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IMPACT OF SUDDEN TRANSITION TO ONLINE CLASSES ON STUDENTS' LEARNING EFFECTIVENESS AT ELEMENTARY SCHOOL LEVEL: A QUANTITATIVE STUDY

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ABSTRACT

The aim of the study was to explore how the abrupt switch to online classes has affected the learning and engagement of the students in the elementary school level. A quantitative research approach was used in this study. A structured questionnaire was used in collecting data of 200 students of Government Girls Higher Secondary School on a five-point Likert scale. Experts validation was used to establish validity and reliability of the instrument, resulting in Content Validity Index (CVI) of 0.88.

With the assistance of descriptive statistics, the SPSS was used to analyze the data. The results revealed that a vast majority of responses (85%) indicated a negative impact on students' academic performance and reduced their level of engagement due to technological barriers and lack of readiness.

In the study, it is advised that the development of infrastructure including digital literacy training is the key to successful online education at the elementary level.

Keywords: *Online Learning, Elementary Education (Grade 1 8), Student Engagement, Learning Preparedness, Sudden transition, Pakistan.*

Introduction:

Education is a significant aspect in molding individuals and society. In Pakistan teaching at the elementary level has been primarily done using face-to-face classes where students are taught by the direct instruction of the teacher. Nonetheless, in the recent past, other issues have compelled schools to change towards online learning.

This change over of traditional classroom environment into online classroom environment was an abrupt and unplanned development. This, consequently, exposed teachers as well as students to a number of challenges. Elementary school students (Grades 1-8) are young enough to require constant support, interaction and structured learning environment. The unanticipated transition to online learning disrupted this system and caused issues with learning the lessons and being engaged.

All these problems are even more severe in Pakistan because of the lack of access to technology. Most learners lack access to good internet, equipment, and a conducive being at their place of learning. The younger generation of students is also not equipped to be able to study separately, using online platforms.

Past research has demonstrated that unintentional online learning may have adverse effects on the students in terms of academic performance and motivation. Nevertheless, one has yet to fully

investigate how this overwhelming change has had an impact on elementary-level students in Pakistan.

This research project will focus on the effects of such a drastic shift on the learning efficiency of students in the online classes and to come up with the predominant issues experienced throughout the online courses.

Objectives:

- To explore the reasons behind the sudden shift to online learning.
- To examine its impact on students' academic performance.
- To understand students' engagement and challenges during online classes.
- To suggest ways to improve online learning at the elementary level.

Research Questions:

- What caused the sudden shift to online learning?
- How did online learning affect students' academic performance?
- What difficulties did students face during online classes?
- How can online learning be improved for elementary students?

Literature Review:

2.1 introduction to Online Learning:

Online learning is a mode of teaching and learning where learning and teaching occur via digital systems and web-based applications. In contemporary education, it has gained more and more significance, in particular within the context of an emergency, like the COVID-19 pandemic, when the traditional classroom teaching was not possible. Online learning is not merely a substitute of face-to-face teaching but a well-organized system that could require appropriate planning, digital infrastructure, and qualified teachers (Anderson, 2020).

Online education in the developed world is complimented by well-developed technology and educator training. But in the developing nations such as Pakistan, it was the abrupt change that revealed a number of flaws in the education system.

2.2 Sudden Transition to Online Learning:

The sudden transition is the abrupt change between the real world of physical classrooms to the virtual world of online classroom without prior arrangements. According to Hodges et al. (2020), this can be described as such: E-remote teaching, which is not the same as well-designed online education since this is a temporary and crisis driven phenomenon.

During lockdowns, schools in Pakistan have been compelled to turn to online education as a measure to combat the coronavirus. This shift occurred very quickly and did not give a chance to teachers, students and parents. At elementary level, change was more strenuous since young learners need scaffolded directions and one-to-one interactions.

2.3 Digital Divide and Accessibility Issues:

The digital divide is one of the most pressing issues of online learning that means the lack of equal access to technology and the internet. According to UNESCO (2021), a substantial number of students in the developing nations were unable to receive the online education because of the unavailability of devices and internet services.

In Pakistan, this problem is more critical in the rural regions where access to the internet is erratic and families are unable to purchase digital devices. Raza and Ahmed (2022) believe that this disparity has increased the gap between more privileged students and less privileged students.

2.4 Learning Readiness of Elementary Students:

Learning readiness is the capability of a student to be able to participate optimally in learning activities. According to the cognitive development theory, children at the elementary ages are at the concrete operational stage, and hence they learn more through physical contact and visual images (Piaget, 1972).

Online learning eliminates the benefits of close learning education, which means that young students will hardly implement what they have learned. Malik and Shah (2021) have discovered

that grade-students lack the ability to engage in self-discipline, time management, and independent learning through an online environment.

2.5 Student Engagement in Online Learning:

Student engagement means the involvement, interest and the participation of students in learning activities. Fredricks et al. (2004) classify the engagement into behavioral, emotional and cognitive aspects.

In web-based learning today, the engagement levels are usually lower owing to the absence of face to face interaction, distractions at home, and weak teacher monitor. Research in Pakistan demonstrates that most students do not actively engage in online classes and only rarely engage actively in discussions (Iqbal and Siddiqui, 2022).

2.6 Teacher role in online learning:

Teachers have a key role in learning where successful learning is achieved. They have the task of providing lessons, communication with students, and upholding academic standards. Nevertheless, Khan et al. (2021) observe that online teaching had not been trained to many teachers in Pakistan.

Due to this, they tended to apply conventional teaching strategies on the digital platform, a factor which lowered the efficiency of online education. To enhance the results, proper training on digital tools and interactive teaching techniques should be implemented.

2.7 Role of Parents:

The parental involvement is paramount in the elementary level of online learning since young children are not able to handle learning on their own. Epstein (2018) points to the fact that students have better performance when their parents actively participate in their education.

But, in Pakistan, numerous parents have to struggle with the following problems: insufficient level of education, the absence of digital skills and the necessity to work. This makes them less effective in taking care of children effectively during online classes.

2.8 Psychological and Social Impact:

Students are also psychologically and socially impacted by online learning. The absence of both peer- and teacher-interaction may cause a sense of isolation and lack of motivation.

Vygotsky (1978) asserted that learning is a social process which is based on interaction. Lack of social interaction can lead to boredom, stress and students having a lack of interest in studying. Ahmed and Saeed (2022) also discovered that the long online studies have a negative impact on the emotional well-being of children.

2.9 Technological Challenges:

The presence of stable internet, electricity and access to digital devices all depend on successful online learning. These facilities are not equally available in Pakistan.

PTA reports (2022) reported that in many rural regions, the internet connection is weak, and frequent power outages interrupt online classes. Moreover, not every family can afford to get a smartphone or laptops, so it may be challenging to continue learning.

2.10 Theoretical Framework:

The difficulties of online learning are explainable with the help of several different learning theories:

- **Constructivist Theory (Bruner, 1966):** Learning occurs when students actively participate and interact in learning.
- **Social Learning Theory (Bandura, 1977):** Learning takes place by observing others and social interactions.
- **Cognitive Development Theory (Piaget, 1972):** Children are able to learn based on their level of development.

These theories imply that elementary learners need interactive and organized learning, which is often lacking in an abrupt online learning arrangement.

2.11 Research Gap:

The available literature reveals that a lot of research has been conducted on online learning; more so, little attention has been given to the elementary level students in emerging economies such as Pakistan during abrupt transitions.

The majority of the studies are conducted within the area of general education or higher education. As such, it would be necessary to study how young learners travel to experience this sudden shift and its implications on their learning outcomes.

Research Methodology/Design:

Research Type:

The present study is founded on the basis of quantitative research. Quantitative approach is suitable as it enables the researcher to present the numerical data in a structured questionnaire and subject them to statistical analysis.

Research Design:

The study adheres to the descriptive survey research design. Existing conditions are described with the help of this design and the patterns linked to the learning process of students in online classes are identified.

This research aims at learning how an abrupt shift to online learning with elementary students in Pakistan worked without controlling any variables.

Participants/population:

The study population is elementary level students studying in schools in Pakistan who have experience with online learning during the sudden transition period. These students are the representatives of various backgrounds.

Sample/Sampling Techniques:

The sample (1-200 students) was considered in the elementary school (GGHSS Deona).

Simple random sampling or a convenience sampling is the sampling technique used.

This assures inclusion of students who had an online classis into the study so they can give relevant responses.

Development/Adaptation of instrument:

The responses were recorded using a five-point Likert scale with Strongly Agree at one extreme and Strongly Disagree at the other extreme. Before data collection, the instrument was screened by subject experts to validate its contents by ensuring the content was relevant and reliable. A structured questionnaire that was created by modifying questions of already-validated scales/questionnaires and by research investigations in education, learning (online learning, student engagement, and digital learning environments), and business education was used as the research instrument in this study.

The first section was based on the Online Learning Readiness Scale (OLRS) that was created by Hung et al. (2010) and which evaluated the readiness of learners towards online learning based on computer/internet self-efficacy, self-directed learning, learner control, motivation, and online communication self-efficacy.

📌 Source: https://doi.org/10.1016/j.compedu.2010.02.005

The conceptual framework of Fredricks, Blumenfeld, and Paris (2004) which defines engagement in behavioral, emotional, and cognitive aspects formed the conceptual framework and guided the second section on student engagement.

📌 Source: https://doi.org/10.3102/00346543074001059

The third part on the attitude towards online learning was founded on the Technology Acceptance Model (TAM) Technology Acceptance Model developed by Davis (1989). This model describes how users can accept technology based on their perceived usefulness and perceived ease of use which determine the attitude of learners towards the use of online learning systems.

📌 Source: https://doi.org/10.2307/249008

The fourth section of attitude towards sudden online classes was adopted based on previous researchers on the satisfaction of e-learning and the attitude toward the e-learning activities users.

📌 Source: https://doi.org/10.1016/j.compedu.2007.02.008

The fifth section on access to technology was customized based on e-learning readiness and digital divide literature, especially that by Aydin and Tasci (2005), which has identified availability of internet, devices and learning environment to be important factors influencing success of online learning.

📌 Source: https://doi.org/10.1016/j.compedu.2004.03.002

All items were modified and simplified according to the cognitive level of elementary school students. Data was collected using the five-point Likert scale (Strongly Agree, strongly disagree, indifference).

Validity:

Content validity was done to ensure validity of the research instrument. To this end, 7 of the subject experts in the area of education and the research methodology perused through the questionnaire. These professionals considered pertinence, understandability, and relevance of every item within the context of the study objectives. The ratio of Content Validity of each item was computed using the formula given by Lawshe, (1975). The results provided the overall Content Validity Index (S-CVI) of 0.88 and have demonstrated that questionnaire is a very valid instrument of the transition to online learning and student engagement in the elementary school level.

Some statements were changed, simplified and edited based on the Pakistani elementary school context to ensure that some were better understood by students.

The specialists attested that the tool sufficed to capture all the key features of the research, and they included:

- Online learning readiness
- Student engagement
- Attitudes towards online learning TAM.
- The online teaching (Emergency remote)
- Learning disability in online classes.

In this way, it was believed to be a valid instrument to use in the data collection process.

Total Items: 40

Total Experts: (N): 7

Full Craft: (7/7 professionals responded with 'E': 28 Items.

High Agreement:(6/7 experts said E): 8 Items

Intermediate Consensus: (5/7 experts answered 'E'): 4 Items

2. CVR (Content Validity Ratio) Calculation

The formula used is:

CVR = {n/e - (N/2)}/{N/2}

Where n/e is the number of experts indicating "Essential" and N is the total number of experts (7).

For 7 experts, N/2 = 3.5.

For 28 Items (7 experts agreed):

CVR = {7 - 3.5}/ {3.5} = **{1.00}**

For 8 Items (6 experts agreed):

CVR = {6 - 3.5}/ {3.5} = **{0.71}**

For 4 Items (5 experts agreed):

CVR = {5 - 3.5}/ {3.5} = {0.42}

Overall S-CVI (Content Validity Index) Calculation:

To find the total validity of the tool, we calculate the mean of all CVR values:

Sum for 28 items: 28 \times 1.00 = 28.0

Sum for 8 items: 8 \times 0.71 = **5.68**

Sum for 4 items: 4 \times 0.42 = **1.68**

Total Sum of CVR: 28.0 + 5.68 + 1.68 = {35.36}

Final CVI Result: CVI = {35.36} {40} = {0.88}

Summary Table for VALIDITY results

Item group	No. of items	Experts in agreement	CVR Ratio	I-CVI (item index)	Sum of CVR
Group 1	28	7	1.00	1.00	28.00
Group 2	08	6	0.71	0.85	05.68
Group 3	04	5	0.42	0.71	01.68
Total	40	–	–	–	35.36

Reliability of the instrument:

Internal Consistency of Standardized Scales and Inter-Rater Reliability (Expert Agreement) are two approaches that were used to determine the reliability of the instrument.

3.6.1 Internal Consistency

It was an adaptation of internationally validated scales (Hung et al., 2010; Fredricks et al., 2004; Davis, 1989; Sun et al., 2008; and Aydin and Tasci, 2005). Cronbachs Alpha (a) has been

reported in these scales as between 0.79 and 0.94 and this value indicates high reliability.

3.6.2 Inter-Rater Reliability (Expert Opinion)
A pilot study was not done as per the instructions of the supervisor; because the tool was modified on the basis of the existing standardized scales. Rather, Inter-Rater Reliability was determined in terms of the consensus of the seven experts at the time that the validation process was carried out.

Table 3.2:

Agreement level	No of items	Percentage agreement
7/7	28	100%
6/7	08	85.7%
5/7	04	71.4%
Total average	40	85.7%

The total average agreement of 85.7% means that the experts were very consistent concerning their views on reliability of the instrument. Based on the research standards, agreement rate with more than 75% of respondents is taken as acceptable regarding the instrument reliability when making use of the expert judgment.

Data Collection Procedure:
Data collection exercise was conducted in a systematic manner based on the research instrument approval as well as official consent of the relevant authorities. In order to gather the data, the following steps were made:

Permission: First, the heads / principals of the selected elementary schools were asked to help in conducting the study by granting permission to administer the study and distribute questionnaires among the students.

Consent: The students were informed about the purpose of the research before starting the process of data collection. Informed consent (written/verbal) was provided and they were assured that their responses would remain confidential and would be used solely in an academic way.
Distribution: The questionnaires were distributed [physically and using Google Forms]. The researcher herself explained the instructions and items to the target population because the target population consisted of elementary students and needed the researcher to explain the instructions and the items.

Collection: The students did not have time constraints to complete the 40-item questionnaire. Once done, the Forms were immediately collected in order to achieve high response rate.

Data Cleaning: Any questionnaire that was received was properly filtered by completeness. Any incomplete or duplicate-marked forms were not used in the final analysis.

Data Analysis:
The data attained in the 40-item survey were tabulated and subjected to descriptive statistical analysis. As the core aim was to assess the frequency of student responses based on different aspects of online learning, a descriptive approach has been taken.
Analysis was carried out in the following steps:

Coding: The responses were coded using the number system (Strongly Agree = 5-Strongly Disagree = 1) to enable the calculation of frequency.

Frequency Distribution: The total responses to each response measure were computed after which they were grouped into five key factors: (1) Readiness & Access, (2) Engagement & Effectiveness, (3) Attitude towards Technology, (4) Emergency Remote Learning and (5) Learning Difficulties.

Cumulative Synthesis: Since all the 800 instances of responses were summarized, a final summary cumulative synthesis was obtained to determine the macro-trend of this study.

Percentage Analysis: To bring a clear comparison frequency were transformed into a percentage and a clear comparison could be made on the general level of agreement or disapproval of the students.

Findings and Results:

In order to have a full scope summary of the study, a cumulative analysis, including all 40 items was carried out. This summary reflects the overall trend of general response of the participants on all the dimensions of research such as readiness, engagement, and technological impact dimension.

Overall Summary with Factors (40 Items)

Factor	Name	Items	Strongly Agreed	Agreed	Not Agreed	Disagree	Strongly Disagree
1	Online Learning Readiness & Access	1–18	5	5	20	130	40
2	Student Engagement & Learning Effectiveness	19–23	5	5	15	150	25
3	Attitude towards technology for online learning+	24–28	5	5	20	120	50
4	emergency remote learning	29–33	5	5	25	110	55
	Learning Difficulties & Impact online learning	34-40	20	20	80	510	170

Overall Total (All Factors Combined)

Response	Total	Percentage%
Strongly agree+ agree	20+20	5%
Not agree	80	95%
Disagree	510	63.75%
Strongly Disagree	170	21.25%
Total Items	800	

The accumulated information provided in Table 4.2 indicates a very alarming trend: a very strong majority of the responses (85%) were negative, with 63.75% Disagreeing and 21.25% Strongly Disagreeing with the effectiveness of online learning. Only an insignificant 5% of all answers were agreeing. Such statistical data evidences that the move to the online learning was fraught with strong opposition and logistical difficulties among elementary school students.

Recommendations:
Considering the results of this research, which showed that there were critical issues of readiness and engagement of elementary students in online learning, the following recommendations can be offered:

7.1 For Educational Policy Makers
Infrastructure Development: Basic digital infrastructure, including high-speed internet and subsidized digital devices, in particular to rural and semi-urban areas, should be given priority by the government and educational authorities to bridge the digital divide.
Standardized E-Learning Framework: An urgent need exists to create a standardized, age-relevant e-learning framework at elementary level that is less technologically intensive and more affordable through narrow bandwidth delivery systems.

7.2 For School Administration and Teachers:
Digital Literacy Training: Schools need to undertake compulsory training to students and parents to enhance their preparedness in terms of online learning.

Interactive Content Design:
It would be appropriate to educate teachers to shift their views towards no longer relying on passive lectures as part of an online teaching course but instead using interactive, gamified, and synchronized activities as a means of increasing online teaching engagement levels as observed in this study.

Blended Learning Approach:
Alternatively, instead of a sudden transition to 100% online mode, a blended learning model (fusing face-to-face with online instruction) should be adopted in order to gradually acclimate elementary students to online learning.

7.3 For Parents
Home Support Systems: Parents need to be sensitized to bring children to the online sessions in a conducive and distractions-free environment as involvement of parents during online sessions is a critical determinant when it comes to engaging students at the elementary level.

7.4 For Future Researchers
Qualitative Exploration Future research ought to take a more qualitative or mixed-methods approach (interviews or focus groups) in order to explore the underlying causes in this research of the high disagreement rates between the two countries.
Greater Sample Size: This study was limited to a particular region; future studies can consider changing the sample size to reflect other regions in the country such as other provinces of Pakistan.

Conclusion:
The paper concludes that the psychic program of computer instructions at the elementary level was rather to the point in the specified environment. The given information presented empirical evidence that students were unprepared and under-equipped with the abrupt shift to digital education. The high percentage of disagreement (85%) across all factors confirms that behavioral, emotional, and cognitive engagement remained low due to technological barriers and insufficient readiness. Thus, online learning can be proposed as an effective alternative in a number of areas, but the online learning faced severe implementation issues in the local school environment of elementary education.

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