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EDUCATION TECHNOLOGY: AWARENESS AMONG TEACHERS FOR ENHANCED LEARNING OUTCOME

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Abstract

India is having largest population of children in the world. These young children are the future of the nation and thus it is imperative that they are provided with zest of knowledge to use their potential in productive manner. With the advent of technology and digitalisation every aspect of life emerged in a new form and digitalisation transformed the various stages of education learning such as critical thinking, problem solving, cooperative learning, extra connect, extension and acceleration of activities of curriculum and enrichment, etc. technological patterns paved the path of exploring new ideas that supports learning patterns by generalisations to visualise a techno savvy environment that compelled the students to perform. A modernised education system enabled with technology can help in this channelization of abilities towards result. The student teacher ratio, shortage of qualified teachers, outdated teaching methods, inadequate teaching resources and materials can hamper the delivery of quality education. This concern can be restructured with the help of technology and society can mitigate.

Keywords: Education, Technology, Digital India, Learning.

Introduction

Digital education is a priority task of government of India and is crucial to impart education to the disinterested students of rural school. The Union budget for 18-19 emphasised the government to focus on integration of technology in education sector to improve the quality of education. A budget allocation of Rs. 460 crores were given for digital education task where the main emphasis was on improvement of quality education with the help of technological support. The digital India campaign of government of India is working on adoption of digitalisation in all areas of concern. For example, E-Kranti, a major pillar of digital India has an objective of development of basic infrastructural facilities for internet set up in the distant areas of the country for technological empowerment through collaborating with various telecom service providers. This initiative is taken to give a boost through digital India campaign and the figures shows that only 9% of the rural India has the access to Internet. Thus, a lot of work is to be done with concentrated efforts to build the robust infrastructure with the help of government ad non- government organizations and CSR norms of the corporate. Education can be digitised in the rural areas by preparation of basic infrastructural set up to enable smooth functioning of education technology. The rural urban teaching environment is totally different and so customised technology is used for proper implementation of programs. A good example is Pratham where a digital classroom is initiated in the name Learn out of the box for low income schools in collaboration with Vodafone Foundation, India. Another example includes a Not for Profit scheme is E-Vidayaloka which aims to impart quality education with the help of digital technology in the remote regions of India by applicability of digital videos, presentation, aids. Alone government cannot do this massive task of digitalisation in rural India but with special organizations working for social welfare,

NGOs and Corporate houses with specific CSR objectives can lead the transformation of rural India into digital India.

Educational Technology

Education means imparting knowledge and technology means use of different tools and teaching aids in forms of scientific machines to spread information. Educational technology thus implies application of scientific knowledge to art of teaching. The technology of instructions has evolved with the scientific learning ad teaching methods where physical sciences are linked with behavioural sciences. The teaching machines are used for imparting instructions through system generated programs and emphasising on creating a teaching learning connectivity between the learner and the instructor. The traditional age of teaching like blackboards, books and papers are now converted into new age modern equipments aligned with technological development like computers, laptops, projectors, audio visual aids, etc. the programmed instructions form the basis of such education and this new form of dissemination of information is known as education or instructional technology. Instructional technology thus includes process and system through which instructions can be imparted for knowledge purpose and educational technology includes different types of systems which can be used to increase capabilities and develop skills of humans for creating awareness and making them literate regarding the scientific developments taking around the globe for human advancement and sustainable development.

Technology along with education uses different modes and media to involve students in teaching process. The modern education system also involves application of physical science along with behavioural science. The different electronic gadgets used in traditional and modern teaching methods make education sophisticated. Physical sciences and behavioural sciences both are required for making programmed instructions and learning through technical aids.

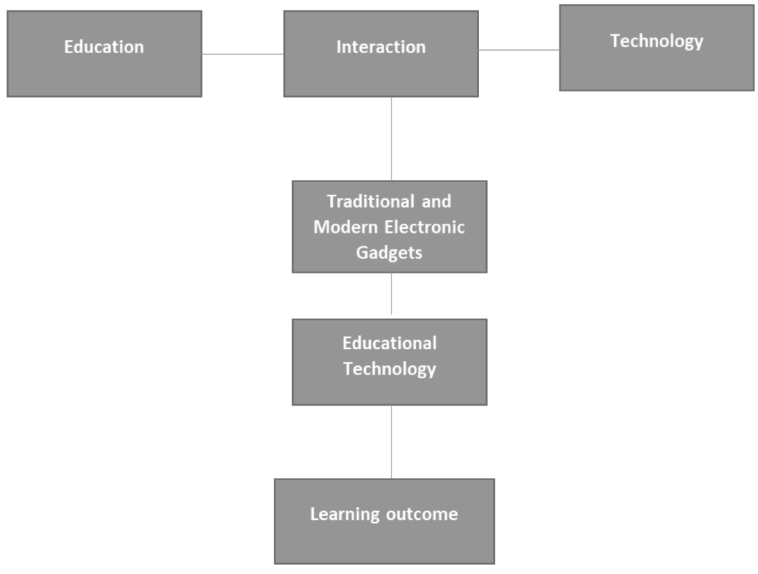

Figure 1: Education Technology

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Educational Technology and Learning Outcome

Application of systematic learning processes through science and technology aims at universal improvement in teaching learning phenomenon for technical coordination around the globe. This instruction of teaching and training can ensure effectiveness and the with the use of wide range of teaching devices, electronic machines, simulators, hardwares and software as essential components make educational technology relevant in this digital era. These techniques can be used for classroom teaching, conducting research, discussions trend analysis, curriculum development, task analysis and discovering new means of learning. A teaching learning environment can be created by providing opportunities to teachers, trainers, instructors and students for practical application of theory by developing resources of learning and customisation of technological design, productivity can be enhanced by creating value and vitality for all stakeholders. The new philosophy of teaching and training engulfs application of behavioural sciences as well as physical sciences, interact with each other and generate techniques to educate the society by means of instructional material developed and transmitted through machines and devices. Thus, the matrix of learning is application of scientific knowledge in learning to improve the purpose of education and create standardisation of learning, teaching by compatibility with technology enhanced educational productivity. **Refer Figure 1.**

Characteristics of Educational Technology

- It is inclusion of science and arts
- Helps to control and monitor through feedback
- It supplements teachers
- Content analysis can be done
- It is a system approach which includes all
- Resolves problems
- Introduces instruction based teaching
- Conceptual development through programs
- Practical teaching with the help of simulations and other techniques

Nature of Educational Technology

Educational technology is universally acceptable and strikes the use of education technology tools for teaching and instructing, communication and coordinating between the stakeholders. It can be involved in educational administration and school management for optimum utilisation of resources. It cannot replace human manpower but assist them to accomplish their tasks and objectives by integration of technology, communication, science and arts, the definition of educational technology by the Association for Educational Communications & Technology is derived to satisfy the theories of all. “Educational technology is a complex integrated process involving people, procedures, ideas, devices and organizations for analysing problems and devising, implementing, evaluating and managing solutions to those problems involved in all aspects of learning”. The teachers are required to adopt technologies and mix it with traditional methods of classroom teaching. They can motivate students to embrace the new change and develop them to indulge in new teaching process for better

results. Teachers or the instructors are the controllers of class. They can promote the role of technology in content development and pedagogical application. The use of various gadgets can fascinate student's active participation in educational technology program with eagerness to learn new things and achieve roles of education. A well-equipped classroom with skilled teachers can minimise the complexity and promote effective classroom sessions. Technological evolution has creeped into all aspects of life be it social, cultural, occupational, behavioural or educational. Teachers can't be replaced by technology in classrooms but educational resources and the new format of teaching learning can have a considerable impact on the intensity of teaching. The traditional aids of teaching like education technologies, charts, maps, models, etc. are now replaced by electronic gadgets and multimedia equipments. Thus, we can conclude that educational technology has a broad spectrum and includes vast resources to emphasise on individual learning through development of a system approach to education.

Historical Perspective of Educational Technology

The development of educational technology can be studied in three phases.

14th-16th Century: The initial stage included oral instructions than introduction of manuscripts was emphasised. Later art of printing developed which introduced books for teaching the concepts of religion, society, culture and language. During the last century of this phase text books were introduced for education purpose.

17th-19th Century: Illustrative books and scientific methods of education were introduced along with verbal conceptual descriptions. Theories were propounded, model and diagrams were used to explain the concepts.

20th Century: With the advent of science and technological advancement, educational technology emerged as a new development of teaching learning. Basic sciences and behavioural sciences were integrated for a systematic approach to education use of audio-visual aids were considered as means to impart education effectively. Individual differences were taken into account and development of social anthropology was emphasised.

Review of Literature

- Bagon, Gacnik & Starcic (2018) they highlighted the inclusive technology, inclusive education to develop a better supportive learning mechanism based on the theory of learning by doing. The finding show that proper motivation and awareness is infused in the students, they are prone to learn better with the help of increased resources which supports not only teaching but better management of school facilities. The paper discussed the effects of technical learning and suggest teachers to integrate ICT even for especially abled children.
- Rana (2018) in its paper discusses the help of technical support system to manage the school operations and working. It highlights the role of government policies and availability of proper resources. Training of teachers and creating awareness for developing an integrated mechanism where education and technology helps in the process of knowledge creation. Students engagement in learning can be increased with proper training and removal of challenges like accessibility of internet, unavailability of digital devices, etc. it concludes that rural schools have more need for implementation of ICT to give exposure of innovative technology driven education to students.

- Oko & Michael (2016) concludes that implementation of ICT can improve activity based learning and motivates students to participate enthusiastically as technology enables learning through recreation for students of primary section. Positive attitude of teachers towards learning new techniques to facilitate the students can help better utilization of resources and word of mouth is one of the major tool to create awareness of the inclusion of ICT in education.

Objectives

- To study the association between gender and awareness about education technology implementation in rural primary schools.
- To study the awareness level of education technology and its significance in rural primary schools of Mewar region.
- To find whether educational technology awareness helps in better school management in rural primary schools.

Hypothesis

- $H_0$1.1: There is no association between gender and awareness about education technology implementation in rural primary schools.
- H_a1.1: There is an association between gender and awareness about education technology implementation in rural primary schools.
- $H_0$1.2: There is no impact of education technology awareness on its necessity to be implemented in rural primary schools.
- H_a1.2: There is an impact of education technology awareness on its necessity to be implemented in rural primary schools.
- $H_0$1.3: There is no impact of education technology awareness on support of its implementation in rural primary schools for better school management.
- H_a1.3: There is an impact of education technology awareness on support of its implementation in rural primary schools for better school management.

Data Analysis

Objective: To study the awareness level of education technology and its significance in rural primary schools of Mewar region

Table 1: Gender & Education Technology Awareness Cross Tabulation

	Awareness About Education Technology Applications		Total
Gender	**Yes**	**No**	
Male	186	64	250
Female	169	81	250
Total	355	145	500

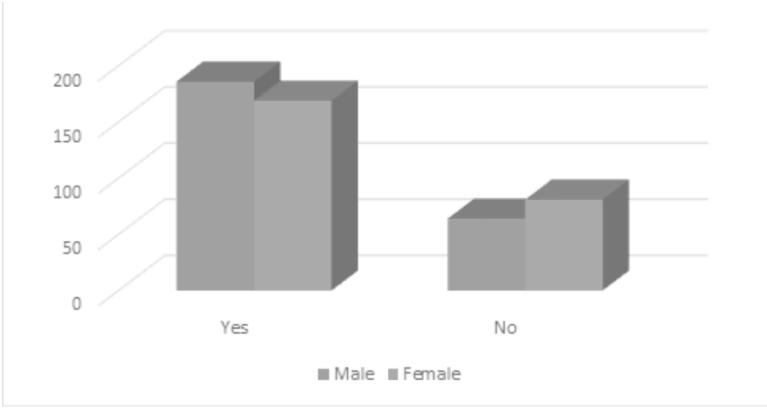

Figure 2: Gender & Education Technology Awareness Cross Tabulation

Interpretation: The relationship between gender of respondents and awareness about education technology applications is highlighted by the cross tabulation where awareness is considered to be dependent on the gender of the respondents. The data reveals that out of 250 males, 186 are aware about the technological advancements and education technology applications and 64 are not aware. Out of 250 females, 169 are aware and 81 are not aware about the implementation of education technology applications in school management. Thus, out of 500 respondents 355 are aware in which the number of males is slightly high than females.

Based on the above data the assumption is made that gender has no significant relationship with awareness about education technology applications. This null hypothesis was tested statistically with the help of chi square test. **Refer Table 1 & Figure 2.**

Chi square Test

The frequent use of chi square is for testing the null hypothesis that two variables under study independent of each other. If they are not independent, there is an association between the two criteria. The test only indicates whether or not any dependency relationship exists between the two attributes. While applying the test the null hypothesis is that the two attributes are independent.

- **H_0:** There is no association between gender and awareness about Education Technology implementation in rural primary schools
- **H_a:** There is an association between gender and awareness about Education Technology implementation in rural primary schools

Table 2:Chi square Output

Calculated Value	Tabular Value	Degree of Freedom	Hypothesis (H0)
1.628	3.84	1	Accepted

The calculated value of chi square is less than the tabular value for 1 degree of freedom and 5% level of significance. So, the null hypothesis is accepted that the two attributes under study gender and awareness about education technology applications are independent of each other. It means that

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there is no association between gender and awareness about Education Technology implementation in rural primary schools.

Table 3: Education Technology Awareness & Do you think Education Technology is Necessary to be Implemented in Rural Schools

	Do you think education technology schools			Total
Awareness	**Not Important**	**Important**	**Very Important**	
Yes	20	184	151	355
No	58	32	55	145
Total	78	216	206	500

The data is cross tabulated with how many respondents are aware as well as they think that Education Technology implementation is significantly important for management of rural schools.

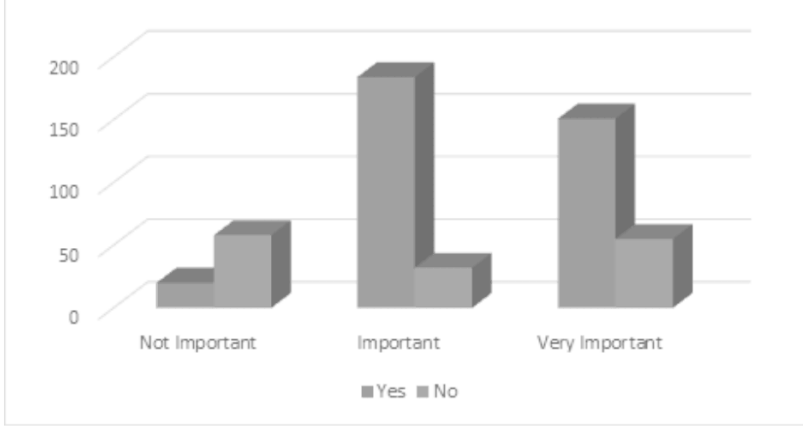

Figure 3: Education Technology Awareness & Do you think Education Technology is Necessary to be Implemented in Rural Schools

It is shown that out of 355 aware respondents. 20 respondents believe that it is not important, 184 say that it is important and 15 say that it is very important for rural schools.

Out of 500 respondents 145 are still unaware about the Education Technology implementation in rural schools but out of them 55 say that it is important and only 58 are not knowing its importance. **Refer Table 3 & Figure 3.**

- **H_o:** There is no impact of Education Technology awareness on its necessity to be implemented in rural primary schools
- **H_a:** There is an impact of Education Technology awareness on its necessity to be implemented in rural primary schools

Table 4 : Anova: Single Factor

SUMMARY						
Groups	*Count*	*Sum*	*Average*	*Variance*		
Column 1	3	156	52	868		
Column 2	3	432	144	9664		
Column 3	3	412	137.3333	5840.333		
Column 4	2	500	250	22050		
ANOVA						
Source of Variation	*SS*	*df*	*MS*	*F*	*P-value*	*F crit*
Between Groups	47355.88	3	15785.29	2.016566	0.200287	4.346831
Within Groups	54794.67	7	7827.81			
Total	**102150.5**	**10**				

Interpretation: this assumption states that there is no impact of awareness about education technology implementation on its importance as perceived by the respondents is tested for significant difference by applying ANOVA single factor. The means shows a large difference and the variance is also too high. The test calculated F ratio to determine whether this is significant statistically or not. The calculated value of F at .05% level of significance. F (3,7) =2.0165 and the critical value is 4.3 which is much higher than the calculated value. If p value is higher than 0.05 and so it can be inferred that the difference is insignificant i.e. the null hypothesis is accepted and we can conclude that There is no impact of education technology awareness on its necessity to be implemented in rural primary schools. **Refer Table 4.**

Table 5: Education Technology Awareness & Whether Education Technology Implementation can Support Rural Schools in Better School Management

	Whether Education Technology Implementation can Support Rural Schools in Better School Management		**Total**
Awareness	Yes	No	
Yes	305	50	355
No	110	35	145
Total	415	85	500

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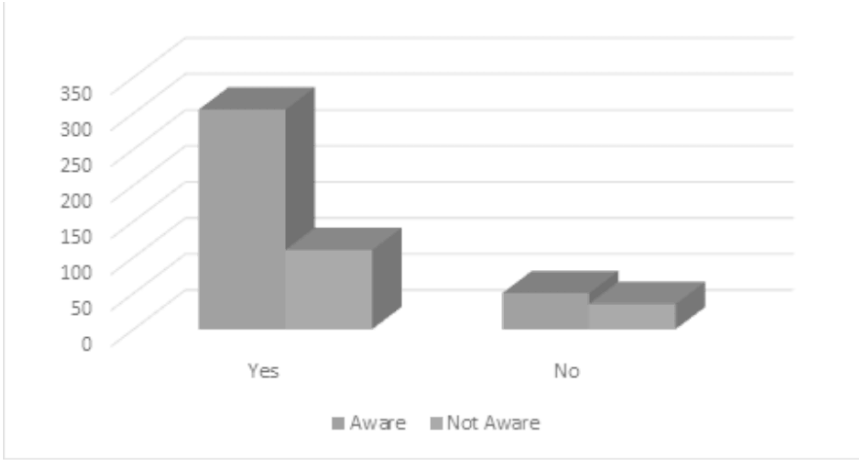

Figure 4: Education Technology Awareness & Whether Education Technology implementation can support rural schools in better school management

Interpretation: The cross tabulation between independent attribute awareness and better school management due to education technology implementation is dependent on it shows that out of 500 respondents 355 are aware about the implementation of education technology application in rural school management but out of 50 respondents say that it does not help rural schools in managing. Out of unaware 145 respondents 110 are of the opinion that it is helpful but they are not aware about it and only 35 say that it is not helpful in rural school management.

- **H_o:** There is no impact of Education Technology awareness on support of its implementation in rural primary schools for better school management
- **H_a:** There is an impact of Education Technology awareness on support of its implementation in rural primary schools for better school management

Table 6 : Anova: Single Factor

SUMMARY						
Groups	*Count*	*Sum*	*Average*	*Variance*		
Column 1	2	415	207.5	19012.5		
Column 2	2	85	42.5	112.5		
ANOVA						
Source of Variation	*SS*	*df*	*MS*	*F*	*P-value*	*F crit*
Between Groups	27225	1	27225	2.847059	0.233594	18.51282
Within Groups	19125	2	9562.5			
Total	**46350**	**3**				

Interpretation: ANOVA results show that a large variance is there between the means and F computed at 95% level of significance is $F_{(1,3)} = 2.84$ which is much less than tabular value of F. Since the computed value is less than critical value therefore, we accept the null hypothesis. Hence, the difference is insignificant which is also proven by a high value of p=0.23 which is higher than 0.05. **Refer Table 6.**

The results depicts that there is no impact of Education Technology awareness on support of its implementation in rural primary schools for better school management

Conclusion

Digital education in India is still in developmental stage which is far away from Global Education Standard and requires seem less efforts to make India more and more digitalised. "Digital education refers to a education which is given with the help of digital equipments." This definition clarifies that education using new technology to make learning teaching effective is termed as digital education and it is not limited only to urban areas but extended to rural areas to use new techniques in the classroom for educating the future generation of the country. The traditional system of education has to be transformed into digital set up to upgrade the Indian education system. with this aim the government of India has launched the campaign Digital India for making the country empowered digitally for fruitful results in the future and linking the rural masses with the main stream of digitalisation. The three important aspects of Digital India Campaign are- Digital Infrastructure, Digital Services and Digital Literacy.

The challenges raise for countries like India. The Indian condition is worst due to large population size, diverse geographical area, low literacy rate, low penetration of network in rural areas and lack of awareness about the importance of education. It is difficult to implement basic education methods, despite of vast technological advancement i.e. far away from the rural India

Specially in countries like India which are still having a crunch of resources, the challenges of implementation are numerous and it is crucial to make education compulsory for all for the benefit of the society and nation as a whole. The management and organization of schools have concrete objectives and these techniques can hep in solution of problems through unique pedagogy and improvements of human learning. We can conclude that educational technology is having a vast scope and can be applied to all branches of education with the use of broad range of resources and developing a systematic approach for adapting the learners to the changing environmental conditions.

Recommendation

The paper recommends that awareness about educational technology is necessary to implement it in primary schools and facilitate a technologically enabled learning environment both teachers and students. A proper support system should be created to implement technology in education at primary level in rural areas where infrastructure management is required for proper implementation of educational technology. The data also suggest that training program should be conducted for creating an awareness in rural areas among the stakeholders specially children and teachers to emphasise the use of technology in primary education.

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