

A PROJECT REPORT ON

TEACHING RURAL KIDS

In partial fulfillment of the requirement for the award of the degree of

BACHELOR OF TECHNOLOGY

In

COMPUTER SCIENCE & ENGINEERING

SUBMITTED BY

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CERTIFICATE

This is to certify that the Project Report entitled “**TEACHING RURAL KIDS** “ being submitted in the partial fulfillment for award of the degree of Bachelor of Technology in Computer Science & Engineering from Jawaharlal Nehru Technological University, Kakinada is a record of bonafide work carried out by [M. J. Rakesh Varma](#) (19JD1A0558) under my guidance and supervision.

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M. J. Rakesh Varma
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TEACHING RURAL KIDS RELEATED WORK

Sarva Shiksha Abhiyan

- Government of India's flagship programme for achievement of Universalization of Elementary Education
- Implemented in partnership with State Governments to cover the entire country and address the needs of 192 million children



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1.INTRODUCTION

Throughout the United States, educational leaders and policy makers aspire to support students to develop twenty-first century skills that will adequately prepare them for college and career opportunities (NGSS Lead States [2013](#)). As noted in the NGSS (NGSS Lead States [2013](#)), all students, regardless of career interests and pathways, will require a strong K-12 science education to achieve desired workforce competencies and to be successful in a globally competitive economy (Bybee and Fuchs [2006](#)). To achieve this goal, teachers and students are encouraged to utilize technology to enhance learning outcomes (Blanchard et al. [2016](#)). For over a decade, United States schools have increased technology usage in an effort to drive innovation. Technology-integrated instruction can transform contemporary classrooms (Sundeen and Sundeen [2013](#)) to promote student motivation, engagement, and achievement by providing new methods of learning, promoting independence, and enlarging the student's world (Howley et al. [2011](#)). Many factors determine the success of technology-integrated instruction, including school resources, administrator support, teacher attitudes toward technology-integrated curriculum, adequacy of technology, student perception and use of technology, and school (Howley et al. [2011](#)).

When digital fabrication technologies such as three-dimensional (3D) printers, laser cutters, easy-to-use design software, and desktop machine tools are integrated into schools, they can stimulate creativity and innovation (Bull et al., [2017](#); Beyers [2010](#)) to move students towards science, technology, engineering, and mathematics (STEM) careers (Smith [2013](#)). Makerspaces can be found in many schools (Bull et al. [2017](#)), allowing students to design and build almost any tangible object (Lipson and Kurman [2013](#)). To incorporate tools and technologies, teachers may adopt a project-based instructional approach that allows students to investigate real world problems, effectively transforming classrooms into engaging student-centered learning environments (Krajcik et al. [1994](#)). Project-based instruction is grounded in constructivism theory (Krajcik et al. [1994](#)), and emphasizes the meaning-making capacity of the mind as new knowledge is created (Li and Huan [2017](#)).

2 .EXISTING SYSTEM

Here is a list of Teaching kids methods:

This paper examines rural middle school technology usage through a constructivist lens. Based on the works of Piaget ([1971](#)) and Vygotsky ([1978](#)), the constructivist learning theory advocates for authentic learning contexts based on real-life situations (Schunk [2000](#)). Constructivists emphasize self-awareness and responsibility in learning (Hirumi [2002](#)), and highlight the social construction of knowledge (Jaramillo [1996](#)). Through project-based learning (Krajcik et al. [1994](#)), learners assimilate their experiences with prior knowledge and new ideas to deepen understanding, internalize meaning (Últanir [2012](#)), think critically and reflectively (Nanjappa and Grant [2003](#)), and make sense of the environment (Yager [1991](#)). This paper encapsulates constructivist theory and project based learning by examining critical inventions in history such as the solenoid unit, determining applications for the invention and suggesting possible methods for improvements and future utilization of the invention.

Disadvantages:

- on-permanence of teachers is demotivating. Most of the schools in rural areas are run by the government. ...
- Late or blatantly absent. ...
- Non-teaching duties. ...
- Exemption from TET. ...
- Lack of quality teacher training

3.PROPOSED SYSTEM

Here is a list of some of the proposed Rural Education methods:

- Facilities. The first problem is the school itself.
- Community and financial status. Families in the rural community are living in poverty.
- Teachers.
- Lack of materials.
- Digi-Eskwela Project E-Learning Tablets.
- Book donations.
- Volunteer programs.
- The CaseStudy Project.

Advantages:

- ✓ There is no question that rural schools offer many advantages in terms of smaller classroom sizes, the opportunity for **more personalized attention between teacher and individual students**, innovative curricula such as place-based education, and a strong sense of community values and identity.

4.REPRESENTATION



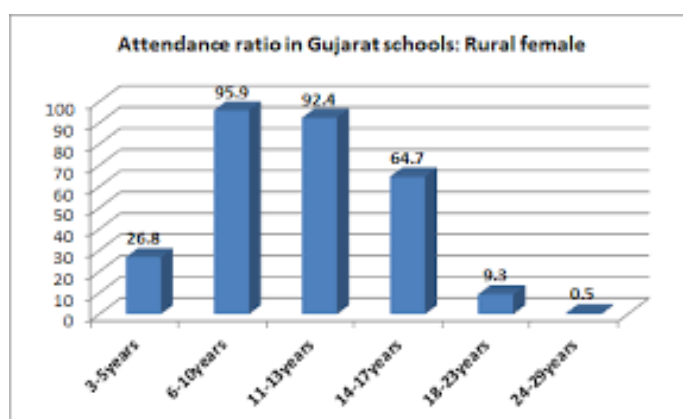
At the rural areas, family is one of the factors that determine their child performance. In this study, students in rural areas have **low performance** compared to students in urban areas because it is related to their parent's education. Majority of parents in rural areas are less educated than parents in urban areas.

Urban schools are **usually larger**, have a more socio-economically advantaged student body, enjoy greater responsibility for resource allocation, are less likely to experience staff shortages, are more likely to have a higher proportion of qualified teachers, and have higher student-teacher ratios than school.

5.REQUIREMENT SPECIFICATIONS

Teaching Requirements in rural areas

- ✓ **The Student Teacher Experience**
- ✓ Pursue a bachelor's degree in education.
- ✓ While completing your coursework, consult with an advisor to learn about student teacher opportunities. ...
- ✓ Before beginning your student teaching, meet with your teacher-mentor to discuss expectations, the syllabus, and approaches to teaching.



- ✓ Student teaching is generally the final step for bachelor's — or master's — level teaching degrees. Although the requirements vary by state, **student teaching is notoriously challenging**. For many future teachers, it's their first time leading a classroom, which can be stressful.

6.ANALYSIS

What is Rural Teaching?

A school is rural if: **A majority of its students live in rural places.** It is located in a district with fewer than 600 students. It is located in a town of less than 2,500 people, no matter how many students are in the district. It is small and located at least five miles from an urbanized area.



Rural area or countryside is a geographic area that is located **outside towns** and cities. Cities, towns and suburbs are classified as Urban areas. Typically, Urban areas have high population density and rural areas have low population density.

Discussion methods are a variety of forums for open-ended, **collaborative exchange of ideas** among a teacher and students or among students for the purpose of furthering students thinking, learning, problem solving, understanding, or literary appreciation.

What are the Problems Facing in rural education?

These issues are related to classroom management, ethnicity, lack of trained teachers, inequity, **lack of teaching aids** and materials, lack of textbooks, lack of time for students, lack of clear objectives, gender issues, and issues of mathematical contents and pedagogy.

- ✓ Quality of Education. First of which, is the quality of education. ...
- ✓ Budget for Education. ...
- ✓ Affordability of Education. ...
- ✓ Drop-out Rate (Out-of-school youth) ...
- ✓ Mismatch. ...
- ✓ Brain Drain. ...
- ✓ Social Divide. ...
- ✓ Lack of Facilities and Teacher Shortage in Public Schools.

They **show information or the connection between ideas**. They also help kids organize what they've learned or what they have to do. Teachers use these tools to “scaffold,” or provide support around, the learning process for struggling learners Kids can also use them to learn or review math concepts.

Rural Education



The changes in the reading levels of students were not much recognized. Only 53.4% children in class V can read a class II level text.

This suggests that even after five years in school, close to half of the students are not even at the level, expected of them after two years in school.

On average, there has been a decrease in their numerical abilities. The proportion of class I students, who could recognize numbers from one to nine, decreased from 69.3% in 2009 to 65.8% in 2010. Similarly, the proportion of students in class III, who could solve two digit subtraction problems decreased from 39% to 36.5% in the same period. Students in class V, who could perform simple division problems also dropped from 38% in 2009 to 35.9% in 2010.

Improvements are required to be made in infrastructure and also there is a need to establish more classrooms (Rural Education, 2011).

TEACHING

Teachers of all walks of life and subjects have **the ability to shape opinions and help form ideas about society, life and personal goals**. Teachers can also expand students' limits and push their creativity. Teaching is a tough job, but it is one where you can make the most impact in life.

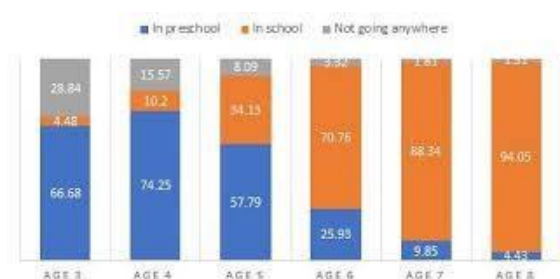
The role of education in assisting social and economic progress is well accepted. Access to education is critical to access emerging opportunities that supplement economic growth. Taking into consideration this accepted fact, there has been the main thrust on education, since the country achieved its independence. But as far as guaranteeing quality education in rural India is concerned, it has been one of the major challenges for the government. India viewed education as the best way of promoting social change. Soon after gaining independence in 1947, making education available to all has become a priority for the government. The education sector has received considerable attention in the budget for 2011-2012, which has broadcasted a significant increase of 24 percent in the total allocation for the education sector. The operational reforms have been reviewed to implement the right of children to free and compulsory education, which has come into effect from 1 April 2010 (Rural Education, 2011).

Solutions For Rural teaching

- ✓ Reduce the Cost of Education. Several African countries have abolished their school fees. ...
- ✓ School Lunch Programs. It's been proven that malnourished children learn poorly. ...
- ✓ Educating Parents. ...
- ✓ A New Educational Model. ...
- ✓ Improved Resources for Teachers.
- ✓ Encourage active and practical learning. Make connections to real-world applications of the course material. ...
- ✓ Provide for meaningful teacher-student interactions. ...
- ✓ Make course expectations clear and based on learning outcomes.

Providence Rural Education

In the present existence, the main aspects that highlight the scenario of India's education sector have been specified in the following points: 96.5% of children within the age group of six to 14 age group in rural India are enrolled in schools; 71.1% of these children are enrolled in government



schools,

% are enrolled in private schools; girls within the age group of 11 to 14, who are still out of school have dropped from 6.8% in 2009 to 5.9% in 2010; in the states of Rajasthan, it is 12.1% and Uttar Pradesh, it is 9.7%. The enrolment in private schools in rural India increased from 21.8% in 2009 to 24.3% in 2010. There was an increase in the percentage of five-year-old enrolled in schools from 54.6% in 2009 to 62.8% in 2010. The largest increase was visible in Karnataka, where the proportion of five-year-old enrolled in school increased from 17.1% in 2009 to 67.6% in 2010 (Rural Education, 2011).

In urban schools, there are provision of civic amenities and facilities, which are important in facilitating education. These are availability of restrooms, clean drinking water, classrooms, infrastructure, furniture, machinery, equipment, and technology. These aspects have rendered a significant contribution in making provision of education. On the other hand, in rural schools, these facilities and civic amenities are not available. This is imposing unfavorable effects upon the acquisition of education. There have been formulation of laws and policies by the Government and measures are being implemented to make provision of restrooms, mid-day meals, technology, infrastructure, machinery, equipment and proper classrooms in the schools in rural areas



Education Can Change Life Style!

Higher levels of education are associated with a wide range of positive outcomes - including **better health and wellbeing**, higher social trust, greater political interest, lower political cynicism, and less hostile attitudes towards immigrants.

GOALS

The goals of Teaching Rural areas:



- ✓ Encourage active and practical learning. Make connections to real-world applications of the course material. ...
- ✓ Provide for meaningful teacher-student interactions. ...
- ✓ Make course expectations clear and based on learning outcomes.
- ✓ The teaching faculty
 - Campus of the school
 - Infrastructure and facilities
 - Recognition of the school
 - Curriculum followed

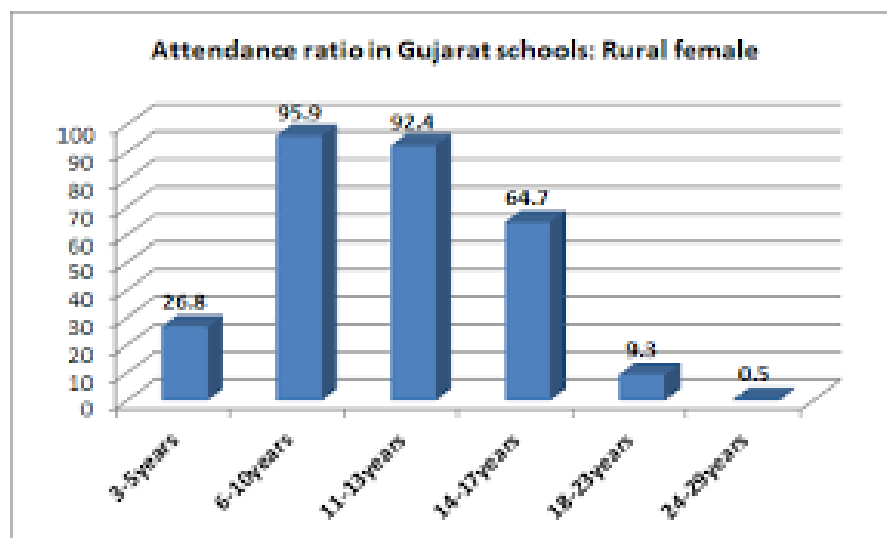
Teaching Rural Kids

Number of Schools – In urban areas, there are large number of schools, colleges, universities and other training centres. On the other hand, in rural areas, there are lesser number of schools. Higher educational institutions are not available in rural areas and individuals, belonging to rural communities are required to migrate to urban areas in order to pursue higher education. In the present existence, there have been establishment of training centres in rural areas, which aim to enhance the skills and knowledge of the individuals, in terms of various subjects, such as, technology, agriculture, farming practices, handicrafts, child development, health care and so forth.

Transportation Facilities – In urban areas, adequate transportation facilities are available to the students. The schools make provision of bus services to the students and they are picked up and dropped after the school hours at the bus stops, located closer to their homes. With the provision of the transportation facilities, they find it easier to commute to schools. In rural areas, the students are required to either walk to schools or make use of their own personal transportation. In most cases, where schools are located at a distance, where it is not possible to walk, then bicycles are made use of.

Provision of Civic Amenities and Facilities – In urban schools, there are provision of civic amenities and facilities, which are important in facilitating education. These are availability of restrooms, clean drinking water, classrooms, infrastructure, furniture, machinery, equipment, and technology. These aspects have rendered a significant contribution in making provision of education. On the other hand, in rural schools, these facilities and civic amenities are not available. This is imposing unfavourable effects upon the acquisition of education. There have been formulation of laws and policies by the Government and measures are being implemented to make provision of restrooms, mid-day meals, technology, infrastructure, machinery, equipment and proper classrooms in the schools in rural areas

Teachers – The teachers recruited in urban schools are well-qualified and experienced. They are recruited by the school authorities, taking into consideration certain aspects. They are well aware of the performance of their job duties and render an effectual contribution in leading to growth and development of the students. On the other hand, in schools in rural areas, the teachers usually lack the skills and abilities, they are unaware in terms of the performance of their job duties and do not have much concern regarding effective growth and development of the students. On the whole, teachers in rural schools are not much satisfied with their job.



7.IMPLEMENTATION

Student understanding of current learning activities in relation to future career needs is critical for a successful career (Wood and Kaszubowski [2008](#)). Students must recognize the importance of technology-enhanced learning as they prepare for future career opportunities to meet workforce demands (Li [2007](#); Spires et al. [2008](#)). Technology instruction can promote students' higher order thinking skills through improved cognitive functions, thinking processes, and intellectual capacities, enabling students to think more critically, become more creative problem solvers (Baylor and Ritchie [2002](#)), and develop technology and communication skills. However, rural middle school students may experience lack of exposure to career options, including STEM careers (Wood and Kaszubowski [2008](#)).

Many career opportunities, including engineering, architecture, construction Russell et al. ([2014](#)), manufacturing, art, education, and medicine (Murphy and Atala [2014](#)) are linked to digital fabrication technologies. Science-related occupations often require 3D fabrication technologies. Because digital fabrication allows individuals to design and develop objects at any time, increasing access to these technologies will challenge conventional models of business and education (Gershenfeld [2012](#)). In general, STEM education and careers can potentially be improved through the use of 3D printing technologies. The general shortage of skilled individuals for the workplace indicates that students must be empowered to become future digital innovators. The review of the literature suggests that an examination of practices that can support teachers' use of technology to improve student learning is critical.

The Solenoid Unit of Instruction (<http://www.maketolearn.org/>), developed through the National Science Foundation (NSF) Innovative Technology Experiences for Students and Teachers (ITEST) funding, contains five lab activities, two make activities, and one invent activity Tyler-Wood (2018). A solenoid is a coil of wire that acts like a magnet when a flow of electricity passes through it (Solenoid n.d.). At the implementation school, a Maker Space was added to the library to allow for implementation of the solenoid unit. While this space was available for use by all teachers in the school, it was reserved at times for Solenoid Unit projects.



Seventh graders in two Title I rural Texas school districts participated in this study. The two school districts were chosen based on access and similarities in demographics. School I (Solenoid Unit participant) is a middle school that houses approximately 400 seventh and eighth grade students. Roughly 70% of students are ethnically white, 23% are Hispanic students, and 3% are Americans.



They **show information or the connection between ideas**. They also help kids organize what they've learned or what they have to do. Teachers use these tools to “scaffold,” or provide support around, the learning process for struggling learners Kids can also use them to learn or review math concepts.

- Make connections to real-world applications of the course material.
- Provide for hands-on activities (active learning) over straight lecturing.
- Facilitate in-class discussion groups and group work.
- Provide opportunities for students to be a mentor and to function as a peer teacher.

- Education is important for everybody, whether they are learning new facts, skills, or trades. ...
- An education system in rural communities has **the opportunity to build capacity and knowledge in the rural populace**, helping them to make informed decisions about their farms and to innovate in agricultural affairs.

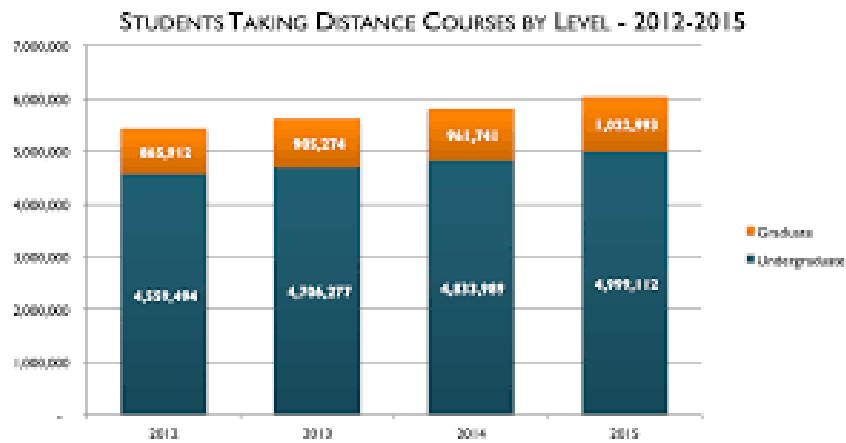
Education in every sense is one of the fundamental factors of development. ...

Education **raises people's productivity and creativity and promotes entrepreneurship and technological advances.**

In addition it plays a very crucial role in securing economic and social progress and improving income distribution.

- Mission, Vision & Objectives. ...
- Program Educational Objectives (PEO) ...
- Graduate Attributes (GA) ...
- Student learning outcomes (SLO) ...
- Program outcomes (PO) ...
- Course outcomes (CO) ...
- Syllabus, Unit & Lesson Plan Outcomes.

Student participants showed no significant gain on the Solenoid Unit Achievement Test after participating in the unit. In contrast, significant gains in achievement were noted when the Solenoid Unit was initially taught in a small city middle school environment in Virginia Standish et al. (2016). The demographics of the two schools seemed similar on racial and income factors, but several differences were noted in the participants in the two studies. The small city group was comprised of eighth graders taking the engineering course as an elective. The rural group was composed of seventh grade participants in a required seventh grade science class. However, the small city group had already had access to 3D printing for over four years, while 3D printing was new technology in the rural district. In addition, the small city school group was taught by an engineer, while the science teachers teaching the Solenoid Unit in the rural district had minimal experience with Solenoids. An investigation of factors that foreshadow academic success with the Solenoid Unit is essential for understanding relevant instructional practices. Factors to consider should include teacher expertise and training, availability of technology, experience with the 3D printer, and students' interest in engineering.



As teachers' knowledge and their competencies play a key role in students' achievement (Leong, Meng & Abdul Rahim, 2015), a crucial problem of teacher education is to determine knowledge and competencies a teacher should have in order to teach effectively (i.e., knowledge base for teaching) (Fernandez, 2014).

Shulman (1986) defines the knowledge that helps a teacher make any information understandable for learners as Pedagogical Content Knowledge (PCK). Therefore, PCK can be seen as the process of organizing, adapting and presenting content and the pedagogy in a harmony (Shulman, 1987).

case is a natural result of irrigation to some degree. [Recycling runoff](#) not only helps save water, it helps save entire ecosystems. Agricultural runoff typically contains large amounts of chemicals that can seep into groundwater and pollute rivers, streams and other bodies of water. The costs are significant, but so are the benefits.



There are few factors that are influencing the progress of the educational system in rural areas. These are, increase in the demand for the first rate pre-primary education for the children and families in rural areas. They are aware of the situation in the developing part of the country and this is the main reason that they have recognized the significance of education and express willingness in educating their children. There is a need for the system of education in rural areas to match with the system of education in urban areas. There have been establishment of schools and training centres in rural areas, which have led to improvements in the living standards of the individuals. These standards have enabled the rural communities to be at par with the urban communities. Allocations to achieve the objectives of the Right to Education, which has been aligned with the Sarva Shiksha Abhiyan, increased from Rs 15,000 crore to Rs 21,000 crore. It targeted at strengthening elementary education. The centre is now focusing on vocationalisation of secondary education, which will enable students to pursue job-oriented courses at the plus two level (Rural Education, 2011)

IMPROVE RURAL SCHOOLS MANAGEMENT

Organization of Picnics – In urban schools, picnics are organized with the main purpose of stimulating the mind-sets of the students and motivating them towards learning. There are number of places, which are taken into consideration when picnics are organized, these include, religious places, historical places, museums, parks, and so forth. Students normally enjoy and take pleasure in picnics. On the other hand, in rural schools, there are not any organization of picnics. The students are mostly provided knowledge within the classroom environment. In other words, classroom teaching is encouraged. In some cases, students are motivated towards studies, whereas in others, they lose interest and even drop out of schools.

Use of Technology – In urban schools, teachers make use of technology such as, lap-tops, computers and printers with the main purpose of providing notes and other learning materials to the students. The use of technology has not only facilitated learning among students, but teachers have also been able to make the teaching processes manageable through the utilization of technology. One of the major benefits of technology is, it provides extensive knowledge and information in terms of various areas. Whereas, in rural schools, the teachers do not make use of technology and explain the lesson plans to the students by reading from the textbooks.

Infrastructure – The provision of infrastructure in urban schools is in a well-developed state as compared to schools in rural areas. Within the classrooms, there are proper seating arrangements, desks, technology and other heating and cooling equipment, which is utilised in accordance to the weather conditions. Whereas, in schools in rural areas, the students are made to sit on the floor and there are not provision of proper infrastructure or furniture or equipment. To facilitate the acquisition of education, it is necessary to make provision of proper infrastructure in schools. Lack of infrastructure may impede the learning abilities of the student

8.CONCLUSION

A lot of effort is being made in educating the Rural India. But a lot more still needs to be achieved to ensure high literacy rate in rural India and to abolish gender disparity which still persists in a large part of remote areas. A thorough study of the impact of the government schemes is very important. Free uniform, free bicycles, mid-day meal schemes, provision of food and lodging will help retain the enrolments in the schools, especially of the girl child. Parents should be sensitized to educate not only their male child but also their female child. Introduction of vocational and bridge courses will help retain girls in the school. There is a need to abolish the practice of son preference. Building only infrastructure will not help but there is also a need to address the root cause for discrimination in the rural India. Only by assessing the situation of the disadvantages that children face based on economic situation, caste, gender, etc. a speedy remedial action can be taken and eventually every child can be included in the orbit of his fundamental right to learn and grow.

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