk-piece, while using the screen for video and audio display and virtual learning.
- ✚ Students expressed some concerns that are similar to all the colleges – there are power fluctuations and unstable Wi-fi connection in the colleges. Many a times mobile hotspot of the teachers is used while explaining the class or to download the files, but its capacity is not sufficient for big documents. There will be interruptions in the middle of the classes due to slow internet speed.
- ✚ Most of the students revealed that they are not allowed to use the digital board and are not given access to the device though they want to use, explore and learn new things. Study team members felt that demystification of technology by the students is very important for their enhanced learning while making sure that the device is not damaged. Measures may be taken towards providing hands on experience to all the students in batches with a properly trained technical person.

MAIN POINTS FROM THE INTERACTION WITH THE FACULTY MEMBERS

Altogether 49 faculty members, including four Vice-Principals, one Principal and guest faculty attended the interaction across the colleges. They presented their views, experiences, challenges and concerns during the interactions and came up with suggestions for further betterment.

- ✚ Out of 6 colleges it is observed that in only two colleges the students came forward to operate the digital board confidently. In other colleges the faculty informed that they are hesitant of allowing the students to operate the device because it is expensive and sophisticated, and they feel that the students need some more time to learn the operations and use it comfortably. Nevertheless, the group leaders and selected students are given access to use the digital board so that they slowly become capable of using it efficiently.
- ✚ In almost all the colleges the boards were generally being operated by the computer science teachers as they are familiar with many features and can explore other inbuilt apps and features with better confidence than the others, as said by a commerce lecturer. Endorsing this, others also shared that the computer science teachers extend support to other faculty members in using the device, whenever required.
- ✚ Faculty informed that they were using projectors to explain subjects where the illustrations cannot be modified to show the variances, but the digital board is awesome to create interest among students with complete focus and attentiveness. Computer faculty supports all the other lecturers in downloading the required software and make necessary arrangements for the class to be taught.
- ✚ Training was provided to the staff who were present during installation of the digital board and they in turn shared it with other teachers. Many of them are comfortable using the board for teaching the subject using new teaching learning material (TLM) like PPTs, display of online material to explain, browse and download important literature for reference and deeper learning. They shared that they could expose the students to new literature and subject knowledge by presenting and displaying online books and topics from various sources not limiting to the text books. Teachers are happy that the teaching became interesting with multimedia and brought life into teaching learning processes.

- ✚ The smart classroom is best used as a teaching aid particularly for making PPTs, conducting seminars, learning life-skills and facing interviews. The touch screen android device has been extremely useful in explaining the subject with utmost clarity.
- ✚ It is very convenient in explaining various application forms by physically filling during the class and giving demonstrations to make the students clearly understand the topic. Visualized and participatory teaching learning has been possible, showing real time examples through videos. The information can be saved, stored for future use, can be erased in case of errors or faults, and lot more can be done engaging the students, the lecturers explained.
- ✚ Teachers shared that they noticed full attendance for smart classes and in the subsequent lab experiments. Students are present in the class 5 minutes before the schedule for smart classes, it shows the impact of the digital board on the students' interest, focus and enthusiasm to learn. 'Our institution (the society) has gained identity and popularity as one of the best educational institutions in the country with our curriculum of academic and non-academic excellence and the achievements of the students. Now with the induction of the digital board in teaching learning processes we are sure that our students reach the international standards of educational performance' – gist of the sharing by the faculty members of different colleges.
- ✚ They opined that participation in seminars, online sessions, virtual discussions and the opportunity of interface with many popular personalities built an environment where the students have healthy competition, collective and cooperative learning. This has reduced the stage fear among the students, particularly the tribal youth and those coming from deprived sections of remote rural villages. The experience of watching others and preparation for online seminars and discussions taught them how to organize themselves while making presentations.
- ✚ One of the college principals expressed that they are using the smart classroom even for their staff meetings effectively. Earlier, virtual meetings were hard to listen or participate fully, using computer or TV monitor or projector and the audio too was not clear. Now with the smart screen, it is quite convenient for all the staff to participate and interact during Zoom meetings.
- ✚ They shared that initially they faced challenges in adapting to the technology due to lack of proper training and had to depend upon the computer faculty. It took two to three weeks' time to learn to use the technology with some ease. However, it is still a challenge and have limitations in using all the features by every faculty, shared by a Principal.

- ✚ In one of the colleges, it was installed on a Sunday and only the college Principal and two faculty members were present for the demo. The College Principal video recorded the entire demo and later conducted an orientation session to all the faculty using the recorded video, which helped the faculty members to understand well. Nonetheless, they wanted another thorough training to clear their doubts and learn more about the features of the digital board technology.
- ✚ The teachers who attended the demo directly are now comfortable in making the subject attractive to the students, creating colorful images and using animation to grab their attention and sustain it for longer duration. They shared that they see a positive change among the students in the quality of learning and their performance in the exams. We can see a positive impact on the attendance of the students and are hopeful of decreased absenteeism in future.
- ✚ In almost all the colleges the lecturers informed that the students are able to participate comfortably in the zoom based interactive orientations conducted by their Head office because of the size of the monitor where all the students are visible on the screen to the facilitator. They also mentioned about the Kalpana project meant for STEM courses where students are given online assignments by the central office of the society.
- ✚ ‘Kalpana’ project aims to instill curiosity, objectivity, tinkering, science and experimentation in the minds of young women pursuing undergraduate / postgraduate degree in STEM, while nurturing them to achieve their potential and become role-models breaking traditional access barriers. Provision of digital boards in the colleges so aptly fit to mentor the students and enable them to participate in this project effectively and move ahead in pursuance of their goal. The institution’s objective is to empower the girls coming from a range of socio-economic backgrounds to become educators, innovators and leaders in their community, while contributing to the growth and economic prosperity across generations, and the digital board is a key tool in achieving this objective, one of the vice-principals explained.
- ✚ Teachers informed that the classes are scheduled to the students on rotation basis. Where there are more streams, some sections are clubbed together for certain classes, like English, computer basics, etc. Despite such efforts, arts students get classes only once in a week. They requested to consider providing one more digital board where there are more than 300 students

so that the students would get chance of attending digital classes more frequently and gain better skills.

- ✚ *Availability of Digital board helped three of our students to participate in the national seminar conducted on the occasion of International Day of Mathematics, and present their paper as a group. They received appreciations from higher officials and that boosted their confidence and self-worthiness. We attribute this success to the digital board because of which our students could learn, practice and present their ideas clearly,* stated the math lecturer of Siricilla (Vemulawada) TSWRDC.
- ✚ Every faculty member expressed their happiness that they got rid of writing on the black board, inhaling the chalk powder which used to cause irritation in the throat and eyes. The math and science teachers are particularly happy as teaching has become simple and effective with the digital board where they can go back a step or move forward a step or repeat the entire formula during explaining any concept and make every student understand it thoroughly.
- ✚ The provision for writing board on either side of the screen is very useful, the math and science teachers felt, they could write on the board and simultaneously use digital screen to show the illustrations and correlate both. Others endorsed this opinion. Triangulation of the information has become easy using the memory available in the board, one of the teachers mentioned.
- ✚ Many of the faculty members from almost all the colleges expressed that they could only use some of the features and still need to explore many more features of these sophisticated digital boards. This is one of the reasons for their reluctance to freely allow the students to operate the board, as shared by the staff.
- ✚ In two colleges, the faculty shared that they are not able to use the scanner and are hesitant to explore further because their knowledge or familiarity of the technology is limited and don't want to spoil the device. In one college the faculty informed that they are not using digital pen doubting that it might leave scratches on the board if used hardly with pressure. Almost all the faculty requested for an advance training to use many other inbuilt apps and features so that the board can be utilized optimally.
- ✚ Across the colleges the faculty members expressed concern of power fluctuations and are anxious of possible damage to the device. They felt that though there is inbuilt stabilizer and

UPS, connecting an external stabilizer would lower the chances of burning of the equipment and also the interruptions in teaching.

- ✚ Faculty of four out of six colleges voiced their concern with regard to Wi-fi connectivity which is unstable. They said that the required speed is 100mbps but the current speed they get is 30mbps to 50mbps, and most of the times they lose the connectivity in the middle of the class, hence using their mobile hotspot but its speed is also not sufficient for showing illustrations and animations, which would affect the learning process.
- ✚ One Principal and two computer faculty members reported that there is no access permission sanctioned to use MS office and other related software, they have to get admission permission every time they try to use MS office. It is making the work difficult and the faculty have to depend upon other means to use these features.
- ✚ Audio volume of the device is also a concern expressed by the faculty, saying that in the room where about 60 to 100 students gather, it is difficult to hear the voices or sounds even at the highest volume of the device. They feel that it is a technical issue that can be resolved by the technician but providing stereo speakers would help in enhancing the audio effects.
- ✚ Faculty from one of the colleges informed that there are more apps available in the digital board but installation of those apps is still pending from the agency side. All the apps could not be installed due to internet issues. This is hindering the optimal utilization of the technology, they felt, and sought support in getting trained online by a technical person.
- ✚ All the colleges expressed the need for technical support and opined that maintenance contract is important given the worth and utility of the device. The study team suggested to take up the issue with higher authorities to evolve a common action plan between the Donor and the Society.

CONCLUSION

The smart classrooms and digital technology are the need and means of the times. Particularly, where the world is fast-changing, these timely measures assist the students from rural, tribal, poor, socially marginalized, and deprived sections are enabled to compete in skills with their elite, urban counterparts. The TSWRIES and TTWREIS, especially the degree colleges have become the

pioneers in adopting comprehensive and holistic education mode and proving to be the centres of excellence. It is noteworthy to mention that these institutions are giving utmost priority to empower the young women to build their agency by nurturing them to shine with their highest potential. Divi's intervention of providing digital boards to these colleges added much value to the efforts of the government and enabling those young women to fly high using the digital technology.

It is clear from the physical observation of the smart classroom and the interactions with the teachers and the students that the digital board is an effective tool for improving the classroom ambience, making the teaching process engaging and ensuring effective learning process. Though the intervention is new and is being used only for past few months there has been a noticeable and positive impact on both the teachers and the students equally. Excitement and fascination are visible among the students and the teachers alike. However, the study team felt that it is too early to understand its effect on the retention rate of the students.

While profoundly thanking Divi's for their invaluable contribution to their education, the students appealed for proper training to use the device for effective and optimum utilization. They also pleaded to consider providing one more device keeping in view the strength of the colleges, which will allow greater number of students get better chance of using the device. Final year students expressed their gratitude to Divi's for providing them a great opportunity of demystifying such sophisticated technology before they leave the college, which they never even dreamt. They are confident that with this experience they would be able to compete efficiently and move upwards in their career.

Each and every faculty member expressed their gratification and thanked Divi's for making teaching creative and interesting through the smart board. The study team observed that ensuring initial training to all the teachers on using the smart device would go far in overcoming the hesitations, fears and the time taken to adopt and adapt to the new technology, and bringing it to effective usage. Providing access to MS office software would reduce the time taken in getting access permission every time helps in better utilization of the time in their day-to-day teaching activity.

There are also certain limitations and concerns that need to be addressed for optimization of the system. Size of the classroom in some colleges is a concern, where only a limited number of students can sit comfortably and learn efficiently. Internet or wi-fi connection with required speed

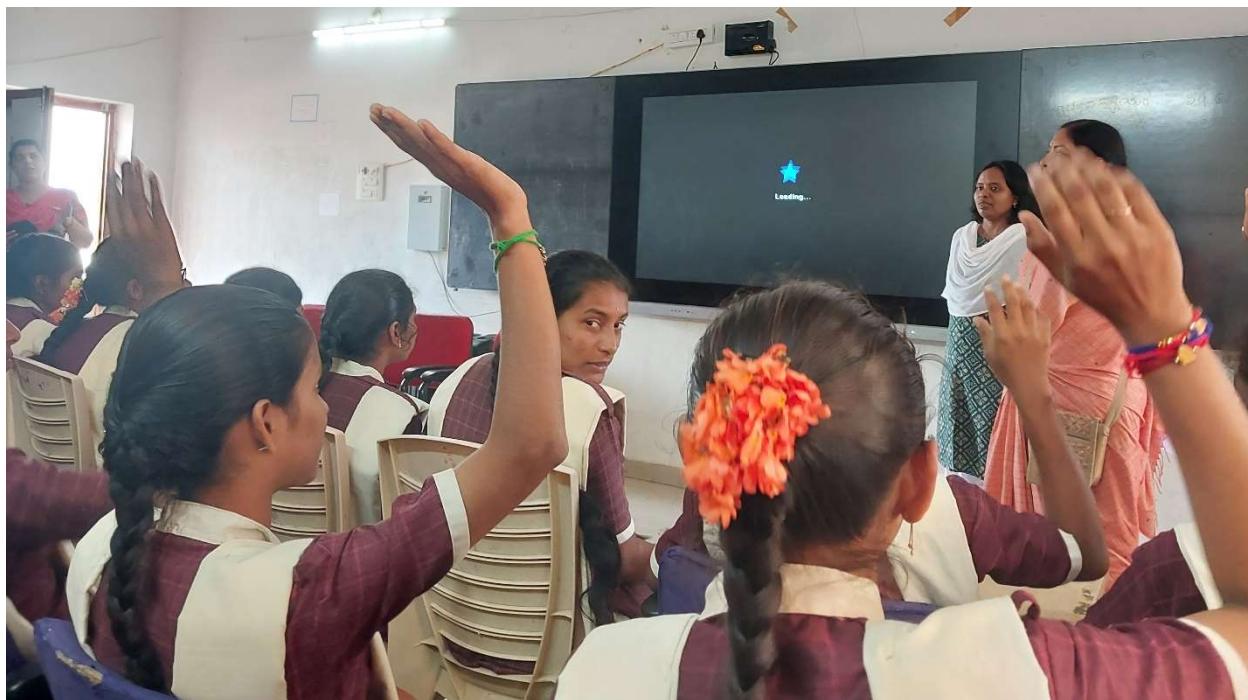
has to be ensured for hassle free and optimal utilization of the smart board. One or two detailed virtual orientations to the entire staff on operation of the digital board and using all the features available in it would help the faculty to extract the best out of the available facility.

Finally, Divi's intervention of enabling smart classrooms with digital boards in the social welfare and tribal welfare colleges brought a visible change in the teaching learning processes. It was a leapfrogging for the students of these colleges from the traditional information and communication technology (ICT) based learning to digital classroom for sustained and smart learning.

PHOTO GALLERY



Pic 1 - A student explaining how to operate the smart board



Pic 2 - Interaction with the students



Pic 3 – Two girls operating the digital board



Pic 4 – Students attending online class



Pic 5 – A student writing HTML program on the digital board



Pic 6 – Students attending a virtual training session in the Smart Classroom



Pic 7 – Interaction with the faculty



Pic 8 – Interaction with the students



Pic 9 – Students learning preparation of PPT



Pic 10 & 11 – Interaction with teachers

The progress of any society depends on the progress of education in that society

– Dr. B.R. Ambedkar

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