

TEACHERS' PERCEPTION ON EMERGENCY REMOTE TEACHING (ERT): A CORRELATION STUDY

Santanu Patra¹ & Papiya Upadhyay²

¹Research Scholar, School of Education, Netaji Subhas Open University, West Bengal, India

²Assistant Professor, School of Education, Netaji Subhas Open University, West Bengal, India

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ABSTRACT

Teachers have adopted technology for providing support to their learners remotely by shifting the mode of delivery temporarily during the crisis period of pandemic. The present study aimed to explore the relationship between teachers' perception about **acceptance, use** of emergency remote teaching (ERT) technologies and teachers' **satisfaction**. The study was conducted among the teachers of different schools in West Bengal by using a self-administered questionnaire with three sections (two 7-point Likert Scales and one open-ended questionnaire) through Google Forms. The collected data were analyzed using descriptive, inferential statistics and qualitative analysis. The study identified that teachers accepted and used ERT technologies and were also satisfied irrespective of their gender and experience. The study further documented that a positive correlation exist between perception on acceptance & use of ERT w.r.t. satisfaction level but faced various constraints in using ERT tools.

KEYWORDS: Emergency Remote Teaching, Perception, Acceptance, Use, Satisfaction, Teaching-Learning Process

1. INTRODUCTION

The emergency situation created worldwide due to the COVID-19 pandemic disrupted the teaching-learning process (Onyema, 2020). Teachers from different schools opted for a digital mode of teaching temporarily in an unplanned way to cope with the critical situation and provide support by delivering instruction remotely. This sudden unplanned shifting of instruction delivery from face-to-face mode to online mode was far away from a purposeful and structured online education system (Hodges et al., 2020). In Indian schools, the so-called online teaching-learning process is in the infancy stage and facing technical and connectivity issues (Tyagi, 2020). Erstwhile Ministry of Human Resource Development (MHRD) of India has taken several initiatives including DIKSHA for e-content, Swayam Prabha for DTH channels, SWAYAM for MOOCs, Radio-broadcasting, Digitally Accessible Information Systems (DAISY) for differently-abled learners, e-Pathshala for e-textbooks, NROER for OERs etc. to support remote learning for the school students. The Department of School Education, Government of West Bengal launched Banglar Siksha Portal enriched with digital content, e-learning videos and online classrooms for uploaded videos of TV programmes. Model Activity Tasks were designed and provided to students through their parents regularly. The Department also launched a YouTube channel namely 'Banglar Shiksha Online' to share e-learning videos. E-Textbooks are also accessible for the teachers and learners in the portal. The lectures telecasted through two TV channels class and subject wise. A Toll free telephone number was dedicated under Banglar Siksha Durbhase for doubt clearing of the learners. Schools created Whats App groups to share-

e-resources and communicate with their learners (Department of School Education & Literacy Ministry of Human Resource Development Government of India, 2020). The teachers used different authoring and delivery tools for remote teaching in the emergency period. There are several free online platforms for live video communication such as Zoom, Google Meet, Skype, Face book Live, YouTube Live, Uber Conference, Free Conference, Dingtalk, Lark, Teams, True Conf Online, Life size Go etc. (Jena, 2020). According to Emergency Remote Teaching Environment (ERTE) Framework, for effective instructional responses inquiry about teachers' ability, familiarity with technologies and time is very important factors (Whittle et al., 2020). The present study focused on influence of teachers' perception about acceptance and use of ERT technologies on teachers' satisfaction about present teaching-learning process using ERT technologies.

2. RATIONALE OF THE STUDY

Massive school closure interrupted teaching-learning process. It also affected the teachers to cope up with the unplanned shifting towards Emergency Remote Teaching (ERT) strategies without any preparedness. A major portion of teachers belongs to the group of digital immigrants differ from digital natives. The teachers faced severe challenges during teaching remotely. In this context, it is very important to identify the factors affected teachers' satisfaction about the present teaching-learning process using ERT. The present study investigated the influence of perception about acceptance and use of ERT technologies on teachers' satisfaction.

3. OPERATIONAL DEFINITION

- **3.1 ERT Technologies** – Technologies that used remotely for teaching by the teachers during emergency period temporarily. As for example technological application in remote teaching by using electronic devices (smart phone, laptop), authoring tools (Microsoft PowerPoint, video recorder), and delivery tools (What's App, Google Meet) etc
- **3.2 Teachers** – Teachers who teaches in govt., govt. sponsored, and govt. aided secondary and higher secondary schools in West Bengal.
- **3.3 Perception about Acceptance and Use of ERT Technologies** – Teachers' perception about how they accepted and used ERT technologies in respect of performance, effort, attitude, social influence, facilitating conditions, self-efficacy, anxiety and behavioral intension.
- **3.4 Satisfaction about Present Teaching Learning Process** – How far the teachers were satisfied with the teaching learning process during emergency period using ERT technologies in respect of participation and interaction; affordances; institutional support; design, development & teaching.
- **3.5 Gender** – Only male and female were considered.
- **3.6 Experience** – Teachers having experience 10 years or less and above 10 years in their respective schools.

4. REVIEW OF RELATED LITERATURE

Salayo et al., 2021 determined teachers' perceptions of engagement and satisfaction during ERT of 147 senior high school teachers in a comprehensive Catholic university in Manila. The study found teachers' profiles like strand and year in service appeared significant to *teachers' satisfaction*, while age and educational attainment appear significant for both

teachers' engagement and satisfaction on ERT.

Fauzi & Sastra Khusuma (2020) conducted a study on 45 teachers from elementary schools of Banten and West Java of Indonesia. The study identified that though the teachers comprehended the context but facing difficulties to implement due to lack of required facilities, connectivity, collaboration, planning, implementation and evaluation. Major portion of the teachers (80%) are found as *dissatisfied* with online system of teaching learning process during pandemic.

Code et al., 2020 studied on 42 secondary technology education teachers in British Columbia, Canada with five themes i.e. student competency, equity and access, motivation, effectiveness and sustainability and found that the *switch to ERT influenced on teachers' ability* to support hands-on competency development and raised questions about *effectiveness*.

Suganya & Sankarshwari, 2020 conducted a study on 260 school teachers of Tamil Nadu and found a significant relation between *level of job satisfaction and online teaching* and suggested to provide training and incentives to enhance the output.

Kraft et al., 2020 examined teachers' experiences during emergency remote teaching of 7841 teachers of southern, mid-western and eastern United States. ERT resulted large drop in *teachers' sense of success*.

Rahayu & Wirza, 2020 identified in their study on 102 Junior High school English teachers in Bandung, a *positive perception of the usefulness and ease* of online learning systems during pandemic, but more than half of the teachers didn't agree on its *effectiveness*.

Borup & Stevens, 2016 identified teachers' flexibility, time to interact with students and efforts as three primary factors that influenced teacher *satisfaction* at an online charter school in their study on eleven K-12 teachers.

Seabra et al., 2021 conducted a study on 305 Portuguese school teachers. The study identified opportunity, workload, work conditions and time management as most frequently mentioned *difficulties* and participation, role of parents, lack of contact, autonomy as students' *constraints* regarding ERT.

5. LIMITATION OF THE STUDY

This study is delimited to the correlation of perception about acceptance and use of ERT technologies w.r.t teachers' satisfaction. Other factors remain excluded. This study is conducted among the teachers of govt., govt. sponsored, govt. aided secondary and higher secondary schools in West Bengal. The sample size is small due to constraints of physical visit to the schools at the helm of pandemic and closure of institutions.

6. OBJECTIVES

In order to study on teachers' perception about acceptance and use of emergency remote teaching (ERT) technologies and teachers' satisfaction about present teaching-learning process, the following objectives were laid down:

- To find out the relationship between perception of male teachers about acceptance, use of ERT technologies and their satisfaction about present teaching-learning process.
- To find out the relationship between perception of female teachers about acceptance, use of ERT technologies and their satisfaction about present teaching-learning process.
- To find out the relationship between perception about acceptance, use of ERT technologies and satisfaction about

present teaching-learning process of the teachers having experience 10 years or less.

- To find out the relationship between perception about acceptance, use of ERT technologies and satisfaction about present teaching-learning process of the teachers having experience above 10 years.
- To find out the relationship between overall perception of teachers about acceptance, use of ERT technologies and their satisfaction about present teaching-learning process.
- To find out different types of ERT technologies used by the teachers during pandemic, challenges faced by them and record some suggestions dealing with future adverse situation

7. HYPOTHESES

To test the objectives 1-5, the following hypotheses were framed. The objective-6 has been analyzed qualitatively, hence no hypothesis is framed.

- There is no correlation between perception of male teachers about acceptance, use of ERT technologies and their satisfaction about present teaching-learning process.
- There is no correlation between perception of female teachers about acceptance, use of ERT technologies and their satisfaction about present teaching-learning process.
- There is no correlation between perception about acceptance, use of ERT technologies and satisfaction about present teaching-learning process of the teachers having experience 10 years or less.
- There is no correlation between perception about acceptance, use of ERT technologies and satisfaction about present teaching-learning process of the teachers having experience above 10 years.
- There is no correlation between overall perception of teachers about acceptance, use of ERT technologies and their satisfaction about present teaching-learning process.

8. DESIGN OF THE STUDY

It is a Mixed Method of Study

8.1 Tools Used

A self-administered questionnaire was prepared by the researchers which consisted with four parts. First part constructed for collecting socio-demographic information of the respondents. Next two parts consisted with two number of bipolar 7 point Likert scales with scoring +3, +2, +1, 0, -1, -2, -3 (Cai et al., 2016). The first scale on perception about acceptance and use of ERT technologies was constructed with 30 items under eight constructs namely performance, effort, attitude, social influence, facilitating conditions, self-efficacy, anxiety and behavioral intention to use. The responses were Very Strongly Agree, Strongly Agree, Agree, Neither Agree nor Disagree, Disagree, Strongly Disagree, Very Strongly Disagree against each item. The score of each construct obtained from the average scores of the items under each construct. The total score obtained from the average of eight constructs which ranges from +3 to -3. The researchers adapted the constructs from the Unified Theory of Acceptance and Use of Technology (UTAUT) after required modification and contextualization (Venkatesh et al., 2003). The second scale was on teachers' satisfaction about present teaching-learning process which consisted 20 items under four different constructs i.e., participation and interaction; affordances;

institutional support; design, development & teaching. The responses for this scale were Extremely Satisfied, Quite Satisfied, Slightly Satisfied, Neither Satisfied nor Dissatisfied, Slightly Dissatisfied, Quite Dissatisfied and Extremely Dissatisfied. The score of each construct obtained from the average scores of the items under each construct and the score of satisfaction level obtained from average scores of four constructs which ranges from +3 to -3. The researchers adapted the constructs from the Online Instructor Satisfaction Measure (OISM) after required modification and contextualization (Bolliger et al., 2014). A panel of four experts judged the content validity of these two scales. A pilot study had been conducted on 25 samples. The Cronbach's Alpha values for these two scales were .899 and .947 respectively which were $>.70$ indicated that the scales were reliable. The last part of the questionnaire included three open ended questions about types of ERT technologies used during pandemic, challenges faced by the respondents and future suggestions.

8.2 Area of the Study

The area considered for the present study was conducted on teachers of secondary and higher secondary schools of different districts in West Bengal.

8.3 Variables of the Study

- The following variables were considered for the stud
- Teachers' perception about acceptance and use of ERT technologies
- Teachers' satisfaction about present teaching-learning process using ERT

8.4 Sample Size

Total number of 100 samples has been collected by using simple random sampling techniques from teachers who were engaged in secondary and higher secondary govt., govt. aided and govt. sponsored schools. Sample distribution is presented by a sample tree shown below

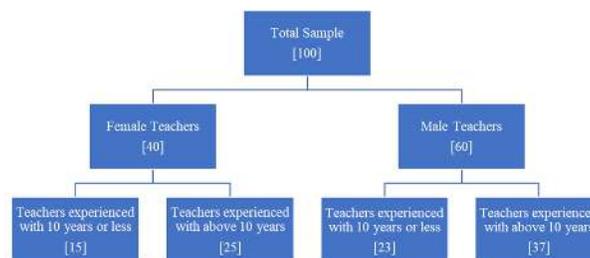


Figure 1: Sample Tree.

8.5 Collection of Data

The self-administered questionnaire has been prepared in the Google forms and the link was sent to randomly selected teachers of secondary and higher secondary govt., govt. aided and govt. sponsored schools of different districts in West Bengal through e-mail, what's App and messengers in the month of September, 2021

9. ANALYSES OF COLLECTED DATA

The collected data has been analysed quantitatively and qualitatively using mixed method. A Shapiro-Wiki's test ($p = 0.204 >.05$) and a visual inspection of the histograms, normal Q-Q Plots depicted that the scores of perceptions about

acceptance and use of ERT technologies were approximately normally distributed with a skewness of 0.244 (SE = 0.241) and a kurtosis of -0.248 (SE = 0.478). Similarly, A Shapiro-Wiki's test ($p = 0.566 > .05$) and a visual inspection of their histograms, normal Q-Q Plots showed that the scores of teachers' satisfaction about present teaching-learning process were approximately normally distributed with a skewness of -0.093 (SE = 0.241) and a kurtosis of -0.154 (SE = 0.478).

To analyse the collected data different quantitative and qualitative techniques were adopted. Descriptive statistics (Mean, Standard Deviation) and inferential (Pearson Product Moment Correlation) statistical techniques were applied to analysis quantitative data using SPSS. Response analyses of the qualitative data were done

Table 1: Descriptive Statistics for Perception and Satisfaction Regarding ERT Technologies of Male Teachers

Perception and Satisfaction		N	Mean	Std. Deviation
Perception about acceptance and use of ERT technologies	Perception of male teachers	60	.886632	.7005694
	Perception of female teachers	40	.530729	.7160758
	Perception of teachers experienced with 10 years or less	38	.878564	.7064856
	Perception of teachers experienced with above 10 years	62	.661962	.7290463
	Overall Perception of teachers	100	.744271	.7247073
Satisfaction about present teaching-learning process using ERT technologies	Satisfaction of male teachers	60	.788333	.8617270
	Satisfaction of female teachers	40	.701250	1.1482142
	Satisfaction of teachers experienced with 10 years or less	38	.715789	.9271509
	Satisfaction of teachers experienced with above 10 years	62	.776613	1.0204354
	Overall Satisfaction of teachers	100	.753500	.9817078

9.1 Analysis and Interpretation Pertaining to Objective-1

Relationship between perception of male teachers about acceptance, use of ERT technologies and their satisfaction about present teaching-learning process

From table-1, the mean score (.886632) of perception indicated the male teachers perceived that that they have to some extent positive acceptance towards use of ERT technologies. On the other hand, the mean score (.788333) of satisfaction indicated that they were slightly satisfied with the present teaching-learning process using ERT technologies.

Table 2: Correlation Between Perception and Satisfaction Regarding ERT Technologies of Male Teachers

		Perception of Male Teachers	Satisfaction of Male Teachers
Perception of male teachers	Pearson Correlation	1	.589**
	Sig. (2-tailed)		.000
	N	60	60

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

Table- 2 depicts that there is a significant moderately positive correlation ($r = .589, p < 0.01$) between perception and satisfaction for male teachers. The result showed that the satisfaction level about present teaching learning process of male teachers moderately increased with their increasing perception about acceptance and use in the context of ERT technologies.

9.2 Analysis and Interpretation Pertaining to Objective-2

Relationship between perception of female teachers about acceptance, use of ERT technologies and their satisfaction about present teaching-learning process

From table-1, the mean score (.530729) of perception indicates that the female teachers perceived that they have to some extent positive acceptance towards use of ERT technologies. On the other hand, the mean score (.701250) of satisfaction indicated that they were slightly satisfied with the present teaching-learning process using ERT technologies

Table 3: Correlation between Perception and Satisfaction Regarding ERT Technologies of Female Teachers

		Perception of Female Teachers	Satisfaction of Female Teachers
Perception of female teachers	Pearson Correlation	1	.543**
	Sig. (2-tailed)		.000
	N	40	40

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

Table- 3 depicts that there is a significant moderately positive moderate correlation ($r = .543$, $p < 0.01$) between perception and satisfaction for female teachers. The result showed that the satisfaction level about present teaching learning process of female teachers moderately increased with their increasing perception about acceptance and use in the context of ERT technologies.

9.3 Analysis and Interpretation Pertaining to Objective-3

Relationship between perception about acceptance, use of ERT technologies and satisfaction about present teaching-learning process of the teachers having experience 10 years or less

From table-1, the mean score (.878564) of perception indicates that the teachers having experience of 10 years or less perceived that they have to some extent positive acceptance towards use of ERT technologies. On the other hand, the mean score (.715789) perception indicated that they were slightly satisfied with the present teaching-learning process using ERT technologies.

Table 4: Correlation between Perception and Satisfaction Regarding ERT Technologies of Teachers Having Experience 10 Years or Less

		Perception of Teachers having Experience 10 Years or less	Satisfaction of Teachers having Experience 10 Years or Less
Perception of teachers having experience 10 years or less	Pearson Correlation	1	.646**
	Sig. (2-tailed)		.000
	N	38	38

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

Table- 4 depicts that there is a significant strongly positive correlation ($r = .646$, $p < 0.01$) between perception and satisfaction for teachers having experience 10 years or less. The result showed that the satisfaction level strongly increased with their increasing perception about acceptance and use in the context of ERT technologies.

9.4 Analysis and Interpretation Pertaining to Objective-4

Relationship between perception about acceptance, use of ERT technologies and satisfaction about present teaching-learning process of the teachers having experience above 10 years

From table-1, the mean score (.661962) of perception indicates that the teachers having experience above 10 years perceived that they have to some extent positive acceptance towards use of ERT technologies. On the other hand, the mean score (.776613) of satisfaction indicated that they were slightly satisfied with the present teaching-learning process using ERT technologies.

Table 5: Correlation between Perception and Satisfaction regarding ERT Technologies of Teachers having Experience above 10 Years

		Perception of Teachers having Experience above 10 Years	Satisfaction of Teachers having Experience above 10 Years
Perception of teachers having experience above 10 years	Pearson Correlation	1	.524**
	Sig. (2-tailed)		.000
	N	62	62

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

Table - 5 depicted that there was a significant moderately positive correlation ($r = .524$, $p < 0.01$) between perception and satisfaction for teachers having experience above 10 years. The result showed that the satisfaction level moderately increased with their increasing perception about acceptance and use in the context of ERT technologies.

9.5 Analysis and Interpretation Pertaining to Objective-5

Relationship between overall perception of teachers about acceptance, use of ERT technologies and their satisfaction about present teaching-learning process

From table-1, the mean score (.744271) of perception indicates that the teachers perceived that they have to some extent positive acceptance towards use of ERT technologies. On the other hand, the mean score (.753500) of satisfaction indicated that they slightly satisfied with the present teaching-learning process using ERT technologies.

Table 6: Correlation between Perception of Teachers and Their Satisfaction Regarding ERT Technologies

		Perception of Teachers	Satisfaction of Teachers
Perception of teachers	Pearson Correlation	1	.556**
	Sig. (2-tailed)		.000
	N	100	100

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

Table - 6 depicts that there is a significant moderately positive correlation ($r = .556$, $p < 0.01$) between perception of teachers and their satisfaction. The result showed that the satisfaction level of teachers moderately increased with their increasing perception about acceptance and use in the context of ERT technologies.

9.6 Analysis and Interpretation Pertaining to Objective-6

Different types of ERT technologies used by the teachers during pandemic, challenges faced by them and suggestions for dealing with future adverse situation

9.6.1. Different types of ERT technologies used by the teachers during pandemic

- Most of the teachers from secondary and higher secondary govt., govt. aided and govt. sponsored schools used Google Meet and WhatsApp as popular Emergency Remote Teaching (ERT) tools for instructional delivery temporarily during COVID-19 pandemic. The following ERT technologies were predominantly used –

ERT Devices

The respondents used smart phones, laptops, personal computers as ERT devices for instructional design, develop, delivery, and evaluation.

Authoring Tools

Microsoft Office PowerPoint and Word, Sound recorder, Video recorder, Kinemaster, Audacity, OBS, Bandicam, Video cutter and joiner etc. were used as authoring tools for content creation.

Delivery Tools

Two types of delivery tools were used – synchronous and asynchronous.

- For synchronous mode – Google Meet, Zoom, Skype, WhatsApp chatting in real time maintaining fixed schedule, telephonic conversation was used for real time interaction.
- For asynchronous mode – WhatsApp and YouTube etc.

Assessment Tools

Google form, question answer session using instant chat through WhatsApp, printed model activity task sending and receiving through parents were used as assessment tools.

Media of Instructions

Videos, audios, images, e-content in pdf and content in printed format, text messages were used as media of instruction.

9.6.2 Challenges Faced by the Teachers

This study identified several challenges faced by the teachers while using ERT technologies during pandemic which were as follows –

From the Students' Perspectives

Unavailability of smartphone or devices, poor connectivity, expensive data, lack of proper interaction with teachers and peers, poor attendance, lack of interest etc. were the major challenges identified by the respondents.

From the Teachers' Perspectives

Poor connectivity, lack of sufficient knowledge and anxiety to use technologies, excessive efforts etc. were the main issues.

From the Parents' Perspectives

Lack of motivation, guidance and monitor to the learners and their attitude towards providing devices to the learners especially to girls etc. were the main constrains.

9.6.3 Suggestions for dealing with Future Adverse Situation

The respondents suggested some ways to deal with teaching-learning-evaluation strategies in the post-pandemic education were as follows

- Proper govt. policy and initiatives to create and implement digital learning environment to be considered as the top most priority.
- Providing digital infrastructure to all schools has been suggested.
- Arrangement of training for the teachers as well as the learners was also suggested.
- Stable and free of cost internet connectivity to the schools and learners, free of cost devices to the learners is essential.
- Increasing awareness among the teachers, learners and parents about benefits of the technology enabled teaching and learning is the need of the hour.
- Developing and using Learning Management System (LMS) and learning apps, additional remedial classes are the suggestions of the respondents.
- Blended mode is the only solution for both teachers and students for preparedness to cope any future emergency situation by opting alternative feasible mode of teaching-learning process.

10. DISCUSSIONS

The teachers perceived that they have accepted and used ERT technologies positively but not strongly irrespective of their gender and experience which was not in line with the findings of Salayo et al., 2021. The findings of positive perception was strengthened by the similar findings of Rahayu & Wirza, 2020. This reflection was drawn in respect of performance, effort, attitude, social influence, facilitating conditions, self-efficacy, anxiety and behavioral intension. The sudden shift without any preparedness, lack of training and proper guideline to use ERT technologies may be the underlying causes of this type of moderate acceptance and use.

Using ERT technologies in their teaching during pandemic, teachers were satisfied but not strongly irrespective of their gender and experience which did not correspond with the findings of Salayo et al., 2021 and Kraft et al., 2020. However, only 15% of the teachers were found as dissatisfied with present teaching learning process which was almost reverse with the findings of 80% dissatisfaction rate in the study of Fauzi & Sastra Khusuma (2020). The satisfaction level was reflected in respect of participation and interaction; affordances; institutional support; design, development &

teaching. Adverse effect of digital divide among students due to device unavailability and poor connectivity, lack of motivation, lack of interactive content, lack of planning etc. also may affect the satisfaction level of teachers using ERT technology.

A moderately positive correlation was found between perception about acceptance, use and satisfaction in context of present teaching learning process using ERT among the school teachers irrespective of gender and experience. The present study is reinforced by approximate similar result obtained from the study of Suganya & Sankarshwari, 2020. Only for the teachers having experience 10 years or less, a strongly positive correlation has been identified. This study identified that the perception about acceptance, use not affected alone to satisfaction level, but there were other factors which reveals the future scope for further research.

The study identified that the teachers used several ERT supporting devices, media of instructions, authoring tools, delivery tools and assessment tools. Google Meet and WhatsApp became the most popular and accepted ERT tools for school teachers of West Bengal to provide instructional support to their learners during pandemic. The emergency remote teaching learning process affected by several constraints from teachers, students and parents perspectives which was in line with the findings of Seabra et al., 2021. The teachers' perception about acceptance, use of ERT technologies and satisfaction level indicated lack of preparedness of teachers to adopt technologies in their teaching and demanded a true preplanned organized school education system enabled by technologies for any future adverse situation. Blended mode of teaching will be most appropriate option to be prepared for any emergency to opt for online mode effectively in future.

11. IMPLICATIONS

It may be proposed that any teaching strategies will not be effective without planning and preparedness. This exploration is an attempt to present the perception of acceptance, use of ERT technologies and satisfaction of the teachers which will address the necessity required for preparation to accept any changes in teaching strategies and contextualize pedagogy. The study would bring out the needs of the hour to think about future planning and formulate a roadmap for adjusting in any adverse situation to continue teaching learning process uninterruptedly without compromising the huge academic loss by implementing tech-enabled pedagogy, providing training, improving digital infrastructures etc. i.e., restructuring and catalyzing the existing resources in the context and capitalizing the knowledge into competence.

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