



EDUCATION 4.0: THE NEED OF TECHNOLOGY DRIVEN EDUCATION IN INDIA

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ABSTRACT

Now a day, education pattern has brought more creation through the use of integrated technique to deal with the student's way of learning and gathering knowledge. In this global pandemic condition, maximum educational institutions shift to digital learning platform.

Not the students get their benefits but also the people who are working in any industry like workers or employees they also get the opportunity to remove the shortcomings of industry 4.0 through the digital mode. We can reduce the wastage of time and enhances the productive more and more. And also get rid from black and white learning.

In this paper an effort has been made to manage surveys via the set of questions to collect data from college institutions and industries and use of test to satisfy the hypothesis that education 4.0 is worth or not in present era? Based on the above response a proper analysis is done to use the education 4.0 in the real system.

KEY WORDS: Industry 4.0, Digital mode, Business model, Black and White Transformation, e-learning, Digital society.

INTRODUCTION

Since from the shift of industry there has been the extensive assembling of facts, figures and at the present time, the economy is enduring extraordinary reconstruction.

Communication technology which plays a crucial act in the regular way of living and build the DIGITAL SOCIETY.

The new step of DIGITAL era led to sea transformation in the living style of people from the real world. Since, it has become the digital society, it establishes changes in the way of living of society without reference to RANGE, DURATION, and LOCATION. It creates the global

link with wide variety and keep bring up to date faster. Apart from this way of doing work and framework of the Association would also change.

EDUCATION 4.0 is an accoutrement to the need of the general people in the 'INGENIOUS scenario. It is in obedience to the transformation behaviour via the exceptional features of COMMUNITY, PROGRAMME, and VISUALISATION. Learning administration should aid to evolve the trainee capability to prefer the latest integration that will support the trainee to innovate as per the transformation in the economy. Sinlarat stated that the studying administration of this era is a latest learning structure that motivates the population to advance through the understanding and expertise for the entire life, not precisely to realize how to devour and communicate. To be adequate to reside in a surrounding and to be furnish through the finest of his \ her ability. That's why; EDUCATION 4.0 will be higher than a normal education system.

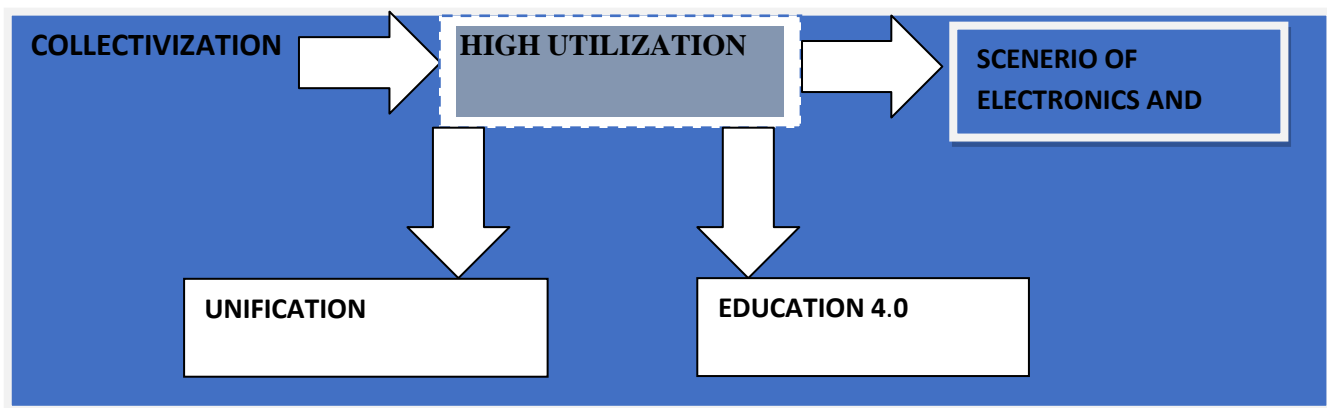
So, we can say that EDUCATION 4.0 is a deliberated strategy that talks about reconstructs the prospective of education with the help of education with advanced technology and Mechanization.

Education 4.0 is the journey which transform the traditional and unorganized obsolete through its virtual platform.

In normal words it can describe as an approach that focuses intelligent and smart way of learning education4.0 enhance the pattern of education in different way like by using tools based on technology and premises which means that the learners will not use book , pen, pencil and a boring essay session in traditional approach of education. Other hand, it concentrates on use the internet and takes a membership in the online classes. Many industries have adopted the system of education 4.0 as a tool to increase the creativity and enhance industry activities.

Education 4.0 was emerged because of industry 4.0 and maintains the labour surrounding that present status of education 4.0 also in worldwide framework this analysis is done by using different acknowledge like learners , teachers , supervisor and so on that's why it is very important that management have abundant fund for digital learning and encourages students to adopt new classroom as virtual mode also it will create analytical abilities in mind of students at the end both learning institutions as well as industries work for proper surroundings by proper e- learning practices . Modified technology and higher innovation requires robotics, artificial intelligence in the field of work that requires maximum utilization of education 4.0.

The education 4.0 act as a deliberated approach which provides various types of medium and technology-based knowledge to explore your creativity at global level and enhances the skill set and abilities of industrial employee as well as it is supportive tool for the students.

Figure-1 SHIFTING TREND OF INDUSTRY 4.0 TO EDUCATION 4.0

Education 4.0 focuses on the actualize way of learning for learners according to their capabilities and knowledge sometimes it creates difficulties for the below average learners but overall good approach of advanced automation.

LITERATURE REVIEW

Kumar, A., Anand, A., Kesari, V., (2020), in their research paper titled “**Industry 4.0 to Education 4.0: An Indian Student Perspective**” concludes that capacity to know where and when to use technology. they must be analytical thinker, problem solver and leader to take proper benefit of education 4.0 and also discuss the following trends Accelerate remote learning, personalized learning, project-based learning, field specific learning experience, change in exam pattern, prospective of students at last the change in teaching pattern and assessment is explained very properly by the researcher in their paper published.

Hariharasudan, A., & Kot, S. (2018), in their research paper titled “**A Scoping Review on Digital English and Education 4.0 for Industry 4.0**” concludes that the progress of automated Anglophone and education 4.0 for industry 4.0, the interconnection of automated Anglophone and education 4.0 and focuses on the concept that education 4.0 is the path to the next manufacturing rebellion is useful to identify gaps and justifications.

Koul, S., & Nayar, B., (2020), in their research paper titled “**The holistic learning educational ecosystem: A classroom 4.0 perspective**” finds that the author under this article introduces the enlightenment in the current scenario is developed in an educated economy and education 4.0 is a connecting thread between industry 4.0 and education 4.0.

Singh, D., & Tilak, G. (2020), in their research paper titled, “**Implementation of Education Model 4.0: Developing Industry 4.0 Skills in Graduates Engineers for Improving Employability Skills**” reviewed that employability of a person cannot be easily defined; neither a specific definition is written in any of the vocabularies. The education 4.0 model should include that the teacher is a mentor, education is the goal, continuous teaching learning, prepare youth for the job creation than existing the focus on job seeking.

Tandon, R., & Tandon, S., (2020), in their research paper titled “**Education 4.0: A New Paradigm in Transforming the Future of Education in India**”, reviews that the social economy has been evolving steadily across the globe. The different phase of global economy 1.0 to economy 4.0 in their respective era urged for the skill set of human capital. The research encircles the awareness level of education and challenge posed by industry 4.0.

Sanjeev, R., & Natrajan, N, S., (2021), in their research paper titled “**A Systematic Review on Education 4.0 using Social Media Platform**” concludes that education has taken a new shape of e learning through the use of internet and no can deny importance of this in life and they also reviewed that education 4.0 has picked up pace and both at higher education level and school level. The importance and benefit of digital learning cannot be denied this approach is equally beneficial for learning at k-12 level.

Jekbanket & Hiftu (2020), in their research paper titled “**Education 4.0 is the Digital Learning Approach for Growth in India**” finds that education 4.0 is the way of proving new platform for learning and enhancing the skill set and required knowledge in any individual for their inherent growth and to succeed in the current transformed era of learning perspective.

Sivasankaran, P., & Karthikeyan, R., (2021), in their research paper titled “**Industry 4.0 challenges and implementation in education sector in India**” concludes that the present status of education 4.0 also in worldwide framework this analysis is done by using different acknowledge like learners , teachers , supervisor and so on that’s why it is very important that management have abundant fund for digital learning and encourages students to adopt new classroom as virtual mode also it will create analytical abilities in mind of students at the end both learning institutions as well as industries work for proper surroundings by proper e-learning practices .

Puncreobutr, V. (2016), in his paper titled “**Education 4.0: New Challenge of Learning**” concludes that in the current scenario way of leaving are continuously changing that leads the change in responses of peoples in reference to new modification so it is very difficult to identify the definition of education 4.0 but it can be considered as most important tool that motives towards the virtual learning through their more and more modification and artificial intelligence which will help to develop a innovative and capable nation and the innovative human beings wo can tackle with every situations in upcoming future and removes the need and requirements of industry 4.0 and helps in heavy production at worldwide level.

Mukherjee, D., & Khandakar, K, H., (2022), in their research paper titled “**Learning Continuity in the Realm of Education 4.0: Higher Education Sector in the Post-pandemic of COVID-19**” concludes that there were no option for learning during pandemic but the education 4.0 ensures the continuous learning of students and provide them proper knowledge regarding the education and researcher also reviews that it is the multidimensional way pf proving continuous learning when the covid highly impacts on the human lives and gives a proper supervision to identify the methods or platform of learning itself at home and makes the human lives more smoother in the present era of innovation and modifications .

OBJECTIVES OF THE RESEARCH PAPER

1. To Study the integration of new learning approach and their challenges and opportunities for industry 4.0 and how it fulfils the requirements as per need.
2. To Study how educational pattern is transformed to education driven technology and their impacts on various aspects of human lives.

RESEARCH METHODOLOGY

This study used quantitative and qualitative methods of research. There are two methods of collecting data.

1. Primary statistics: For the primary statistics, a well-set of questions has been prepared. The respondent to these questionnaires will be employers and employees of all types of organizations.
2. Secondary statistics: Secondary statistics will be equipped via different origin examples periodicals, magazines, the internet, etc.
 - ❖ The questionnaire was developed and finalized to examine the how transformation of educational pattern impacts on the various aspects of human lives.
 - ❖ Different class of malleable were determined via a set of question:
 - Categorical malleable: Age, Sex, Occupation, company.
 - Continuous malleable: performance of education 4.0, degree of impact, wrathful or not.
 - Sample area: - Gorakhpur District of Uttar Pradesh
 - Sample size: - 150
 - Sample group: - Students and working peoples
 - Research Design: - Descriptive Research Method.

HYPOTHESIS:

NULL HYPOTHESIS: Education 4.0 significantly motivate to deliver worthwhile information (rejected)

ALTERNATIVE HYPOTHESIS: Education 4.0 significantly motivate to deliver worthwhile information (accepted)

DATA INTERPRETATION AND ANALYSIS:

Table 1- Gender

	Frequency	Percentage	Valid Percentage	Cumulative Percentage
Valid	Male	63	42.3	42.3
	Female	86	57.7	100.0
	Total	149	100.0	100.0

This result shows that female employees are more in comparison to male in an organization

Table 2- Age

	Frequency		Percentage	Valid Percentage	Cumulative Percentage
Valid	20-30	130	87.2	87.2	87.2
	30-40	19	12.8	12.8	100.0
	40-50	0	0	0	0
	50 above	0	0	0	0
	Total	149	100.0	100.0	

These statistics shows that who are working in an organization belong to the 20-30 age groups.

Table 3- Education

	Frequency		Percentage	Valid Percentage	Cumulative Percentage
Valid	Intermediate	0	0	0	0
	Graduation	16	10.7	10.7	10.7
	Post-graduation	119	79.9	79.9	90.6
	Diploma	11	7.4	7.4	98.0
	Others	3	2.0	2.0	100.0
	Total	149	100.0	100.0	

This result shows that most people started working after post-graduation that is 66.2 percent

Table 4- Job post

	Frequency		Percentage	Valid Percentage	Cumulative Percentage
Valid	Owner	14	9.4	9.4	9.4
	Employer	10	6.7	6.7	16.1
	Top level executive	8	5.4	5.4	21.5
	Functional employee	6	4.0	4.0	25.5
	First line employee	12	8.1	8.1	33.6
	Staffs	19	12.8	12.8	46.3
	Others	80	53.7	53.7	100.0
	Total	149	100.0	100.0	

This result shows that people working in organization as other employees needs to use education 4.0 that is 42.2 percent.

Table 5- Annual Income

	Frequency		Percentage	Valid Percentage	Cumulative Percentage
Valid	Less than 1 lakh	99	66.4	66.4	66.4
	1-2 lakhs	25	16.8	16.8	83.2
	3-6 lakhs	10	6.7	6.7	89.9
	6-10 lakhs	6	4.0	4.0	94.0
	More than 10 lakhs	9	6.0	6.0	100.0
	Total	149	100.0	100.0	

This result shows that most peoples in organization are belong to less than 1 lakh annual income group that is 52.1 percent.

Table 6- Work Experience

	Frequency		Percentage	Valid Percentage	Cumulative Percentage
Valid	Less than 2 years	23	15.4	15.4	15.4
	2-5 years	43	28.9	28.9	44.3
	5-10 years	68	45.6	45.6	89.9
	More than 10 years	15	10.1	10.1	100.0
	Total	149	100.0	100.0	

This result shows that most employees belong to less than 2 years' work experience that is 63.4 percent.

Table 7- Virtual learning is beneficial in present era or not

	Frequency		Percentage	Valid Percentage	Cumulative Percentage
Valid	Yes	132	88.6	88.6	88.6
	No	6	4.0	4.0	92.6
	Maybe	11	7.4	7.4	100.0
	Total	149	100.0	100.0	

This result shows that education 4.0 is highly required in society as well as working place that is 88.2 percent.

This result shows that there is 0.007 variation at confidence level of 95 percent means the alternative hypothesis is accepted and null hypothesis is rejected hence it is proved that, that the education 4.0 motivates you to deliver worthwhile information.

Table 8- Correlations

Had your organization culture influence you to adopt an innovative policy for productivity enhancement in your Organization		As per your opinion, peoples are delivering the best performance in reference to their corresponding education system in economy	Does education 4.0 bring rapid changes in many industries , worldwide and will continue disrupting drive and education
Had your organization culture influence you to adopt an innovative policy for productivity enhancement in your organization	Pearson	1	.049
	Sig. (2-tailed)		.553
	N	149	149
As per your opinion, peoples are delivering the best Performance in	Pearson	.182*	.329**
	Sig. (2-tailed)	.027	<.001

reference to their corresponding education system in economy	N	149	149	149
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Table 9- Does the education 4.0 transforming the present day into knowledge society and act as a connecting thread between industry 4.0 and education system

		Frequency	Percentage	Valid Percentage	Cumulative Percentage
Valid	Yes	128	85.9	85.9	85.9
	No	3	2.0	2.0	87.9
	Maybe	18	12.1	12.1	100.0
	Total	149	100.0	100.0	

This result shows that education 4.0 is act as bridge to remove the differences and act as connecting threads from industry 4.0 to new advanced approach that is 86.3 percent.

Table 10 Correlation

Had your organization culture influence you to adopt an innovative policy for productivity enhancement in your organization			As per your opinion, peoples are delivering the best performance in reference to their corresponding education system in economy	Does education 4.0 bring rapid changes in many industries , worldwide and will continue disrupting drive and education
Does education 4.0 bring rapid changes in many industries, worldwide and will continue disrupting drive and education	Pearson Correlation	.049	.329**	1
	Sig. (2-tailed)	.553	<.001	
	N	149	149	149

*. Correlation is significant at the 0.05 level (2-tailed).

**. Correlation is significant at the 0.01 level (2-tailed).

The table above represent that there is positive correlation between Education 4.0 highly influence innovative policy & education 4.0 delivering best performance and it effect rapid change in many industries. The values states there is high correlation.

Table 11- Do you understand the meaning of education 4.0?

		Frequency	Percentage	Valid Percentage	Cumulative Percentage
Valid	No	28	18.8	18.8	18.8

	Yes	112	75.2	75.2	94.0
	May be	9	6.0	6.0	100.0
	Total	149	100.0	100.0	

This result shows that most of the people are aware about the new emerging concept education 4.0 that is 70.4 percent.

Table 12- The need of technology driven education in India is required or not

	Frequency		Percentage	Valid Percentage	Cumulative Percentage
Valid	High	98	65.8	65.8	65.8
	Moderate	41	27.5	27.5	93.3
	Low	10	6.7	6.7	100.0
	Total	149	100.0	100.0	

This result indicates that there is high requirement of education 4.0 in India for the growth and Upliftment of productivity that is 56.3 percent.

Table 13- The education 4.0 matches the requirement of younger generation as per industry 4.0

	Frequency		Percentage	Valid Percentage	Cumulative Percentage
Valid	Yes	123	82.6	82.6	82.6
	No	10	6.7	6.7	89.3
	Maybe	16	10.7	10.7	100.0
	Total	149	100.0	100.0	

This result shows that with the evolution of robotics and artificial intelligence the need and require of organization are also increases so we can say that it matches the requirements of younger generation that is 84.3 percent.

Table 14- In your opinion, education 4.0 motivates you to deliver wrathful information

	Frequency		Percentage	Valid Percentage	Cumulative Percentage
Valid	Strongly disagree	1	.7	.7	.7
	Disagree	2	1.3	1.3	2.0
	Neutral	32	21.5	21.5	23.5
	Agree	51	34.2	34.2	57.7
	Strongly agree	63	42.3	42.3	100.0
	Total	149	100.0	100.0	

This result shows that the education 4.0 motivated the employees as well as normal people to deliver their best performance by the use of new artificial intelligence and technology system that is 32.4 percent.

Table 15- Had your organization culture influence you to adopt an innovative policy for productivity enhancement in your organization

	Frequency		Percentage	Valid Percentage	Cumulative Percentage
Valid	Agree	133	89.3	89.3	89.3
	Disagree	7	4.7	4.7	94.0

	Strongly disagree	9	6.0	6.0	100.0
	Total	149	100.0	100.0	

This result shows that education 4.0 influence the organization to implements new policy and procedure of working for the enhancement of employee's skills that is 71.8 percent.

Table 16- Do you think that the education 4.0 is bringing rapid changes in lots of industries worldwide and will continue to disrupt the drive and education?

	Frequency		Percentage	Valid Percentage	Cumulative Percentage
Valid	Yes	119	79.9	79.9	79.9
	No	10	6.7	6.7	86.6
	Maybe	20	13.4	13.4	100.0
	Total	149	100.0	100.0	

Table 17- As per your opinion, peoples are delivering the best performance in reference to their corresponding education system in economy

	Frequency		Percentage	Valid Percentage	Cumulative Percentage
Valid	Yea	96	64.4	64.4	64.4
	No	12	8.1	8.1	72.5
	Maybe	41	27.5	27.5	100.0
	Total	149	100.0	100.0	

This result shows that education 4.0 is more beneficial from their corresponding education system that is 53.5 percent.

Table 18- At what extent the education 4.0 as a learning approach that influences the society

	Frequency		Percentage	Valid Percentage	Cumulative Percentage
Valid	50-60 percent	23	15.4	15.4	15.4
	60-70 percent	41	27.5	27.5	43.0
	80-90 percent	67	45.0	45.0	87.9
	Infinite	15	10.1	10.1	98.0
	Others	3	2.0	2.0	100.0
	Total	149	100.0	100.0	

This result shows that 80-90 percent it influences the society

Table 19- Do education 4.0 acts as a feature of enhancing the skill set of employees in organization as well as students too?

	Frequency		Percentage	Valid Percentage	Cumulative Percentage
Valid	Strongly disagree	1	.7	.7	.7
	Disagree	4	2.7	2.7	3.4
	Neutral	22	14.8	14.8	18.1

	Agree	90	60.4	60.4	78.5
	Strongly agree	32	21.5	21.5	100.0
	Total	149	100.0	100.0	

These result shows that in present era this approach enhances the set of skills in employees as well as students too that is 58.8 percent.

Table 20- Does the transformation of educational driven technology impacts on the various aspects of human lives

Frequency		Percentage	Valid Percentage	Cumulative Percentage
Valid	Strongly agree	128	85.9	85.9
	Strongly disagree	3	2.0	87.9
	Maybe	18	12.1	100.0
	Total	149	100.0	100.0

This result shows that the transformation is highly required that changes the living standard of society and their sense of view that is 56.9 percent.

Table-21 ANOVA

In your opinion, education 4.0 motivates you to deliver worthwhile information

	Sum of Squares	Df	Mean Square	F	Sig.
Between Groups	1.104	2	.552	.753	.473
Within Groups	107.030	146	.733		
Total	108.134	148			

Table-22 ANOVA Effect Sizes^{a,b}

		Point Estimate	95% Confidence Interval	
			Lower	Upper
In your opinion, education 4.0 motivates you to deliver worthwhile information	Eta-squared	.010	.000	.054
	Epsilon-squared	-.003	-.014	.041
	Omega-squared Fixed-effect	-.003	-.014	.041
	Omega-squared Random-effect	-.002	-.007	.021

a. Eta-squared and Epsilon-squared are estimated based on the fixed-effect model.

b. Negative but less biased estimates are retained, not rounded to zero.

Table 23 Bayesian ANOVA

Bayesian Estimates of Coefficients^{a,b,c}

Parameter	Posterior			95% Credible Interval	
	Mode	Mean	Variance	Lower Bound	Upper Bound
Does education 4.0 bring rapid changes in many industries, worldwide and will continue disrupting drive and education = 1	4.269	4.269	.006	4.119	4.419

Does education 4.0 bring rapid changes in many industries, worldwide and will continue disrupting drive and education = 2	4.000	4.000	.070	3.482	4.518
does education 4.0 bring rapid changes in many industries, worldwide and will continue disrupting drive and education = 3	3.600	3.600	.035	3.234	3.966

- a. Dependent Variable: in your opinion, education 4.0 motivates you to deliver worthwhile information
- b. Model: does education 4.0 bring rapid changes in many industries, worldwide and will continue disrupting drive and education
- c. Assume standard reference priors.

Table-24 Bayesian Estimates of Error Variance					
Parameter	Posterior			95% Credible Interval	
	Mode	Mean	Variance	Lower Bound	Upper Bound
Error variance	.677	.696	.007	.553	.8

a. Assume standard reference priors.

FINDINGS:

After analyzing the collected data and thoroughly studying the previous work done related to the topic the following interpretations are drawn:

- Education 4.0 is a field which aims to promote the technology driven education system in India as well as outside the country.
- The education system can be implemented by using the help of digital learning platform.
- One of the major findings of the project there is a positive correlation between education 4.0 and its effect on the different perspective of human lives.
- The research paper also finds out that there is a mixed reaction of respondents towards the implementation of new education 4.0 policy for the industrial growth.
- E
education 4.0 is to help to integration of new learning approach is beneficial for high extend of challenges and opportunities for industry 4.0 and it fulfils the requirements as per need.
- I
It is also found that there is a high variance between the Education 4.0 provides

worthful information and brings many changes in rapid industry worldwide and continue disrupting drive and education.

CONCLUSION:

After the proper analysis of the various aspect of education 4.0 there is a high degree of interrelation between the Education 4.0 and the need of technology driven education system in India. The research finding suggests that the employees should be focused on the new pattern of learning to enhance their capability and productivity in the organization. There is a positive relationship between the education 4.0 and its impact on the society because through the adoption of new educational pattern inbuilt in quality of work life in any organization by proper use of Robotics, and Artificial intelligence at workplace. The study also suggests that it removes the gap between the methods of working and motivates the employee by conducting an act as a bridge and strengthen the learning pattern. So, it is very important to promote this approach in the society as well as the working place to foe the smooth conduction of work and better quality of life.

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