e-ISSN 2320 –7876 www.ijfans.org
Vol.11, Iss 7, 2022
 UGC CARE Listed (Group -I) Journal

THE DEVELOPMENT OF EDUCATION AND MODERN TECHNOLOGY AND THEIR POSITIVE & NEGATIVE IMPACTS

Dr. Kumari Swarn Rekha,

Assistant Professor, B.Ed Regular mode

Directorate of Distance Education,

Department of Education

Lalit Narayan Mithila University Darbhanga (Bihar).

ABSTRACT

Modern technology and education play an important part throughout the course of our life today. It is widely acknowledged as the primary source of economic expansion. A financial system that is technologically deficient can never grow in today's world. This is because technology makes our tasks lot easier and less time demanding. The impact of technology may be felt in every conceivable sector. The goal of this research was to look at the evolution of education and current technology, as well as the good and bad effects. The intended participants in this research were instructors, and information was acquired using a survey. According to the demographic data acquired, 200 instructors in two age groups (22-35 & 36-50) responded to the questionnaire. We used SPSS software to do regression analysis after collecting the questionnaire. We used regression analysis to evaluate each possibility.

INTRODUCTION

Many people believe that the 21st century will be remembered as the age of modern technology. The use of various methods and technologies in educational settings results in a greater amount of information that is gathered, is simpler to access, and may be applied to any area of study. Because of advancements in technology[1], children and students in today's education system are experimenting with novel and imaginative approaches to their many modes of academic instruction. It is beneficial in their overall growth, and the way that they think about new things may also be modified as a result.

The integration of technology into educational settings has shown a number of positive benefits, although also presenting a number of problematic side effects. The desire and participation of students has improved thanks to technology, which also makes it possible to improve their education.

Technology is a powerful instrument that may support and improve education in many different ways[2]. For example, technology can make it simpler for educators to generate instructional materials, and it can also enable new methods for people to learn and collaborate together. It will be up to educational technologies and instructional designers to make the most of the potential presented by technological advancements in order to transform education into something that is both effective and efficient and that can be accessed by anyone, anywhere.

Development of education

Even though personality development is very subjective, education is critical for total growth, from how you think to how you talk and show yourself. Education acts as a catalyst in the formation of a person's personality[3]. It exposes a person to other points of view, allowing them to have a clear and comprehensive perspective. It entails a more solution-oriented attitude as well as improved understanding and analytical abilities. It also fosters discipline within a person. Our education shapes our beliefs, ideals, and attitudes. It may be beneficial in increasing a person's self-esteem. A child's education should be more than simply a few course volumes. Education must improve an individual's social and interpersonal abilities in order for personality development to occur.

Impact on modern technology

The impact of technology may be seen and felt in every subject imaginable, including the realm of education. When technology is used to assist in the sharing of information, the process is made much simpler, more practical, and more successful. To further their education, students may make use of a variety of tools, including the internet, projectors, and so on. Students like engaging images and anything that encourages them to think about the material rather than just reading it. Projectors installed in classrooms and lecture halls at schools and colleges have the potential to significantly increase students' participation and attention. This is an idea that is going to keep gaining traction as more and more people begin to endorse it[4].

Positive impact of modern technology

- **Enhanced Teaching and Learning:**

Students are more likely to remember things when they are provided with a visual representation of whatever it is they are trying to learn. They have the opportunity to engage more actively in the classroom, and lecturers have the possibility to make their lessons more engaging and dynamic for the students[5].

- **Globalization:**

College students may "meet" their opposite members through video conferencing without having to leave the classroom when their school is located in certain parts of the kingdom[6].

Students in higher education may study a variety of foreign languages online with the assistance of certain websites[7].

- **No Geographical Limitations:**

Since the advent of online degree programmes, there has been a significant reduction in the frequency with which students are required to actually attend traditional classes. Even some institutions located in other countries have begun offering online degree programmes that students may participate in[8].

Negative impact of modern technology

- **Declining Writing Skills:**

The extensive use of online talking and short cuts has contributed significantly to a significant decline in the level of writing ability possessed by today's younger generation.

- **Increasing Incidents of Cheating:**

Recent advances in technology, such as graphical calculators, high-tech watches, miniature cameras, and other similar devices, have become significant resources for exam cheating[9].

- **Lack of Focus:**

Being constantly connected to the online world has led to a loss of focus and concentration in academics, and to some extent, even in athletics and extracurricular activities outside of the classroom.

Factors affecting technology in education

The following factors are the ones that are most often mentioned as difficulties[10]:

- lack of time
- lack of access
- lack of resources
- lack of expertise &
- lack of support

Advantages

- Students feel more motivated to study as a result of it.
- Reduce costs involved with paper and photocopying while also supporting the "green revolution" idea.
- Students should be given the opportunity to acquire new technological abilities so that they may apply such talents later on in the workplace.
- Students who have packed schedules should be given the opportunity to complete assignments at home on their own time.

Disadvantages

- Installing such technologies comes at a high price.
- When used over the recommended limit, there is also the chance for health effects.

- From the perspective of the teacher, it may also be a time-consuming process at times.
- There are some pupils who cannot afford to purchase one of most modern computer technology.

Objectives:

1. To develop an understanding of the potential impacts of education and modern technology on society.
2. To investigate the development of education and modern technology and their positive and negative impacts.
3. To find out the positive and negative impacts of development of education & technology on students and teachers.
4. To develop strategies for using education and technology to achieve positive outcomes while minimising negative impacts.

Hypothesis:

H1: There is no positive impact of modern technology on educational development.

H2: There is no relationship between development of education and modern technology

H3: There is high impact of modern technology on development of education towards teachers age group.

Organization of the paper

The rest of the paper is organized as follows:

Section II is discussed about previously published articles and review of that papers.

Section III is explained regarding proposed methodology in detail.

Section IV is presented with results obtained.

Section V concluded the work.

LITERATURE REVIEW

Many of the author published some of the articles related to development of education and modern technology and its impacts. Some of them are discussed below.

[11] The author wanted to develop teaching methodologies suitable for the new generations of android, it was first important to determine the key characteristics of „digital age" students, from the viewpoint of their teaching strategies, expectations, and requirements. Digital natives, in addition to them, are the target audience for e-learning platforms. This study examined a few MOOC platforms, highlighting the ones that students said were most often utilised for individualised learning.

[12] The author said that technology has undoubtedly altered how we live. It has changed how people live and altered living in many ways. Without a question, technology is significant in all aspects of life. There can be no denying the value of technology in education. In reality, the introduction of computers into the classroom has made it simpler for both instructors and students to learn new information. The teaching and learning processes are now much more engaging thanks to the usage of technology.

[13] The author investigated the phenomenon of the rise of AI in higher education's teaching and learning processes. The author looked at how new technology in education could affect the institutions teach and change throughout time. The application of these technologies for instructing, understanding, student assistance, and administration presents certain issues for higher education institutions and student learning, and the author explores further study avenues.

[14] The author argues that information and communications technology (ICT) has a strategic role in education in general and, more specifically, a huge potential to revolutionise the methods in which instruction is performed out in the classroom. Author offers options for increased flexibility, interaction, and accessibility for engaged learning at the particular, group, and societal levels. The theoretical underpinnings of this investigation were laid forth by the concepts of diffusion theory and the technology adoption model.

[15] The author predicted; online schooling will be widely available. This editorial lists issues at the national level that affect the scope and quality of online education. These included the economy (business), local, state, and federal governments, national legislation, ICT capability, Internet/mobile technology dissemination, and income and digital divide. The author discussed the consequences of online education for national and international organisations.

[16] The author of this research suggested using a VR-based strategy to enhance teacher preparation and ongoing professional development. The suggested VR-based technique sought to provide an avant-garde framework for education and the associated training methodology. The outcomes showed a considerable improvement in the participants' depressive behavioural and mood states, indicating that the situation and VR experience had a major influence on them.

[17] In this research, the author examined how teacher traits and school ICT infrastructure relate to ICT usage in education. The 2013 Teaching and Learning International Study (TALIS), that included 3339 instructors from 192 secondary education centres, utilised data from the Spanish sample for this article. The main findings suggested that factors such as the accessibility of educational technology, teacher ICT training, teacher cooperation, people's self, and teaching principles affected the usage of ICT in the classroom.

[18] This author looked at beginning teacher education and how newly trained teachers are equipped to utilise information and communication technology (ICT) (ITE). The author reported the results of a national survey conducted in Norway on 356 recently graduated

teachers. Newly certified teachers say that their ICT training throughout their teacher education was generally of low quality and contribution. According to the author, ongoing efforts are required to assess the quality of ITE, particularly in relation to the development of PDC and the growth of student teachers' ICT self-efficacy in ITE.

[19] According to the author, teachers play a key role in many technological and educational advancements in secondary schools. School administrators might be assisted by knowledge about teachers' attitudes toward teaching, learning, and technology. This would help them choose, pair, and support networks of teachers for specific school initiatives. This categorization of teachers into these five groups may be used to choose or pair the appropriate group of educators with a specific intervention or to plan various activities for professional development for various categories of school educators.

[20] The main objective of the author is to improve educational standards. Mostly in context of students' e-learning, this research is the first to show a negative and substantial link between CA and PU. One of the few studies that employed the GETAMEL concept for e-learning contexts is this one. For academic institutions and decision-makers, the findings had important practical ramifications that affected how universities should construct their e-learning infrastructure.

[21] This author's perspective was created to further the knowledge of the relationship between teachers' pedagogical views and their use of technology in the classroom. With the ultimate objective of making the implementation of education technology easier, the analysis of qualitative results combined the information that was already known about this connection. Recommendations are given for professionals, policy makers, and academics concentrating on pre- and in-service educational technology training by interpreting the review's findings.

[22] The author of this research looked at how teachers' values towards technology influence how they internalise access to technology and administrative assistance into views of support for first-order obstacles. This research also looked at the link between teachers' use of technology in the classroom and their perceptions of assistance for first-order obstacles. This research adds to the body of literature by stressing the significance of teachers' values and beliefs towards the use of technology.

METHODOLOGY

The purpose of this study was to investigate the development of education and modern technology as well as the positive and negative impacts. In this study, the target participants were teachers, and the information was gathered by means of a survey. The teachers willingly took part in the poll in an anonymous fashion. These teachers came from various locations in Telangana.

The questionnaires were completed by 200 teachers in all, and 21 complete questionnaires were kept for further study. In one element of the questionnaire, an effort was made to examine the influence of the development of education as seen through the perspective of the teaching staff. The next part collected data regarding the teacher's perspective on how they

interact with modern technologies. According to the demographic data gathered, response of 200 teachers with two age groups (22-35 & 36-50) for the questionnaire. In this study, the target participant's responses are measured using a 5-Likert scale.

5-Likert scale

A Likert Scale is a type of rating scale used to measure attitudes or opinions. With this scale, respondents are asked to rate items on a level of agreement. The 5-point Likert scale is simple to understand and use for survey administrators and respondents alike. It takes less time and effort to complete than higher-point scales. Fits mobile device screens better than higher-point scales. Respondents have choices without becoming overwhelmed. A type of psychometric response scale in which responders specify their level of agreement to a statement typically in five points:

(1) Strongly disagree;

(2) Disagree;

(3) Neither agree nor disagree;

(4) Agree;

(5) Strongly agree.

After that we conducted regression analysis using SPSS with collected data. The dependent variable is treated as development of education and independent variable is modern technology.

RESULTS

H1: There is no positive impact of modern technology on educational development.

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.360[a]	.130	.126	.30770

a. Predictors: (Constant), modern_technology

R is the Pearson correlation coefficient, describes the strength and direction of linear relationship between two variables. The R-value 0.36 from the above table says that there is weak and positive correlation among the two variables.

The R^2 value is used to measure the goodness of fit of a model, and it gives the percentage of total variation in dependent variable that is explained by independent variable. The R^2 value is 0.130, shows that 13.0% changes in modern technology, and is explained by

development of Education. 87.0% is captured by error term, so we can clearly conclude that the model does not has good fit because greater part is captured by error term. The adjusted R^2 value is 0.126 shows that about 12.6% changes in modern technology, explained by development of Education. Greater part about 87.4% is captured in error term. From this adjusted R^2 value also, we can conclude that the model does not has a good fit.

ANOVA[a]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	2.800	1	2.800	29.572	.000[b]
	Residual	18.746	198	0.95		
	Total	21.546	199			

a. Dependent Variable: development_of_education
b. Predictors: (Constant), modern_technology

The ANOVA test confirms that the overall regression model is significant for data, this we can say by observing F-statistic value 29.572 and significance value 0.000 which is less than 0.05 at 5% significance level.

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	2.776	.137		20.239	.001
	development_of_eduction	.230	.042	.360	5.438	.000

a. Dependent Variable: development_of_education

The development of education coefficient value which was found to be 0.230, shows that a unit increase in development of education, on the average, increased modern technology by 0.230 units.

The calculated t-value for the relationship between modern technology and development of education is 5.438 with the P-value of 0.000. The obtained t-value is greater than 2 and the

P-value is less than 0.05 at 5% level of significance, so we can conclude that there is a positive Impact of development of education on modern technology of Students.

H2: There is no relationship between development of education and modern technology.

Correlations

		development_of_education	modern_technology
development_of_education	Pearson Correlation	1	.360**
	Sig. (2-tailed)		.000
	N	200	200
modern_technology	Pearson Correlation	.360**	1
	Sig. (2-tailed)	.000	
	N	200	200

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

From the above table we can observe the Pearson correlation value of development of education and modern technology is 0.36 which is less than 0.5 and the significance value is 0.000 which is less than 0.05 at 5% significance level. From the correlation value and p value it is clear that there is a weak and positive correlation among the two variables (development of education and modern technology). Finally, the null hypothesis is rejected that there is no relation between development of education and modern technology. Therefore, the alternative hypothesis 'there is a relation between development of education and modern technology' is accepted.

H3: There is high impact of modern technology on development of education towards teachers age groups.

Model Summary

age_group	Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
22-35	1	.420[a]	.176	.168	.29675
36-50	1	.290[a]	.084	.075	.31942

a. Predictors: (Constant), modern_technology

R is the Pearson correlation coefficient, describes the strength and direction of linear relationship between two variables. The R-value for (22-35) age group and (36-50) age group are 0.42 and 0.29 from the above table says that there are weak and positive correlation in the two age groups. The R value of the age group 22-35 is greater than age group of 36-50, so it is clear that the relation between modern technology and development of education for age group 22-35 is high compared to 36-50 age group.

The R^2 value is used to measure the goodness of fit of a model, and it gives the percentage of total variation in dependent variable that is explained by independent variable. The R^2 value for (22-35) age group and (36-50) age group are 0.176 and 0.084, shows that 17.6% and 8.4% changes in modern technology, and is explained by development of Education. 82.4% & 91.6% are captured by error term, so we can clearly conclude that the model does not has good fit because greater part is captured by error term. The R^2 value of the age group 22-35 is higher than the age group of 36-50.

The adjusted R^2 values of (22-35) age group & (36-50) age group are 0.168 & 0.075 shows that about 16.8% & 7.5% changes in modern technology, explained by development of Education. Greater part about 83.2% & 92.5% are captured in error term. From this adjusted R^2 value also, we can conclude that the model does not has a good fit. The adjusted R^2 value of the age group 22-35 is higher than the age group of 36-50.

ANOVA[a]

age_group	Model		Sum of Squares	df	Mean Square	F	Sig.
22-35	1	Regression	1.881	1	1.881	21.363	.000[b]
		Residual	8.806	100	.088		
		Total	10.687	101			
36-50	1	Regression	.899	1	.899	8.814	.004[b]
		Residual	9.795	96	.102		
		Total	10.694	97			

a. Dependent Variable: development_of_education
b. Predictors: (Constant), modern_technology

The ANOVA test confirms that the overall regression model is significant for data, this we can say by observing F-statistic values of (22-35) age group & (36-50) are 21.363 & 8.814 and significance values of (22-35) age group & (36-50) age group are 0.000 & 0.004 which are less than 0.05 at 5% significance level.

Coefficients[a]

age_group	Model		Unstandardized Coefficients		Standardized Coefficients		
			B	Std. Error	Beta	t	Sig.
22-35	1	(Constant)	2.687	.187		14.356	.000
		development_of_education	.263	.057	.420	4.622	.000
36-50	1	(Constant)	2.890	.203		14.258	.003
		development_of_education	.188	.063	.290	2.969	.004

a. Dependent Variable: development_of_education

The development of education coefficient values for (22-35) age group and (36-50) age group which was found to be 0.263 & 0.188, shows that a unit increase in development of education, on the average, increased modern technology by 0.263 &0.188 units.

The calculated t-value for the relationship between modern technology and development of education for (22-35) age group & (36-50) age group are 4.622 &2.969 with the P-values of 0.000 & 0.004 respectively. The obtained t-value is greater than 2 and the P-value is less than 0.05 at 5% level of significance, and the t value of the age group 22-35 is high with significance value of 0.00, so we can conclude that the age group of 22-35 has the high impact of modern technology on development of education than the age group of 36-50.

CONCLUSION

The main purpose of the work is to investigate the positive and negative impacts of development of education and modern technology. A survey was used to collect the necessary information for this research, and the participants who served as the focus of the investigation were instructors. According to the demographic data gathered, response of 200 teachers with two age groups (22-35 & 36-50) for the questionnaire. After gather the questionnaire, we performed regression analysis with the help of SPSS software. We evaluated each and every hypothesis by using regression analysis. After the analysis, we concluded that there is a positive Impact of development of education on modern technology of Students and the response of the teachers age group of 22-35 has a high impact of modern technology on development of education when compared with age group of 36-50.

References

[1] M. K. K. Singh and N. A. Samah, "Impact of Smartphone: A Review on Positive and Negative Effects on Students," *Asian Soc. Sci.*, vol. 14, no. 11, p. 83, 2018, doi: 10.5539/ass.v14n11p83.

[2] H. B. Shapiro, C. H. Lee, N. E. Wyman Roth, K. Li, M. Çetinkaya-Rundel, and D. A. Canelas, "Understanding the massive open online course (MOOC) student experience: An examination of attitudes, motivations, and barriers," *Comput. Educ.*, vol. 110, pp. 35–50, 2017, doi: 10.1016/j.compedu.2017.03.003.

[3] S. Dhawan, "Online Learning: A Panacea in the Time of COVID-19 Crisis," *J. Educ. Technol. Syst.*, vol. 49, no. 1, pp. 5–22, 2020, doi: 10.1177/0047239520934018.

[4] E. Vaportzis, M. G. Clausen, and A. J. Gow, "Older adults perceptions of technology and barriers to interacting with tablet computers: A focus group study," *Front. Psychol.*, vol. 8, no. OCT, pp. 1–11, 2017, doi: 10.3389/fpsyg.2017.01687.

[5] M. Escuenta, V. Quan, A. J. Nickow, and P. Oreopoulos, "Education Technology: An Evidence-Based Review. NBER Working Paper No. 23744," pp. 1–102, 2017.

[6] M. Teräs, J. Suoranta, H. Teräs, and M. Curcher, "Post-Covid-19 Education and Education Technology 'Solutionism': a Seller's Market," *Postdigital Sci. Educ.*, vol. 2, no. 3, pp. 863–878, 2020, doi: 10.1007/s42438-020-00164-x.

[7] N. Hasan and Y. Bao, "Impact of 'e-Learning crack-up' perception on psychological distress among college students during COVID-19 pandemic: A mediating role of 'fear of academic year loss,'" *Child. Youth Serv. Rev.*, vol. 118, no. July, p. 105355, 2020, doi: 10.1016/j.childyouth.2020.105355.

[8] A. Tarhini, K. Hone, X. Liu, and T. Tarhini, "Examining the moderating effect of individual-level cultural values on users' acceptance of E-learning in developing countries: a structural equation modeling of an extended technology acceptance model," *Interact. Learn. Environ.*, vol. 25, no. 3, pp. 306–328, 2017, doi: 10.1080/10494820.2015.1122635.

[9] C. Greenhow and E. Askari, "Learning and teaching with social network sites: A decade of research in K-12 related education," *Educ. Inf. Technol.*, vol. 22, no. 2, pp. 623–645, 2017, doi: 10.1007/s10639-015-9446-9.

[10] R. Panigrahi, P. R. Srivastava, and D. Sharma, "Online learning: Adoption, continuance, and learning outcome—A review of literature," *Int. J. Inf. Manage.*, vol. 43, no. July 2016, pp. 1–14, 2018, doi: 10.1016/j.ijinfomgt.2018.05.005.

[11] A. Velicanu, I. Lungu, V. Diaconita, and C. Nisioiu, "The 9 th International Scientific Conference eLearning and software for Education," no. 1994, pp. 380–386, 2013.

[12] R. Raja and P. C. Nagasubramani, "Impact of modern technology in education," *J.*

Appl. Adv. Res., pp. S33–S35, 2018, doi: 10.21839/jaar.2018.v3is1.165.

[13] S. A. D. Popenici and S. Kerr, "Exploring the impact of artificial intelligence on teaching and learning in higher education," *Res. Pract. Technol. Enhanc. Learn.*, vol. 12, no. 1, 2017, doi: 10.1186/s41039-017-0062-8.

[14] J. E. Lawrence and U. A. Tar, "Factors that influence teachers' adoption and integration of ICT in teaching/learning process," *EMI. Educ. Media Int.*, vol. 55, no. 1, pp. 79–105, 2018, doi: 10.1080/09523987.2018.1439712.

[15] S. Palvia *et al.*, "Online Education: Worldwide Status, Challenges, Trends, and Implications," *J. Glob. Inf. Technol. Manag.*, vol. 21, no. 4, pp. 233–241, 2018, doi: 10.1080/1097198X.2018.1542262.

[16] K. E. Stavroulia, M. Christofi, E. Baka, D. Michael-Grigoriou, N. Magnenat-Thalmann, and A. Lanitis, "Assessing the emotional impact of virtual reality-based teacher training," *Int. J. Inf. Learn. Technol.*, vol. 36, no. 3, pp. 192–217, 2019, doi: 10.1108/IJILT-11-2018-0127.

[17] J. Gil-Flores, J. Rodríguez-Santero, and J. J. Torres-Gordillo, "Factors that explain the use of ICT in secondary-education classrooms: The role of teacher characteristics and school infrastructure," *Comput. Human Behav.*, vol. 68, pp. 441–449, 2017, doi: 10.1016/j.chb.2016.11.057.

[18] G. B. Gudmundsdottir and O. E. Hatlevik, "Newly qualified teachers' professional digital competence: implications for teacher education," *Eur. J. Teach. Educ.*, vol. 41, no. 2, pp. 214–231, 2018, doi: 10.1080/02619768.2017.1416085.

[19] W. Admiraal *et al.*, "Teachers in school-based technology innovations: A typology of their beliefs on teaching and technology," *Comput. Educ.*, vol. 114, pp. 57–68, 2017, doi: 10.1016/j.compedu.2017.06.013.

[20] C. Ching-Ter, J. Hajiyev, and C. R. Su, "Examining the students' behavioral intention to use e-learning in Azerbaijan? The General Extended Technology Acceptance Model for E-learning approach," *Comput. Educ.*, vol. 111, pp. 128–143, 2017, doi: 10.1016/j.compedu.2017.04.010.

[21] J. Tondeur, J. van Braak, P. A. Ertmer, and A. Ottenbreit-Leftwich, "Understanding the relationship between teachers' pedagogical beliefs and technology use in education: a systematic review of qualitative evidence," *Educ. Technol. Res. Dev.*, vol. 65, no. 3, pp. 555–575, 2017, doi: 10.1007/s11423-016-9481-2.

[22] V. W. Vongkulluksn, K. Xie, and M. A. Bowman, "The role of value on teachers' internalization of external barriers and externalization of personal beliefs for classroom technology integration," *Comput. Educ.*, vol. 118, no. October 2017, pp. 70–81, 2018, doi: 10.1016/j.compedu.2017.11.009.