



Effectiveness Of Online Teaching In Terms Of Academic Achievement Of Primary School Students

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1.1 ONLINE TEACHING

DURING COVID-19 Lockdown of education institutions has opened whole new realm of possibilities in educational sphere. Online class rooms emerged as an alternative to the physical classrooms. Education is the process of transferring knowledge, values, methods, skills and beliefs from one individual to another.

Online teaching offers exciting opportunities to expand the learning environment for diverse student populations. As the demand for online teaching increases, college professors may be asked to consider teaching their classes online. Online teaching shares much with face-to-face teaching, but it also has a unique set of skills and requirements. Both approaches are similar in content, except in pace and delivery. Rather than developing the courses from scratch, a company has emerged to take care of the courses.

For online teaching to be successful, it is recommended that the instructor should follow the following seven principles [5]: (1) encourage student participation (2) encourage student cooperation (3) encourage active learning, (4) give prompt feedback (5) emphasize time on task, (6) communicate high expectations, (7) Respect diverse talents and ways of learning. To these principles one may add given more [6] (1) address individual differences, (2) motivate the student, (3) avoid information overload, (4) create a real-life context, (5) encourage social interaction, (6) provide hands-on activities, and (7) encourage student reflection.

1.2 ONLINE TEACHING-MEANING AND DEFINITION

Online teaching covers a wide set of applications and processes including computer-based teaching, Web-based teaching, virtual classrooms and digital media. Online teaching offers the delivery of content via all electronic media including the Internet, intranets, extranets, satellite broadcast, audio-video tape, interactive TV, CD-ROM and distance teaching. It includes some components of text-based teaching and courses conducted via written correspondence also. The Online teaching process has created new sophisticated methods of teaching/teaching, because it allows shared resources with integrated text and graphics, exercises, tests and also facilitates recording the score. Its key purpose is to dramatically reduce the time in which people learn by providing up-to-date specialized information.

1.3 OVERVIEW OF ONLINE TEACHING FRAMEWORK AND IMPLEMENTATION ISSUES.

An awareness of Online teaching is essential for the economic survival in the 21st century. India is yet to catch up with developments and effective implementations in the realm of e-teaching. Pawar (2001) stated that “Successful solutions that achieve longevity will be those which not only deliver content but also take account of other needs of learners as well. Key features of online teaching are : Easy to use

- Simplicity in the interface
- Support for teaching and learning
- A common terminology

In online teaching system, proper support for teaching and learning requires alignment among the following elements of institutional planning and objectives :

- Educational Mission
- Students, faculty, staff and administrators
- IT infrastructure and administrative system
- Technology used to support teaching and learning.

The four areas involved in the teaching-learning activities are organization, technology, educational culture and strategy and management.

1.4 IMPORTANCE OF ONLINE TEACHING

IMPORTANCE OF ONLINE TEACHING : The purpose of online teaching is to promote the efficiency of education by improving the quality of teaching of educational administration, and of educational research. So, online teaching is important for the following reasons.

- For effective instruction
- For facilitating individual differences
- For providing equal educational opportunities
- For preservation of knowledge
- For imparting quality education
- For solving problems of Indian education.
- For educational planning
- Presentations

There are a few presentation tools available to make presentations :

- Google slides
- Microsoft PowerPoint
- Pezi
- Slide share

Online Whiteboard

Teachers can use online whiteboards for best practices in teaching online. In virtual classroom setup, an online whiteboard helps them to convey information and make a better connection between teachers and students.

Pre-Recorded Video Lectures

In the concept of Pre-Recorded Video Lectures which is one of the suitable **online teaching methods and pedagogy**, the lectures are already recorded and shared by the students instead of taking live lectures. Some students find this **online teaching methods and pedagogy** better than live online classes as it gives them flexibility to attend the lecture at their time.

Flipped Classroom

Flipped Classroom has gained popularity during the past few years. It has emerged as one of the best practices in teaching.

Following are the effective techniques for the flipped classroom concept :

- Online quizzes
- Polls
- Infographics
- Mind maps or word clouds

Game-Based Teaching

Students love games and they do not feel bored while playing games. Game-based teaching helps to engage students to teach them using games.

Class Blog

Class blog is an innovative concept to let students explore self-learning by creating a blog individually or in a group about what they have learnt.

Live online classes

Teachers can use video conferencing apps and tools which are available online and create a connection with students for running regular classes.

1.5 ACADEMIC ACHIEVEMENT

The word Academic Achievement is a very broad term, which indicates generally the teaching outcome of pupils. Achievement of these teaching outcomes requires a series of planned and organized experiences and hence teaching is called a process. In this process of achievement of change in behaviour one cannot say that all students reach the same level of change during the same span of time. The level of achievement reached by the students in the schools is called Academic Achievement (School performance) of the students.

Academic achievement is the amount of knowledge derived during the process of teaching at school. It is the product of knowledge and intelligence derived from the environment or attainment can be measured in every aspect to instruction. R.S. Wood Worth states that educational achievement tests show how much knowledge has been obtained and retained in a school subject.

1.6 PRIMARY SCHOOL EDUCATION

Primary education is the stage where education touches at every point. Thus, it has to do more with national ideology and character than any other single activity. The objectives of primary education should be visualized against the background of its ultimate ends and purpose. The primary stage is very crucial stage in the life of the child. So., the objectives of primary education are different from

those in the middle stage of education. At the primary level the child's curiosity, creativity and activity in general should not be restricted by a rigid and unattractive methods of teaching and learning.

The objectives of primary education are as follows :

- Literacy
- Numeracy
- Technicracy
- Nationalism
- Human dignity
- Sanitary habits
- Aesthetic Sense
- Cooperative spirit

These should be developed during the primary school stage.

1.7 NEED AND IMPORTANCE OF THE TOPIC

The **COVID-19** pandemic affected the social, cultural, educational and professional life of the people on the earth. Undermining how adversely it has affected the life and living of the people globally will be a gross mistake. But Human race has demonstrated their dominance by fighting back not only to the pandemic but also to the loss of socio-economic wellbeing. What makes me so sure about it is the fact that due to pandemic no country has observed any sort of massive anarchy against the government. Law and order were prevalent and no country has collapsed due to huge crises which pandemic has created. There was good cooperation among the countries in coping up with the present situation.

The last four years of pandemic were phenomenal. It saw highest order of adaptation in work culture of the people. Education and socialisations have got new makeover due to this lockdown. It seems we have entered whole new are of education and socialisation. Online teaching and online social platforms like Facebook, Instagram, videoconferencing apps etc. are here to stay. Concepts like distance education. Online teaching and continuing education will find consolidation and increasing demand. These concepts will find more and more adoption and approvals. Technology will make these systems more comprehensive, accurate and accountable.

The obstacles above alerted us that students could be vulnerable to receiving satisfying and effective online education during COVID-19. The situation could be even worse for primary school students, who are still developing their self-regulation and attention control skills and are incompetent to handle technological problems and other emergencies independently compared to students in secondary and tertiary educations.

Therefore, special attention should be paid to the primary school students' online teaching amid COVID-19 pandemic, with their demands, difficulties encountered, and expectations deeply understood. As for younger children, teaching at home means parental support is crucial. The abrupt shift to online teaching was challenging and an issue of concern owing to the lack of sufficient support offered to the parents and this may facilitate parental burnout, which would passively impact children's well-being and online teaching during COVID-19 pandemic.

It is found that online teaching is superior to traditional teaching. An increasing number of countries are experimenting with various forms of new technologies to expand education and training options.

1.8 STATEMENT OF THE PROBLEM

'Effectiveness of online teaching in terms of Academic Achievement of primary school students:.

1.9 FUNCTIONAL DEFINITION OF THE KEY TERMS

1. **Effectiveness** : It is the degree to which something is successful in producing a desired result. The effectiveness of an experimental treatment is gauged by the extent students involved in the experiment achieve, whether it is in cognitive, cognitive or psychomotor domains. In the context of the study, effectiveness is referred to the extent to which online teaching and evaluation tools and techniques proved to be fruitful and is measured in terms of the academic achievement of the students of grade III.
2. **Online Teaching** : Online teaching is the process of educating others via the internet. Various methods can be used, such as one-on-one video calls, group video calls, and webinars. It is the delivery of instruction using different web-based technologies, from the internet or an intranet and other communication technologies that enable students to participate in teaching activities beyond the campus. In the context of the present research, online classes conducted using particular platform in this case-Microsoft Teams Software, different online and off-line material used to carry out the process of teaching and teaching also include online evaluation.
3. **Academic Achievement** : Academic achievement refers to the level of educational development of an individual over a period of study determined by the score of an achievement test or the process of achieving something in certain period of time. Here, it refers to the performance in the problem solving in formal and non formal tests designed specially for grade III students.
4. **Primary School Students** : The students belonging to age group 8 to 10 that is students of grade 3rd to 5th will be consider as primary school students. In this age group predominantly grade 3rd will be our samples for study.

1.10 OBJECTIVES OF THE STUDY

1. To find out the impact of teaching in terms of Academic Achievement of III Std. students.
2. To find out the impact of online teaching in terms of Academic Achievement of III Std. students.
3. To study the effectiveness of both.

1.11 HYPOTHESIS

In order to achieve the mentioned objectives of the study, the following hypotheses are formulated for testing.+

1. There is no significant difference in teaching through traditional and online teaching in terms of Academic Achievement in math.

1.12 ASSUMPTIONS

1. Online education is a need of the hour.
2. Online teaching is the future of the education.
3. Online teaching is as good as classroom teaching.
4. Online teaching is as effective as classroom teaching.
5. Online teaching can substitute classroom teaching.
6. Students learn in a better manner in online mode than in off-line mode.
7. Students get exposper to wide range of teaching material in online mode.

8. Students academic achievement will be better in online mode than in off-line mode.

1.12 SCOPE AND LIMITATION

SCOPE : Scope of the topic is very vast. It will be applicable to all the students all over the Maharashtra state.

LIMITATIONS :

1. The research work and its findings will be limited to only the students of Delhi Public School, Nagpur.
2. The research will be limited to class 3rd students of Delhi Public School, Nagpur
3. The research will be limited to research objectives only.
4. The research will be limited to CBSE School only.
5. The findings of the research will be limited only for the III Std. students.
6. The research is limited to online teaching only.

1.13 RELATED REVIEW OF LITERATURE

Researcher has done an analytical study of the related review of literature. The researcher has chosen this topic to overcome many problems related to online teaching faced by the students while studying.

1.14 RESEARCH METHOD

Generally there are three types of educational research methods.

1. Historical
2. Survey Method
3. Experimental Method

Experimental method is applied for the proposed study.

The research has used the single group design experimental procedure for the research. The single individual or one group experiment is the most elementary and least vigorous design, chosen for the present study.

Variables :

- 1) Dependent Variable – Academic Achievement
- 2) Independent Variable-Online Teaching.

1.15 POPULATION

The students of class III of CBSE Board School in the Nagpur City is the population for the present study.

1.16 SAMPLING

The researcher has used 'Random sampling' for the research. The 60 students of class III of Delhi Public School, Nagpur will be the sample for the present study.

Types of Rotation :

- a) **Single Group Rotation :** Is the same group kept in controlled and experimental situation successively in the first cycle in the second cycle the group is assigned in experimental and controlled situations. The significance of mean scores is tested and conclusion are drawn about the effectiveness.

Group I	Group I
1. Controlled factor	1. Controlled factor
2. Pre-Test	2. Pre-Test
3. Experimental factor (traditional)	3. Experimental Factor (Online)
4. Post Test	4. Post Test

Single groups had been used by the researcher. The researcher has prepared class test of 20 marks. Questions were of different denominations i.e. 1 mark and 2 mark. The test consisted very short answer, short answer and long answers. Pre test and post test is given. Same criterion test should be used as pre and post test. The researcher had given the instruction to the students before solving the paper. The group was taught the topic- 'Fractions'.

1.17 TOOLS FOR DATA COLLECTION

For the present study questionnaires (Pre-test and Post-test) is designed and developed by the investigator with an intention to assess the extent and nature of learning abilities and interest pattern in students.

1.18 STATISTICAL PROCEDURE

For this the researcher used the following statistical measures for analysing the data interpretation and drawing inferences and conclusion.

1. Mean
2. Standard Deviation
3. 't' value

Objective No. 1 : To find out the impact of teaching in terms of Academic Achievement of III Std. students.

A pre-test of 20 marks is conducted on topic, 'Fractions'. It was unwarranted test where student know very little or nothing about the topic. On the basis of their marks secured, percentage was calculated.

Table No.1

Test	No. of Students	Percentage
Pre-test	60	41.17%

Teaching of topic by control method was done on a group of 60 students. The topic was introduced and taught to them in a traditional way. A post test was conducted. It included question of 1 mark and 2 mark each. Total marks of the test was 20 marks.

On the basis of marks secured by the students Mean, Standard deviation and percentage was calculated.

Table No.2

Test	No. of Students	Mean	S.D.	Percentage
Post-test	60	14.13	1.9	83.08%

Observation : In the present research conducted on 60 students, it is observed that post-test the percentage is 83.08% as shown in Table No.2. As per Table No.2, the mean and standard deviation of post-test are 14.13 and 1.9 respectively.

Interpretation : According to the above mentioned observation, it is observed that there is significant improvement in the academic achievement of the students after teaching the topic.

Objective No. 2 : To find out the impact of online teaching in terms of Academic Achievement of III Std. students.

The topic 'Fractions' was taught to the group of 60 students in online mode in 10 teaching periods. To check the effectiveness of online teaching on academic achievement of students, a stringent pre-test was taken before online teaching as the topic was already taught to them in traditional manner.

On the basis of the marks secured, their percentage was calculated..

Table No.3

Test	No. of Students	Percentage
Pre-test	60	79.17%

The post-test of 20 marks carrying 1 mark and 2 mark questions each was conducted. On the basis of marks secured by the students Mean, Standard deviation and percentage was calculated.

Table No.4

Test	No.of Students	Mean	S.D.	Percentage
Post-test	60	19.17	2.6	86.83%

Observation : In the present research conducted on 60 students, it is observed that post-test the percentage is 86.83% as shown in Table No.4. As per Table No.4, the mean and standard deviation of post-test are 19.17 and 2.6 respectively.

Interpretation : According to the above mentioned observation, it is observed that there is a drastic improvement in the academic achievement of the students after teaching the topic online.

Objective No. 3 : To study the effectiveness of both.

To check the effectiveness of both offline and online teaching on academic achievement of students, a pre-test and post-test was taken before and after both the mode of teaching.

On the basis of both post test as given in the Table No. 2 and 4 the comparison is carried out.

Table No.5

Test	No.of Students	Mean	S.D.	't' Value	Percentage	Comparison
Post-test (Offline)	60	14.13	1.9	12.13	83.08%	86.83-83.08=3.75%
Post-test (Online)	60	19.17	2.6		86.83%	

Observation : It has been observed that mean of traditional teaching and online teaching is 14.13 and 19.17 respectively and standard deviation is found to be 1.9 and 2.6 respectively. That 't' value calculated is 12.13 . The difference between the percentage of post test of traditional and post test of online teaching is 3.75%

Interpretation : According to the above mentioned observation it is found that there is no remarkable difference between the mean, standard deviation and percentage calculated of both traditional teaching and online teaching.

Testing of Hypothesis :

There is no significant difference in teaching through traditional and online teaching in terms of Academic Achievement in math.

S.N.	Hypothesis	't' value	DF	Level of Significance	
1.	There is no significant difference in teaching through traditional and online teaching in terms of Academic Achievement in math.	12.13	58	2.00	2.66

Observation : In the present research in order to test the hypothesis the calculated value is 12.13 at DF 58. The tabulated value at 0.05 level is 2.00 and 0.01 level is 2.66. Which means calculated 't' value is comparatively high in comparison with that of table value at 0.05 and 0.01 level. Hence calculated 't' value is significant. Therefore we have to reject the hypothesis.

Interpretation : It was clear from the above mentioned observation that there is remarkable difference in teaching through traditional method and online method. Teaching through online method has proved to be an effective modes of teaching over traditional teaching.

1.19 OBJECTIVE WISE CONCLUSIONS

1. This research report shows that the traditional teaching has helped students in better understanding of concepts and hence the score has shown an increase in their academic performance.
2. This research report shows that the online teaching has helped students in critical understanding of concepts and hence the score has shown an increase in their academic performance.
3. The interpretation shown that the online teaching is slightly effective mode of teaching over traditional teaching.

1.20 HYPOTHESIS WISE CONCLUSION

By testing the hypothesis, the calculated 't' value is significant and hence the hypothesis is rejected. Therefore online teaching is found to be effective in improving the academic achievement of primary schools students over traditional teaching.

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