

Problems Faced by High School Teachers During Digital Classroom Interaction in the COVID-19 Pandemic Period

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Abstract. The COVID-19 pandemic compelled schools to shift from conventional face-to-face teaching to digital and online classroom interaction. This article examines the problems experienced by high school teachers during this transition, with particular reference to Kozhikode district, Kerala. The study adopted a descriptive survey design. The dissertation reports a sample of high school teachers selected through stratified random sampling with representation based on gender, locale, and type of management. Data were collected using a questionnaire developed and standardized by the investigator, and percentage analysis was used for interpretation. The reported problem areas included academic, administrative, curricular and co-curricular, and parental dimensions. The findings indicate that teachers experienced difficulties related to network connectivity, continuity of learning, delayed feedback, limited face-to-face communication, group work, online assessment, cyber-related risks, excessive screen use, and the additional time required for digital teaching. The article concludes that teacher training, reliable digital infrastructure, technical support, time management, and sustained teacher–student communication are necessary for effective digital classroom interaction.

keywords: Digital classroom, high school teachers, online learning, ICT, teacher difficulties, COVID-19.

I. Introduction

Information and Communication Technology has increasingly influenced educational practice by expanding access to learning resources, communication channels, digital content, and collaborative platforms. A digital classroom extends the physical classroom into an online space in which teachers and learners interact through devices, software, learning platforms, and communication networks. During the COVID-19 pandemic, this transition became a necessity rather than a gradual innovation. Teachers were required to conduct lessons, distribute learning materials, assess students, provide feedback, and maintain communication through digital media.

Although digital learning offers flexibility and access to resources, it also creates pedagogical, technical, administrative, and social challenges. Teachers may experience inadequate digital competence, unstable internet connectivity, limited technical support,

increased workload, difficulty monitoring student participation, and reduced opportunities for personal interaction. These challenges are particularly significant at the high school level, where learners require guidance, motivation, continuous assessment, and close academic support.

The present article is based on the dissertation study entitled “Problems Faced by the High School Teachers During Digital Classroom Interaction in COVID 19 Pandemic Period.” It focuses on the nature of problems reported by high school teachers in Kozhikode district and the implications for educational practice.

II. Review of Related Literature

Duhaney (2001), in the study *Technology and the Educational Process: Transforming Classroom Activities*, examined the role of teacher education in integrating technology into classroom activities. The study identified lack of time, inadequate hardware and software, insufficient technical support, and limited opportunities to update teachers’ technological knowledge as major barriers to ICT integration. These findings highlight the importance of training and institutional support in overcoming difficulties associated with digital classroom interaction.

Robertson (2002), in a study on the use of IT/ICT in English and Scottish primary schools, identified ICT utilization as a weak aspect of professional practice. This finding indicates that the availability of technology alone does not ensure its effective integration into teaching and learning.

Limon (2003), in the study *Barriers to Technology*, examined the accessibility, training, and support available for educational technology in high schools in low socioeconomic districts. The study reported that new teachers used technology more frequently than experienced senior teachers, while actual computer accessibility and software support were not satisfactory. The findings emphasize the importance of adequate infrastructure and continuous professional development for teachers.

Afshari et al. (2009), in their study *ICT in Teacher Education*, emphasized the importance of understanding effective and cost-effective approaches to ICT integration in teacher training. The study highlighted the need for appropriate hardware and software,

professional development, sufficient time, and technical support. These factors are directly relevant to the difficulties experienced by teachers when adapting to digital classroom environments.

Palaiologou (2008) examined undergraduate students' perceptions of their ICT skills and changes in their skills following an ICT development programme. The qualitative findings indicated that contextualized ICT learning helped students overcome computer anxiety. This suggests that practical and context-specific training may contribute to greater confidence in using digital technologies.

Burke (2012) investigated online professional development among community college faculty, focusing on changes in self-assessed knowledge related to effective online teaching. The study examined the usefulness of professional development activities in preparing instructors for online teaching. Its focus on teacher preparation is relevant to understanding the importance of training for effective digital classroom interaction.

Islam (2004), in the paper Opportunities and Challenges: Education and ICT, identified lack of equipment, inadequate infrastructure, insufficient quality electronic learning materials, and difficulties in their delivery as hindering factors in ICT-based education. The study also highlighted the possibility of a digital divide between institutions with different levels of resources.

Obioha (2005), in the study The Role of ICT in Information Seeking in the Research Institutes of Nigeria, examined ICT awareness, exposure, and its role in information seeking and knowledge acquisition. The findings emphasized the importance of stable infrastructure, regular power supply, and the establishment of ICT facilities. These observations are relevant to the technological and administrative challenges faced during digital teaching.

Ke (2010) examined online teaching, cognitive presence, and social presence using the Community of Inquiry model. The study indicated that online instructional design and teaching elements are important prerequisites for successful online educational experiences. This highlights the significance of effective pedagogical planning and meaningful interaction in digital classrooms.

Wright et al. (2013) investigated web-based collaborative annotation tools for communication between students and instructors. The study indicated that collaborative reading could support peer interaction, discussion, and participation. The findings suggest that digital tools can facilitate interaction when they are appropriately integrated into teaching and learning activities.

Ünal and Öztürk (2012), in their case study of social studies teachers in Turkey, examined barriers to ICT integration in classroom practices. The study identified inadequate ICT equipment, lack of ICT-based teaching resources, traditional teaching approaches, insufficient in-service training, and lack of time as major obstacles. These findings are relevant to the present study because they demonstrate how pedagogical and institutional factors can influence technology integration.

Stanciu and Bularca (2020), in their study *Online Teaching and Learning in Higher Education during the Coronavirus Pandemic: Students' Perspective*, examined changes in teaching-learning processes and teacher-student interaction during the COVID-19 pandemic. The study reflects the rapid transition toward online education as institutions sought to continue educational activities during the pandemic.

Rice and Dedchain (2020) examined the online teacher education landscape and recommended practices for preparing and supporting teachers as online educators. Their recommendations emphasized personalization, collaboration, administrative support, and new models of technological integration. These considerations are relevant to understanding the institutional and professional support required for digital classroom interaction.

Sabalete-Suárez and Roblizo-Colmenero (2021) examined digital skills, attitudes, and perceptions among Spanish Salesian teachers. The study focused on the importance of digital competencies in teachers' professional practice and the incorporation of digital skills into classroom activities. Its focus on teachers' perceptions and digital competencies contributes to understanding the human factors involved in technology integration.

Objectives of the Study

- To identify the various problems faced by high school teachers during digital classroom interaction in Kozhikode district.

- To examine the problems of teachers across subgroups classified according to type of management, locale, and gender.

III. Methodology

The study employed a descriptive normative survey method. The dissertation identifies high school teachers in Kozhikode district as the population and reports that a representative sample was selected through stratified random sampling, giving consideration to gender, locale, and type of management. The methodology section specifies a sample of 300 high school teachers. The data collection instrument was a questionnaire developed by the investigator with the assistance of the supervising teacher and expert feedback. An initial pool of 95 items was prepared, from which 60 suitable items were selected. The items covered academic, administrative, curricular and co-curricular, parental, and social problems. Pilot testing was conducted with 100 high school teachers. Responses were recorded using agree, undecided, and disagree categories. Percentage analysis was used to summarize the responses.

A limitation in the source dissertation is that one passage in the analysis chapter refers to 500 teachers, whereas the methodology and other sections refer to 300 teachers. This article follows the sample size stated in the methodology—300—and recommends that the original researcher verify the final sample size against the raw data before journal submission.

IV. Results and Discussion

The reported results show that digital classroom interaction generated substantial difficulties for teachers. Network-related problems were identified by a considerable proportion of respondents. The source reports that 56% agreed that network problems could occur during online classes. Nearly all respondents agreed that it was difficult to identify separately whether students were ahead of or behind in their studies and that delays occurred in receiving responses and feedback from students. These findings suggest that digital teaching is affected not only by the availability of devices but also by the reliability of communication and the continuity of learner participation.

The study also reports strong agreement regarding difficulties in providing group work in online classes, the weakening of an active classroom atmosphere because of student

isolation, and the loss of the essence of lessons due to the absence of face-to-face communication. Such problems are pedagogically important because interaction, collaboration, immediate clarification, and observation of student behaviour are central to effective high school teaching.

Assessment and classroom management were additional areas of concern. The dissertation reports that teachers perceived risks when students communicated without permission during examinations and class tests and when students searched for answers on the internet, thereby creating barriers to accurate evaluation. The source also highlights the possibility of cyber illiteracy, misuse of teachers' personal information or images, and difficulties in disciplining students or correcting mistakes in an online environment. The findings further indicate that teachers experienced personal and workload-related pressures. Extended time spent teaching online was associated with reduced social interaction and increased use of smartphones and social media. Regular use of computers and mobile phones was also perceived as contributing to eye strain and other physical problems. These concerns underline the need to consider teacher well-being, reasonable workload allocation, digital safety, and healthy screen-use practices in online education policy.

Major Findings

- Teachers experienced network and connectivity problems during online classes.
- Teachers found it difficult to monitor students' learning progress and identify differences in students' levels of preparedness.
- Delayed student responses and feedback reduced the effectiveness of online interaction.
- Online teaching made group work, active classroom atmosphere, and face-to-face communication difficult.
- Online examinations and internet-based answer searching created challenges for accurate assessment.
- Teachers expressed concerns regarding cyber illiteracy, misuse of personal information, and online classroom discipline.
- Extended digital teaching increased workload, screen exposure, and pressure on teachers' personal and social life.

Implications and Suggestions

The study suggests that effective digital classroom interaction requires more than the provision of devices. First, teachers should receive continuous practical training in digital platforms, online assessment, digital pedagogy, cyber safety, and the preparation of interactive learning materials. Second, schools and educational authorities should ensure stable internet connectivity, adequate hardware, technical assistance, and timely troubleshooting. Third, teachers should be given structured opportunities for individual communication with students so that doubts can be clarified and learning progress can be monitored. Fourth, digital teaching workloads should be planned carefully to support time management and teacher well-being. Finally, online assessment practices should combine varied tasks, oral interaction, formative assessment, and transparent guidelines to reduce opportunities for unfair practices.

Limitations

The study was limited to high school teachers in Kozhikode district and used a questionnaire-based survey design. The findings therefore reflect the perceptions reported by the selected respondents and may not be generalized to all teachers or educational contexts without further evidence. The source dissertation also contains an inconsistency in the reported sample size, which should be resolved through verification of the original data records.

V. Conclusion

Digital classroom interaction enabled educational continuity during the COVID-19 pandemic, but it also exposed important weaknesses in infrastructure, teacher preparedness, communication, assessment, classroom management, and teacher well-being. The study indicates that teachers require sustained institutional support to use digital technology meaningfully. A balanced approach combining reliable infrastructure, professional development, student monitoring, ethical digital practices, and human communication can improve the quality and inclusiveness of digital classroom interaction.

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