Impact of Digitalization on Education System in Surat City

Virang Kishorchandra Shukla* and Dhavalkumar Ashokbhai Shah**

ABSTRACT

The paper highlights to evaluate the influence of digital teaching learning methods using digital technology. This research paper focuses on the impact of digitalization on teaching methodologies adopted by teachers in various colleges and universities on student learning. From analysis it can be suggested that by keeping open educational resources teachers and students have flexibility to join the session at the time of their convenience and get better understanding about the concepts. The findings of study indicate that digital tools not only increased the level of excellence but could be advanced experience for both teachers & students in upcoming years. Digital modes of teaching such as virtual sessions, educational apps and IOT will help the teachers to share the knowledge on big platform with creative way to clear the concepts. With digital apps it would be possible to transform the content of knowledge among students on larger scale. This study concluded that digital tools improve educational productivity by enhancing teaching learning opportunities through involving students in active learning and explaining the concepts in effective & creative way.

Keywords: Digitalization; Digital teaching- learning; Digital transformation; Digital technology; *Pedagogical model.*

1.0 Introduction

Digitalization refers to convert data, information into digital way. Now a day's digital technology creates influence on teaching learning methods of students & teachers. Various colleges and universities adopted advance digital teaching methods for students. It has both positive and negative impact on education system. Concepts of various theories are much more cleared through digitalization. Different types of digital apps, videoconferencing tools give the pathway towards the use of digital technology. With the help of digitalization, it would be possible to transform information, knowledge among students extensively. On other side, digital technology having negative effects on learning system. There will be lack of face-to-face interaction with students and teachers. Students should be self-motivated & proper time management skills. Pedagogical models are analytical models which derived from learning theory and allow the execution of particular learning strategies. Examples of pedagogical models contain problem-based learning, situational learning and analytical apprenticeship.

2.0 Rationale of Digitalization

Digitalization plays an important role in the field of education. Digital teaching-learning is more effective as compared to traditional teaching-learning methodologies. Digital technologies engage students to understand the complex concept with the help of examples. Digital technologies make students self-oriented.

^{*}Corresponding Author; Lecturer, Department of H & S, Bhagwan Mahavir University, Surat, Gujarat, India. (Email: virangshukla_1983@yahoo.co.in)

^{**}Lecturer, Department of Electrical, Bhagwan Mahavir University, Surat, Gujarat, India. (Email: dhavalshah111120@gmail.com)

Students can select the topic as per their interest and make preparation with the help of advance digital tools. The benefit of digital transformation is that the development of individual student can be tracked which may not be possible in conventional way of teaching. In traditional teaching there is one communication channel in classroom. But in effective virtual classroom multiple channels such as messaging voice chat and video conferencing can be used. This normally allow student to communicate the manner in which they are most comfortable with.

3.0 Objectives of Digitalization

Followings are objectives of digitalization in teaching learning methodologies.

• Digital learning improves student's skills:

Digital tools encourage students to develop self-motivated learning skills. They can identify what they want to learn with the help of digital tools. This will improve the student's skills. Digital learning tools enhanced student's critical thinking skills which are the base of analytical reasoning.

• Digital learning improves self-motivation and accountability of students

Students using digital tools can become more engage in learning process and can improve their knowledge. They can active in digital learning with different methods such as team work, problem solving, concept map, gamification etc.so they even do not realize that they are engaged.

- Improve student's thinking toward technologies: students can improve knowledge and skills to face the challenging problems, grasping of broader concepts and develop new ideas and solutions.
- Sharing knowledge on big platform: with the help of digitalization teachers can share knowledge on big platforms.
- Clarity and understanding of topics: with the help of digitalization concepts can be understood very easily. The concepts can be well understood with different examples and situation with the help of digitalization.

4.0 Review of Literature

Kareena Kakkar (2011) analyzed the education system. It was found from the analysis that education system has become value based and continuously improved with digitalization. Shawn Michael (2010) observed that digitalization has changed forms of distance learning. The electronic tools are spreading and used rapidly in educational institutions. The use of digital tool has changed teacher's way of delivering information through lectures. Uygarer, R, Uzunboylu H. (2017) studied the impact of digital teaching for higher education and concluded that online platform of learning like you tube, zoom, Google meet, Microsoft teams, Go to Meeting etc. are much more effective as compare to traditional teaching in schools and colleges. R. Raja (2018) conducted research on importance of digital technology in education systems in schools in Chennai and concluded that the system equipped with ICT and other digital tools are useful to transform the knowledge which improves the process of teaching – learning. Korableva (2019) summarized on advantages of digital learning courses over traditional teaching methodology. The study was focused on latest online platforms to understand student's convenience to give best solution in terms of knowledge. Jon Altuna (2015) studied about use of various digital technologies in schools for understanding different learning concepts. He suggested much online software to understand the various concepts to students in better way and teachers must be trained well in both theoretically as well as technologically.

5.0 Methodology

5.1 Types of data

Primary data-To study the impact of digitalization on education system in perspective view of students and teachers, a well-prepared questionnaire was formulated for data gathering. The questionnaire was sent to respondents to acquire the opinion about the concerned information. Secondary data - The secondary data was collected through academic journals, magazines and websites.

5.2 Research method

Method used for this research was quantitative.

5.3 Sample size

The sample size taken for this study was 100 to fulfill the aim of research study.

5.4 Statistical tool used

The data was investigated and hypothesis was tested using SPSS with statistical techniques such as Cronbach alpha and chi-square technique.

5.5 Hypothesis

H1: There is significant relationship between digitalization & student learning.

- (a) Digital learning will enhance student performance.
- (b) Digital learning will improve clarity and understanding of topics.
- (c) Digital learning will help to engage students.
- (d) Digital platform is good for sharing knowledge on large scale.
- H2: There is significant relationship between digitalization & better way of teaching.
 - (a) Digital teaching will enhance student performance.
 - (b) Digital teaching will improve clarity and understanding of topics.
 - (c) Digital teaching will help to engage students.
 - (d) Digital platform is good for sharing knowledge on large scale.

6.0 Data Analysis

Reliability analysis (Cronbach analysis)

Value of Cronbach alpha	Number of items
0.927	10

Cronbach alpha having value 0.927 shows that survey is well constructed, reliable and relevant for research study. High Value of Cronbach alpha shows that there is an internal consistency between all factors of digitalization. Since value of Cronbach alpha is very high all factors were considered for further analysis.

6.1 Data analysis: (Student's perspective)

H1: There is relationship between digital mode of education & performance of students.

Do you like learning through digital mode of education? * Digital learning will enhance student performance. Crosstabulation

Count					
		Digital lea			
		agree	disagree	neutral	Total
Do you like learning	agree	18	14	1	33
through digital mode of c	disagree	0	11	0	11
educations	neutral	0	0	6	6
Total		18	25	7	50

Chi-Square Tests						
	Value	df	Asymp. Sig. (2-sided)			
Pearson Chi-Square	54.225 ^a	4	.000			
Likelihood Ratio	46.140	4	.000			
Linear-by-Linear Association	25.863	1	.000			
N of Valid Cases	50					

From Chi-square analysis table, Pearson value of .000 indicates that null hypothesis was rejected. This means that there is statistical evidence that digital mode of education improves the performance of students.

H2: There is relationship between digital mode of education & understanding of topics.

Do you like learning through digital mode of education? * Digital learning will improve clarity and understanding of topics. Crosstabulation

		Digital lear und				
		agree	disagree	neutral	Total	
Do you like learning through digital mode of education?	agree	33	0	0	33	
	disagree	0	11	0	11	
educations	neutral	0	0	6	6	
Total		33	11	6	50	

Chi-Square Tests						
	Value	df	Asymp. Sig. (2-sided)			
Pearson Chi-Square	100.000 ^a	4	.000			
Likelihood Ratio	86.178	4	.000			
Linear-by-Linear Association	49.000	1	.000			
N of Valid Cases	50					

From Chi-square analysis table, Pearson value of .000 shows that null hypothesis was rejected. This means that there is evidence that digital mode of education brings clarity and understanding about topics.

H3: There is relationship between digital mode of education & engagement of students.

Do you like learning through digital mode of education? * Digital learning will help to engage students. Crosstabulation

Count	
-------	--

Count

		Digital learning			
		agree	disagree	neutral	Total
Do you like learning	agree	33	0	0	33
through digital mode of education?	disagree	0	11	0	11
educations	neutral	0	0	6	6
Total		33	11	6	50

Chi-Square Tests

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	100.000 ^a	4	.000
Likelihood Ratio	86.178	4	.000
Linear-by-Linear Association	49.000	1	.000
N of Valid Cases	50		

From Chi-square analysis table, Pearson value of .000 indicates that null hypothesis was rejected. This means that digital mode of education helps to engage students.

H4: There is relationship between digital mode of education & and its relation to explore the knowledge on larger scale.

Do you like learning through digital mode of education? * Digital platform is good for sharing
knowledge on large scale. Crosstabulation

Count

		Digital platform is			
		agree	disagree	neutral	Total
Do you like learning through digital mode of education?	agree	32	1	0	33
	disagree	0	11	0	11
	neutral	1	0	5	6
Total		33	12	5	50

Chi-Square Tests

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	84.894 ^a	4	.000
Likelihood Ratio	70.332	4	.000
Linear-by-Linear Association	39.194	1	.000
N of Valid Cases	50		

From analysis of chi-square analysis, it was observed that Pearson chi square value obtained was .000 reveals that null hypothesis was rejected and alternative hypothesis was accepted. This means that digital modes of education have a significant effect to share the knowledge on larger scale.

6.2 Data analysis: (Teacher's perspective)

H1: There is relationship between digital mode of education & performance of students

Digital mode leads to effective way of teaching? * Digital teaching will enhance student performance. Crosstabulation

Count

	Digital tea				
		agree	disagree	neutral	Total
Digital mode leads to	agree	19	15	1	35
effective way of teaching?	disagree	0	9	0	9
	neutral	0	0	6	6
Total		19	24	7	50

Chi-Square Tests

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	52.347 ^a	4	.000
Likelihood Ratio	43.780	4	.000
Linear-by-Linear Association	25.450	1	.000
N of Valid Cases	50		

From Chi-square analysis table, Pearson value of .000 indicates that null hypothesis was rejected. This means that there is numerical evidence that digital mode of education improves overall performance of students.

2nd International E- conference on Digital Learning Methodologies: Transformation of Business, Management and Education Practices, FMS, Parul University, Gujarat, India H2: There is relationship between digital mode of education & understanding of topics.

Count						
		Digital teaching will improve clarity and understanding of topics.				
		agree	disagree	neutral	Total	
Digital mode leads to	agree	33	2	0	35	
effective way of teaching?	disagree	1	8	0	9	
	neutral	0	0	6	6	
Total		34	10	6	50	

Digital mode leads to effective way of teaching? * Digital teaching will improve clarity and understanding of topics. Crosstabulation

Chi-Square Tests

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	82.047 ^a	4	.000
Likelihood Ratio	62.246	4	.000
Linear-by-Linear Association	43.164	1	.000
N of Valid Cases	50		

Pearson value of 0.000 shows that null hypothesis was rejected. This means that the digital mode of teaching gives the clarity and proper understanding about topics.

H3: There is relationship between digital mode of education & engagement of students

Digital mode leads to effective way of teaching? * Digital teaching will help to engage students. Crosstabulation

Count

		Digital teaching will help to engage students.			
		agree	disagree	neutral	Total
Digital mode leads to	agree	33	2	0	35
effective way of teaching?	disagree	0	9	0	9
	neutral	5	0	1	6
Total		38	11	1	50

Chi-Square Tests

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	46.184 ^a	4	.000
Likelihood Ratio	41.253	4	.000
Linear-by-Linear Association	9.915	1	.002
N of Valid Cases	50		

From Chi-square analysis table, Pearson value of .000 indicates that null hypothesis was rejected. This means that digital mode of education helps to engage students.

2nd International E- conference on Digital Learning Methodologies: Transformation of Business, Management and Education Practices, FMS, Parul University, Gujarat, India H4: There is relationship between digital mode of education & and its relation to explore the knowledge on larger scale

Digital mode leads to effective way of teaching? * Digital platform is good for sharing knowledge on large scale. Crosstabulation

Count					
		Digital platform is good for sharing knowledge on large scale.			
		agree	disagree	neutral	Total
Digital mode leads to	agree	30	3	2	35
effective way of teaching?	disagree	2	7	0	9
	neutral	1	0	5	6
Total		33	10	7	50

Chi-Square Tests					
	Value	df	Asymp. Sig. (2-sided)		
Pearson Chi-Square	48.973 ^a	4	.000		
Likelihood Ratio	36.759	4	.000		
Linear-by-Linear Association	21.909	1	.000		
N of Valid Cases	50				

From analysis of chi-square analysis, it was observed that Pearson chi square value of .000 shows that null hypothesis was rejected and alternative hypothesis was accepted. This means that digital modes of education have a noteworthy effect to share the knowledge on larger scale.

7.0 Conclusion

From analysis it can be concluded that digitalization has significant impact on students learning & teachers teaching methodology with respect to conventional methods. There was positive relationship between digital mode of education and student's performance, understanding of topics & engagement of students. From teacher's perspective, it can be observed that teaching through digital technology improves clarity & understanding of topics and digital platform create large no of students gathered as per their convenience.

8.0 Recommendation

Digitalization can promote education system globally. Use of advance technology can enhance knowledge of students. Colleges & universities play vital role towards digitalization. Students should be encouraged to use digital tools for acquiring information about various concepts. Teachers should be advised to transform knowledge in effective & creative way by using different educational apps. Learning-teaching methodology can be updated frequently by students & teachers with new and advanced methods of digitalization. However, care should be taken to observe engagement of students as some students sometimes do nothing in online mode of education. Regular evaluation of each student should be done to observe the progress of each student in online mode of education.

9.0 References

AI Gindy, (2020). Virtual Reality: Development of an integrated learning environment for education. International Journal of Information and Educational Technology.

Al-Hariri, M., & Al-Hattami, A. (2017). Impact of students' use of technology on their learning achievements in physiology courses at the University of Dammam. Journal of Taibah University Medical Sciences, 12(1), 82-85.

Christopher Blundell, (2016). Digital learning in School-Conceptualizing the challenges &Influence on Teachers Practice. Journal of Information Technology Education: Research Volume 15.

Hakoyama, M., & Hakoyama, S. (2011). The impact of cell phone use on social networking and development among college students. The American Association of Behavioral and Social Sciences Journal, 15, 1-20.

Kaino, L. M. (2008). Usefulness and enjoyment of using computers in learning: A gender dimension. Gender &Behavior, 6(2), 1841 – 1857.

Kaur Arvind, (2018). Advantages and Limitations of Current Standard Academic Curriculum of Higher Education System, PhD thesis on shodhganga.

Korableva, 2019, Studying User satisfaction with MOOC platform interfaces using example of Coursers&open education platforms.ACM International Conference.

Krishnaprabu, S. (2019). The role of digital learning in contemporary education, International Journal of Recent Technology and Engineering.

Makarova, E.A., (2018). broadening access to resources. Blending pedagogy and digital technology to transform educational environment, International Journal of Cognitive Research in Science, Engineering and Education, 6(2), pp. 57-65.

R. Raja, (2018). Impact of modern technology in Education, Journal of Applied & Advanced research, Journal of Applied and Advanced Research, 2018: 3(Suppl.1) S33 S35.