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Research Article

Navigating Online Teaching amidst COVID-19: Faculty Perspectives on Missing Traits and Challenges

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Abstract

The COVID-19 has compelled the formal institutions to embrace e-learning. This sudden transition created a pedagogical shift with significant challenges for both students and faculty. The research attempts to find challenges that make online teaching not as a complete replacement for face-to-face teaching as well as to investigate the missing traits that naturally originate from the face-to-face education. The multimethod research design was employed to address the research questions starting with qualitative research followed by quantitative analysis. Data were collected from fifty-one (51) randomly selected Higher Education Institutions (HEIs) in West Bengal, India, with one hundred sixty-six (166) faculty members participating through a structured survey. Thematic analysis was applied to the qualitative responses, and the Chi-square test was used for quantitative data analysis. The findings reveal the complex and multifaceted nature of challenges in online teaching, with minimal influence from teacher age and also the missing traits in teaching online instruction as opposed face-to-face instruction. The study raises the question of whether teachers need alternative methods for online instruction. The findings reveal valuable insights for policymakers to evaluate the effectiveness of ongoing online classes and assist in designing curriculum and teaching strategies that better integrate digital platforms into higher education.

Keywords: *online teaching, missing traits and challenges, sequential exploratory design, face-to-face teaching, COVID -19*

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Introduction

The widespread effect of COVID-19 has caused monumental stress on human beings across the world. The first thing about the micro-organism that comes to mind is the severity of the physical health and loss of several lives. However, the loss is much beyond what we have assumed. The calamity has left a deep scar on the human psyche. The adversity may have resulted from the virus infection, but the measures taken to arrest the contamination and spread might have caused a socio-psycho-economic effect (Vishwanath, 2020). The shaken education sector has felt the impact from school education, higher education, professional education, teacher education and the training institutions of skill enhancement due to pandemic. Before the world started coming out with difficult or challenging situations, the pandemic affected nearly all students and teachers worldwide, causing the largest disruption in the history of formal 21st century education.

The World Health Organisation (WHO) classified the coronavirus (COVID-19) outbreak a worldwide pandemic on March 11, 2020. Educational institutions worldwide have announced

indefinite closures. The global education system is currently confronting a crisis due to the extended shutdown of schools and colleges since March 2020 to mitigate disease transmission. Educational institutions endeavour to identify alternatives to in-person education to address this problematic circumstance (Rieley, 2020). Nonetheless, a seamless transfer from a conventional educational setting to online learning within a limited timeframe is unfeasible. The swift change has introduced numerous hurdles and challenges (Crawford et al., 2020).

In India, the nationwide lockdown had been imposed by the federal government since March 25, 2020, to combat COVID-19. The lockdown because of the pandemic marked a significant switch from in-person to online education. Consequently, the teachers are compelled to move in online class. The obvious and conventional operation of classroom learning has shifted to online learning due to COVID-19, which makes it challenging for educational institutions, students, faculty, and parents to adopt new technology (Dhawan, 2020). This sudden change has a staggering impact on Indian educational sector because of the enormous digital divide (Khan et al., 2021). During and after COVID-19, addressing the student psychological and mental health issues during India's nationwide lockdown was equally crucial. To continue the teaching-learning process few initiatives were considered. For example, the University Grant Commission (UGC) of India proposed to implement online remote learning so that students can attend classes from home. Both the Consortium for Educational Communication (CEC) and the Information and Library Network (INFLIBNET) are Ministry of Human Resource Development (MHRD) ICT program initiatives and also by offering digital platforms to instructors, students, and researchers at universities and colleges, the University Grant Commission (UGC) and it's inter - collegiate centers help them expand their learning opportunities (University Grant Commission, 2020)

Despite the teacher's disinclination and lack of technological abilities to teach online, the shift was triggered. Some researchers identified the challenges associated with newly adopted online teaching-learning transactions (Azevedo et al., 2021; Hansson, 2021). Online learning had its challenges recognized much before the outbreak of the pandemic. The key issue noted was connectivity to ICT and Technological devices, since e-learning depends on the availability of ICT provisions (Arthur-Nyarko & Kariuki, 2019). The major challenges were the availability of digital devices and the knowledge competence of instructors (G. Singh, 2016). In addition, researchers also contended that students preferred face-to-face lectures to online lectures (Boettcher & Conrad, 2021; Cross & Pollk, 2018; Young & Duncan, 2014). Teachers who lack professional training instruct online courses in the same manner as they do in traditional classrooms, disregarding the variations of online platforms (Kreber & Kanuka, 2006).

For both teachers and students, the abrupt shift from a brick-and-mortar to a click-only learning model has presented significant difficulties (Bdair, 2021). In order to meet the challenges due to COVID-19, the educational system has seen a pedagogical transition in teaching forward into e-learning (Siddiquei & Kathpal, 2021). As a result of the unexpected occurrence of COVID-19, most faculty faced a number of problems and difficulties, including lack of experience teaching online, lack of planning and preparation, or lack of support from educational technology, which necessitates lesson plans, various teaching resources such as audio and video content, and technology assistance (Bao, 2020; Sahito & GB Chachar, 2021)The faculty missed several traits in online learning which had been reflected in face-to-face teaching and faced several challenges. Thus, concerns may develop to investigate the missing traits that make in-person teaching and education engaging and more conducive for learning. Further, it is worthy to explore the challenges that prevent online instruction from taking the place of in-person instruction. Hence, the present study focussed to explore the following two inquires:

1. What are the missing traits in online teaching that are enjoyable in face-to-face teaching?
2. What are the challenges that make online teaching not a replacement for face-to-face teaching?

The goal of the current investigation was to ascertain the potential trajectory of these inquiries.

Review of Related Literature

The unforeseen shift switching from in-person to online education amidst the outbreak of COVID-19 brought different kinds of challenges which are revealed in worldwide research. It affected the teaching-learning and evaluation methodologies (Tarkar, 2020). Faculty members stumbled to modify their teaching method to the dynamic conditions. They specifically struggled not only to play a role in students (Bozkurt et al., 2020) but also in internet connectivity problems, inadequate training (Joshi et al., 2020) incapability to use technological opportunity (Almaiah et al., 2020; Joshi et al., 2020), limited knowledge, curiosity and interaction, low attending, dearth of individual attention and personal class interaction,

despondency (A. K. Arora & Srinivasan, 2020) and dearth of adequate substructures such as technological appliances, network congruence, etc. (Kamp & Gibaja, 2021). The greatest obstacle for students and teachers in India was lack of technical infrastructure and intermittently interrupted internet connectivity (Rawal, 2021). Online platforms such as Skype, Zoom, Webex, and Google Duo were not adequate for offering learning and connecting with the students. The difficulty of internet facilities, unavailability of digital gadgets, and lack of an unsuitable environment for online learning hinders students in their learning (Süt & Öznaçar, 2021).

There have no mutual supportiveness of peers, surveillance of facilitators, or daily classroom atmosphere controls with various network modules of home-based online learning like whiteboard, Moodle, Google Meet or Zoom (Alghonaim, 2021). Furthermore, despite the benefits of online learning, the policy's quick execution has led to systemic issues with instruction of tele-education and put several scholarly facilitators in the role of inexperienced teachers (Fhloinn & Fitzmaurice, 2021; Houlden & Veletsianos, 2020; König et al., 2020). Again, according to Alcoy & Atthasit (2024), the primary benefits of online learning include convenient Internet access and the ability to set one's own learning speed, whereas the primary benefits of face-to-face instruction are improved social contact. On the other hand, the biggest drawback of online learning is the challenge of communicating with classmates and the teacher; the biggest drawback of face-to-face instruction is that students become more worried of their errors. In addition, they showed that the participants prefer studying through hybrid modes or in a regular classroom setting. Simultaneously, as indicated by Mapile & Lapinid (2023), students' experiences with online collaborative learning were overwhelmingly favourable. They found that the focus group conversations showed both parallels and discrepancies between online and face-to-face collaborative learning.

The dichotomy between online and face-to-face learning, along with all its implications, has been the subject of research for some time. Experts in education and technology have studied this topic from various perspectives.

The majority of college students thought that online courses were less effective than traditional classrooms, according to a study by Martin & Bolliger (2018). Additionally, they discovered that in-person instruction could boost student motivation, engagement, and pleasure while also lessening feelings of loneliness. Students appear to pay less attention during lectures in online courses (Meyer, 2014). Instead of speaking to their teachers or friends like they would in a real classroom, they are interacting with their screens. Furthermore, it can be argued that face-to-face classrooms offer higher-quality instruction because the environment facilitates better interactions among students and between students and the instructor, enabling them to collaborate to meet the teaching and learning objective (Dzemidzic Kristiansen et al., 2019).

In contrast to traditional classroom instruction, which is primarily focused on the instructor, online learning allows for greater personalisation of the learning experience based on each student's needs, as pointed out by Oye et al. (2012). The distinction between e-learning and face-to-face learning has been highlighted concerning primary information sources, evaluation, and learning quality (N. Buzzetto-Hollywood, 2007). In face-to-face learning, students are assessed solely by teachers, who serve as their primary information source, rendering the quality of learning heavily reliant on them. Conversely, in e-learning, student evaluations can utilise various tools, and learners can access information from multiple documents uploaded to the platforms. Consequently, the quality of learning is significantly influenced by both the teachers' digital proficiency and their pedagogical approach. In contrast, Naveed et al. (2017) argued that there are several benefits of e-learning over traditional classroom instruction, including more convenience, lower costs, and no travel time or expense involved. Having said that, there are still certain problems with online learning, such as unequal access to technology, difficulties in learning computer skills, and a lack of physical space for instruction (Beaunoyer et al., 2020). Thus, it is apparent that to adopt online in educational institution is itself a difficulty not only because of lack of infrastructure but also the digital divide plays a crucial part.

Numerous academic institutions were unenthusiastic about changing their traditional academic methodology and adopting online teaching-learning (Dhawan, 2020). Students find themselves less motivated in online learning as there is no engagement with their classmates in person and teachers as well (Billett et al., 2023). They feel scarcity of stronger relationships with their teachers and peers, face to face interaction and focused attention. According to Kubasko et al. (2025), the pandemic's impact on education has fundamentally changed how educators and learners approach instruction. These shifts include particular fields of study difficulties, concerns about equality in technological access, and the growth of online and hybrid modes. They discovered that compared to asynchronous online learners, face-to-face students described

significantly more species. They also found that asynchronous online students improved their skills with digital tools and instructional frameworks, whereas face-to-face students benefited from experiential outdoor learning.

It was also uncovered that students perceived the web-based online learning method to be more effective compared to the conventional in-person approach of delivery even so were less engaged during the online classes as contrasted to actual physical classes. In addition, a lot of students thought that online classes should end after the lockdown (Adewumi & Pitan, 2022). During this crisis, major obstacles along the route of switching from in-person to online knowledge acquisition included dearth of technological knowledge, organisational assistance for the successful execution, a scarcity of enthusiasm for changing the learning environment, and federal funding, and students' unwillingness to accept online learning. Because online learning was less proactive and disciplined than traditional learning in developing nations (Bansal, 2023). Research revealed that studying online with diminished social collaboration was a genuine challenge to Erasmus students. They were missing cultural knowledge as well as the insights commonly emerging from face-to-face teaching and social collaborations (Koris et al., 2021). Apprehension about innovation, restricted knowledge of software, time usage issues, and sensation of disconnection likewise made continuous difficulties for faculties. Faculty members with little or no prior experience working with technology experienced significant stress during the rapid transformation to a different online instructional approach (J. Singh et al., 2021).

Several studies indicated what could be the challenges in the implementation of online education throughout the COVID-19 outbreak. However, it is evident from the literature analysis that there has been a rarity of research to explore the challenges of shifting the mode of transacting curriculum to online in the Indian school context. Hence, the goal of this research is to investigate the reasons why face-to-face instruction is still more preferred rather than to online instruction. The study also investigates the missing traits in online teaching that make online teaching not a replacement for face-to-face teaching.

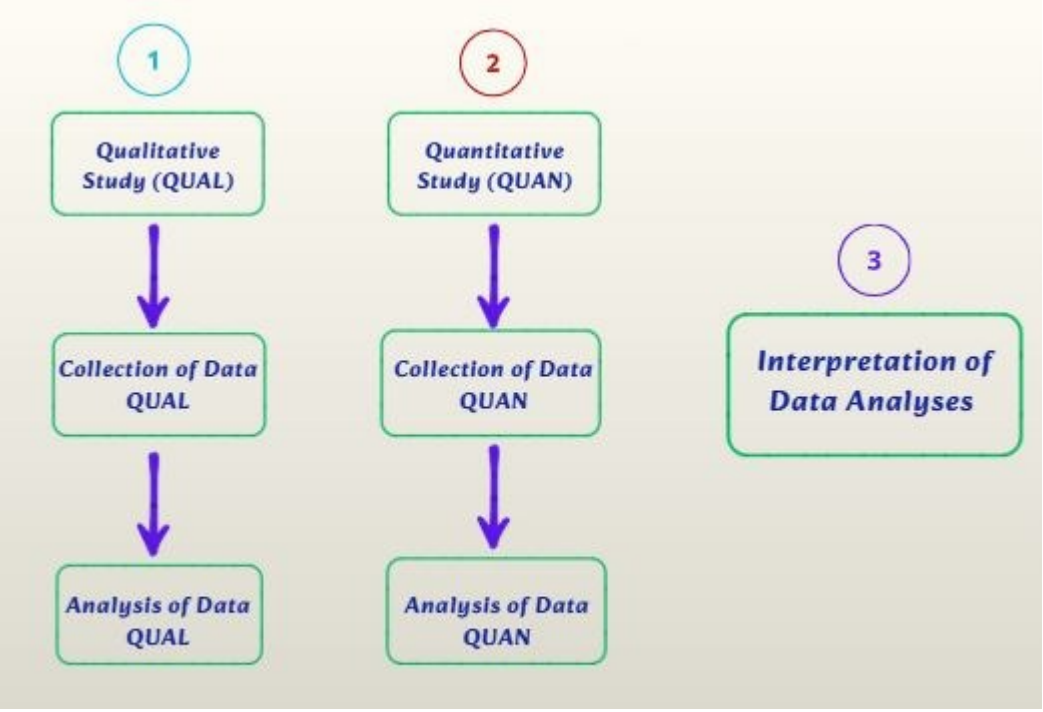
Research Methodology

Research Design

The multimethod descriptive study design was employed to address the research question. Qualitative data was collected to explore

Figure 1

Multimethod Research Design



Note. Researcher-made design (based on Creswell and Creswell (2017)

the phenomena in research questions and identify the categories. The qualitative part of the study was to address to determine the association of these categories with the teacher age. The research design is depicted in the figure 1.

Sample

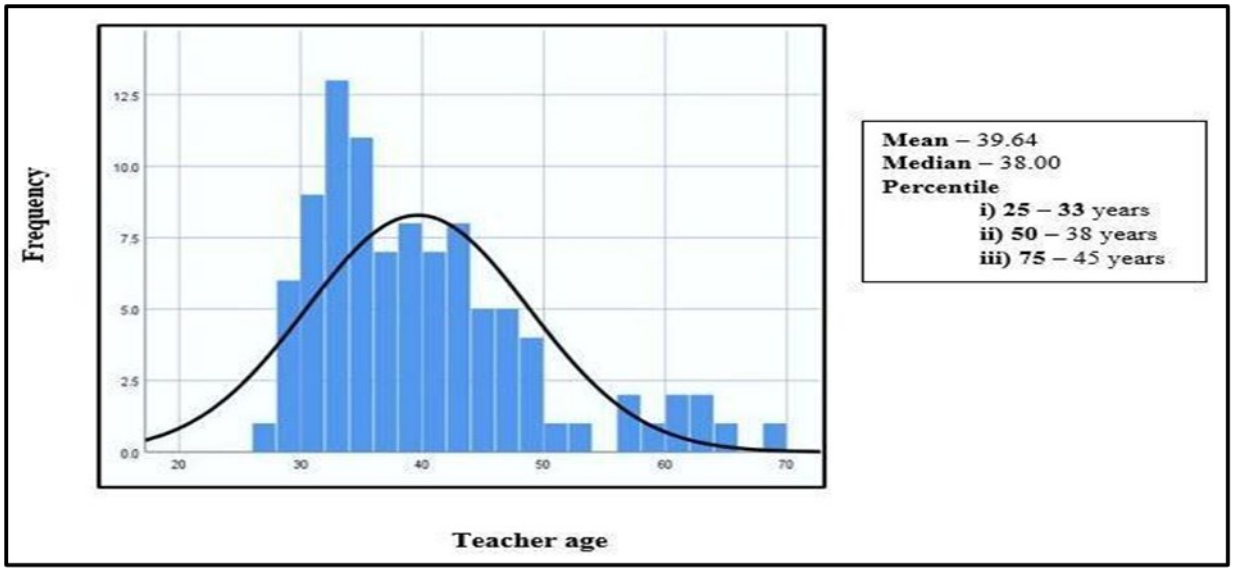
Initially fifty-one (51) Higher Education Institutions (HEIs) from West Bengal (India) were selected randomly. Then a sample of one hundred sixty-six (166) faculties, irrespective of academic group and nature of employment, has been selected randomly from the chosen HEIs to participate in the research. The highest participant age is 68 years whereas the lowest age of the participants is 27 years. The mean age of the selected participants is 39.64. Also, 25% of the age data are below 33 years, and 75% of the age data is below 45 years. Hence, age data can be divided into three groups – less than 35 years, 35 – 45 years, and more than 45 years (refer to Figure 2).

Figure 2 depicts a graphical representation of teacher age data with frequency (histogram). It also highlights the numeric information of mean, median, and percentiles. The sample information in a structured format is displayed in Table 1.

Table 1 describes the participant maximum and minimum ages. The table highlights the participant age group. The table also presents the percentage of participants in the age groups. Among the participants in Table 1, the sample might be further described as seventy-eight percent (78%) were Assistant professors, fourteen percent (14%) were Associate professors and eight percent

Figure 2

The spread of Teacher Age representation in the sample.



Note. Researcher-made

Table 1

Sample Information.

Participant Age Range	Participant Age group	Percentage (%)
Minimum Age = 27 years	Less than 35 Years	35
Maximum Age = 68 years	35 - 45	47
	More than 45 Years	18
	Total	100

Note. Researcher-made

(8%) were Professors from state government institutes (70%), federal government institutes (10%) and self-funding institutes (20%). Further, the sample comprises sixty-two percent (62%) male faculty and thirty-eight percent (38%) female faculty.

Data Collection

Google Forms was used to create the survey-style questionnaire, which was then distributed via email and cross-messenger Application. The Google form has two main parts: the first part sought personal and demographic information from the respondents, and the second part asked two focal open-ended questions. The first question was about the missing traits in online teaching that are observed and evident to face-to-face teaching. The second question was the challenges that make online teaching not a replacement to face-to-face teaching. The data obtained are textual regarding the missing traits and challenges in online instruction during COVID – 19 at higher education institutions. The participants were given an in-depth description of the research, consent form with the online survey.

Data Analysis

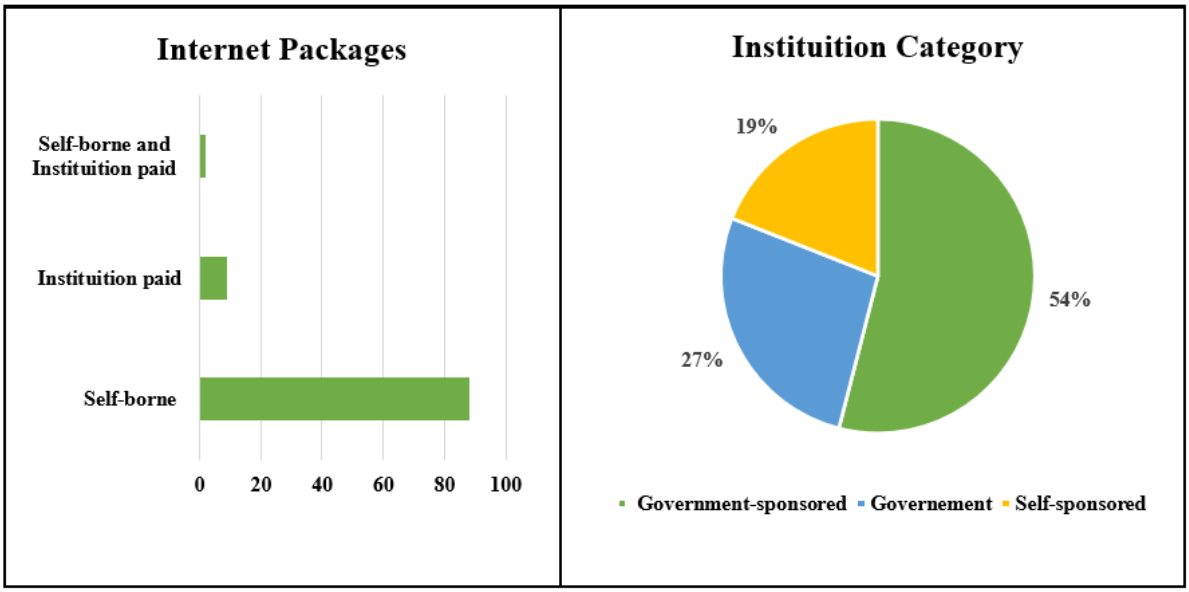
The data analyses had been done in two stages. Primarily, qualitative data had been collected for two focal open-ended questions.

Phase I: The focal questions are: Please cite a trait (characteristics or quality) you miss in teaching process of online instruction that you used to enjoy in teaching process of face-to-face instruction and please cite the reason (challenges) you feel, that can make classes through online not a replacement for face-to-face instruction. For the first focal question (missing traits of online teaching), 176 responses had been received from 166 faculty. It was found during data analysis that ten (10) faculty (each) had given two missing traits, in online teaching. There had been 166 responses of challenges in online teaching, so that cannot be considered a substitute for face-to-face instruction. For the codes, a thematic analysis of the qualitative data (text) was conducted. Finding the important problems, comprehending phenomena, condensing data, and creating constructs or codes were all part of the coding process (Saldana, 2013) through content analyses of the responses. Through inter-rater agreement, the researchers were able to determine the validity of these codes.

Phase II: In the second phase, the textual qualitative data was converted to quantitative data for additional statistical analysis and interpretation (Bernard, 1996). Data for textual information was arranged according to every code category's percentage frequency. The Chi-square test of independence was administered to explore the association among challenges in online teaching that makes it not a replacement for face-to-face teaching with reference to the teacher's age. The association of missing traits in online teaching that are enjoyable in face-to-face teaching with teacher age was tested in a similar process using the Chi-square test.

Figure 3

Internet Packages and Institution Category



Note. Researcher-made

Results

The study revealed that the participants used various devices, viz. laptop, handphone, desktop, tablet, and graphic tablet, for conducting online teaching. Demographic data were obtained and are reported in percentage of participants' responses. The institutions from where faculty are sampled were majorly (54%) government-sponsored, whereas twenty-six percent (26%) were government managed. Moreover, the remaining nineteen percent (19%) of respondent faculty were from self-sponsored institutions. The study also reported that eighty-eight percent (88%) of participants used self-borne internet packages for online teaching. Although nine percent (9%) of participants used institution-paid internet packages, the remaining two percent (2%) used both self-borne and institution-paid internet packages (Figure 3).

The sorting of data across the coding categories remains inconclusive if it is not analysed about a predictive variable. Hence, the teacher's age (chronological) has acted as the reference to assess the challenges identified and missing traits in online teaching in the survey. It is worth mentioning that online teaching not only involves the pedagogy for effective teaching but also requires digital skills and technological know-how. Hence, it is pertinent to investigate if teacher age is associated with the choice of missing traits in online teaching in compared to face-to-face classes and the perception of challenges for not considering teaching process of online instruction as a substitute for teaching process of face-to-face instruction.

Missing Traits in Online Teaching that are Enjoyable in Face-to-Face Teaching

The data obtained for the missing traits of online teaching that are enjoyable in face-to-face

Table 2

Description of coding categories for Missing traits

Coding Categories	Description	Snippets of responses
Chalk and Talk	'Chalk and talk' is referred to as the blackboard work by the teacher which is used in face-to-face teaching and seems it be a conventional method of teaching.	"…absence of physical board and its demonstration…" [P30]
Face-to-face interaction	Face-to-face interaction refers to the direct face-to-face interaction between teacher and student as well as in-depth discussion by the teacher with the students in face-to-face teaching.	"… lack of face-to-face interaction is lacking in online classes…" [P19]
Non-verbal Interaction	Non-verbal interaction is the facial and behavioural expressions of the students, eye-to-eye contact and bonding relationship between teacher and students at the time of face-to-face teaching.	"… teacher's non-verbal communications and eye interaction are majorly missing here…" [P87]
Student-centric classroom	The student-centric classroom is a developing classroom environment, with the active participation of the students, joyful learning and understanding of student's problems in a face-to-face classroom.	"… learner's active participation in classroom activities is lacking in online…" [P63]
Psychological Traits	Psychological Traits are referred to as the intrinsic and extrinsic motivation to the students, attention and attitude of the students in a face-to-face teaching class.	"… face-to-face teaching is more capable to motivate students in regular class than online class…" [P50]
Student Assessment	Student Assessment is defined as direct feedback from the students, student response, improvisation and evaluation in the class of face-to-face teaching.	"… assessments, feedback and reward wording, checking note books cannot be done smoothly in online classes..." [P41]
Hands-on experience	Hands-on experience is defined as practical classes; demonstrations and role-play activities of the students in a face-to-face class.	"…hand on practice, role-play activities are very missing in virtual classes…" [P19]

Note. This table demonstrates a Comprehensive description of Coding categories for Missing traits

teaching is qualitative. For quantitative analysis, the qualitative data has been translated into frequency. Consequently, qualitative data analysis was subsequently followed by quantitative data analysis (Chi-square tests) to acquire an overwhelming insight into missing traits of online teaching that are enjoyable in face-to-face teaching.

Qualitative Data Analysis

The textual responses about missing traits in online teaching that are enjoyable in face-to-face teaching were checked to find out possible codes. Codes were grouped into coding categories. The coding categories for the responses for missing traits and its description are presented in Table 2.

Table 2 describes a comprehensive breakdown of coding categories for the missing traits in online teaching and their description. This table demonstrates the key aspects of missing traits in online teaching that are more evident and enjoyable in face-to-face teaching.

Chalk and Talk

The category 'Chalk and talk' refers to the teacher's use of the blackboard in face-to-face teaching and appears to be a conventional teaching method. In the chalk-and-talk model, teachers can instantly gauge students' understanding through facial expressions, body language, and direct questioning. For instance, **Participant 19** responded that

> "*The sense of teaching cannot be felt until you see the students in front of you, eye contacts. Teaching became like talking to a blank screen."*

Also, **Participant 8** added,

> *"I missed the freedom to pick up the chalk and solve problems step by step. Demonstrating with slides felt mechanical and less lively."*

The part of the result aligns with a previous study by Bao (2020), which noted that the spontaneity of discussion, questioning, and storytelling—key to chalk-and-talk—was restricted in online environments.

Face-to-face Interaction

The category' face-to-face interaction' refers to direct teacher-student interaction, as well as in-depth discussions between the teacher and students during face-to-face teaching. In the traditional classroom, direct interaction allows teachers to read nonverbal cues, adjust their teaching approach, and foster a dynamic learning environment. Also, Students benefit from instant clarification of doubts and the motivational value of being physically present in a learning atmosphere. During the COVID-19 pandemic, the shift to online platforms disrupted this natural flow of communication. The loss of human touch, eye contact, and real-time feedback made a sense of distance, reducing both engagement and motivation. Although online learning maintained educational continuity, it failed to replicate the social presence and sense of community that face-to-face teaching provides. As **Participant 19** stated,

> *"Teaching in online is like a one-way activity. In face-to-face classes, I could ask a question and get instant reactions…"*

Also, ***Participant 11*** *added,*

> *"The absence of face-to-face interaction made learning feel incomplete. The contents deliver through online platform mechanical without sense of human connections…"*

The results in this part are supported by previous studies by Collazos et al. (2021) and Aristovnik et al. (2020). The survey by Aristovnik et al. (2020) argued the impacts of the COVID-19 pandemic on students in higher education. The study reveals that a lack of face-to-face interaction in a new teaching environment can lead to boredom, anxiety, and frustration.

Non-verbal Interaction

The category non-verbal interaction refers to students' facial and behavioural expressions, eye-to-eye contact, and bonding relationships between teachers and students during face-to-face teaching. It plays a critical role in classroom communication. In face-to-face teaching, teachers rely heavily on these cues to assess learners' comprehension, engagement, and emotional state.

From the results of this study, it is evident that non-verbal interaction is a crucial missing element in online learning during the COVID–19 pandemic. Most participants reported the absence of nonverbal communication during the feedback-taking session in the online setting. As **Participant 87** added,

> *"Non-verbal cues of students in feedback taking—like a nod or confused look—helped me adjust my teaching. But in online classes, there is no similar scope..."*

Student-centric Classroom

The student-centric classroom is a developing classroom environment that fosters active student participation, joyful learning, and understanding of students' problems in a face-to-face setting. During the COVID-19

pandemic, online learning often became teacher-centred due to technological limitations and one-way delivery. It reduces opportunities for collaboration and co-construction of knowledge. This shift diminished the participatory learning environment that face-to-face classes naturally foster. The participants of the study marked this category as a significant missing trait, as the planning and execution of online teaching and learning, with limited and immediately available resources, restricted the online classroom from being student-centric. As **Participant 46** stated,

> *"Students used to attend the online sessions with limited scope of interaction, group activities with peers, unlike face-to-face sessions, rather they mainly listened the lectures passively…"*

A study by Collazos et al. (2021) found similar result: limited scope of peer interaction and interaction with instructor makes online classes less student-centric COVID –19 pandemic era.

Psychological Traits

The category 'Psychological Traits' refers to the intrinsic and extrinsic motivation of students, their attention and attitude, emotional bonding, and sense of belonging, all of which are essential for sustaining effective learning. At the same time, online teaching during the COVID–19 pandemic led to feelings of isolation, stress, and reduced motivation. The present study identified this category as a vital missing element in online teaching during the COVID–19 pandemic. As **Participant 50** shared,

> *"In online teaching session, students felt less motivated and less connected than in a face-to-face classroom, and hence absenteeism raises… "*

The result in this part aligns with the findings of R. G. Arora & Chauhan (2021). The study highlights the difficulty in maintaining personal connection with students, which was possible in face-to-face teaching, and in reading their body language and distinguishing their tones while answering questions. It leads to lower motivation among students to attend classes.

Student Assessment

Student Assessment is defined as direct feedback from students, student responses, improvisation, and evaluation in face-to-face teaching. The **Participant 41** stated,

> *"… assessments, feedback, and reward wording, checking notebooks cannot be done smoothly in online classes..."*

A similar result was reported in previous studies by Bao (2020) and Dhawan (2020).

Hands-on Experience

Hands-on experience refers to practical classes, demonstrations, and role-play activities in a face-to-face class. During the COVID–19 pandemic, online classes were adopted as an emergency measure. However, practical classes can only be effectively implemented with hands-on experience, which is often absent on a virtual platform. The participant identified this trait as another significant aspect missing in online teaching during the COVID–19 pandemic. One of the participants (**Participant 19**) shared that,

> "*There is no way to teach practical skills in online classes. One may try by presenting videos though it is absolutely incompatible technique. Whereas hands on experience in lab classes helps students to learn with a better understanding of practical skills…* "

A similar result was observed in a study by Albloushi et al. (2024) which highlighted hands on experience is absent in online teaching during COVID–19 period.

Quantitative Data Analysis

Teacher age may serve as a reference point to assess the missing traits of online teaching that are enjoyable in face-to-face teaching. So, it is important to investigate if teacher age may be associated with the perception of choosing missing traits in online teaching.

The Chi-square tests have been computed under the null hypothesis: "There is no significant association of teacher age with the missing traits in online teaching that are enjoyable in face-to-face teaching." Table 3 displays the textual data after it was arranged into percentage frequencies for every code category.

Table 3 represents structured information about the missing traits in online teaching identified under seven categories in terms of the percentage frequency within each teacher age group. A total of 26.7% and 23.9% of teachers confirm that face-to-face and non-verbal interactions are remarkable traits missing in online teaching. Moreover, 37.5% of teachers of the age group less than 35 voted for student assessment as a missing trait, whereas 50% of teachers of more than 45 years agreed that hands-on experience is a crucial trait missing in online teaching. Psychological traits take a back seat as missing

Table 3

Allocation of Missing Traits in Online Teaching Enjoyable in Face-to-Face Teaching with Teacher Age

Missing traits in online teaching		Teacher Age			Total
		Less than 35 Years	Falling between 35 - 45 Years	More than 45 Years	
Chalk and Talk	within Traits	47.4%	47.4%	5.3%	100.0%
	within Teacher Age	14.5%	12.2%	2.5%	10.8%
Face-to-face interaction	within Traits	29.8%	51.1%	19.1%	100.0%
	within Teacher Age	22.6%	32.4%	22.5%	26.7%
Non-verbal Interaction	within Traits	33.3%	35.7%	31.0%	100.0%
	within Teacher Age	22.6%	20.3%	32.5%	23.9%
Student centric classroom	within Traits	40.6%	40.6%	18.8%	100.0%
	within Teacher Age	21.0%	17.6%	15.0%	18.2%
Psychological Traits	within Traits	28.6%	50.0%	21.4%	100.0%
	within Teacher Age	6.5%	9.5%	7.5%	8.0%
Student Assessment	within Traits	37.5%	31.3%	31.3%	100.0%
	within Teacher Age	9.7%	6.8%	12.5%	9.1%
Hands-on experience	within Traits	33.3%	16.7%	50.0%	100.0%
	within Teacher Age	3.2%	1.4%	7.5%	3.4%
Total	within Traits	35.2%	42.0%	22.7%	100.0%
	within Teacher Age	100.0%	100.0%	100.0%	100.0%

Note. This table presented the percentage of responses about missing traits to Teacher age

Table 4

Chi-Square Test (Missing traits X teacher age) of independence

Pearson Chi-Square	df	Asymptotic Significance(2-sided), p-value
11.502	12	0.486

* at 0.05 level

Table 5

Symmetric Measures (Missing Traits × Teacher age)

Nominal by Nominal	Value	Approximate Significance
Phi	0.256	0.486
Cramer's V	0.181	0.486
Contingency Coefficient	0.248	0.486

* at 0.05 level

traits in online teaching that are enjoyable in face-to-face teaching. The association between missing traits in online teaching that are enjoyable in face-to-face teaching with teacher age was explored using the Chi-square test (Missing traits **X** teacher age) of independence, presented in Table 4.

Table 4 presents the Chi **(χ^2)** square test of independence results at 0.05 level of significance. At the 0.05 level of significance, the test secured no association ($p > 0.05$) among teacher age and missing traits in teaching online, as indicated in Table 4. Symmetric measures to check for association among teacher age and missing traits, as shown in Table 5, further support this finding.

Table 5 presents symmetric measures estimation of missing traits in online teaching that are enjoyable in face-to-face teaching with teacher age at 0.05 level of significance. At a significance level of 0.05, the contingency coefficient (C=0.248), Cramer's V value (ϕ_c=0.181), and the phi value (ϕ = 0.256) all supported a weak association between these categorical variables.

Challenges that Make Online Teaching Not A Replacement for Face-to-Face Teaching

The data obtained for challenges that make online teaching not a replacement for face-to-face teaching is primarily textual or qualitative. The data considered for quantitative analysis are sequentially obtained data in frequency or nominal scale. Hence, qualitative data analysis followed by quantitative data analysis (Chi-square tests) was conducted to obtain a conclusive picture of the challenges that make online teaching not a replacement for face-to-face teaching.

Qualitative Data Analysis

The participant's textual responses on their perceptions for not considering online teaching as a replacement for face-to-face teaching were analysed carefully. From the responses, the researchers marked out codes. Codes were grouped into coding categories through content analysis based from the nature of topics from the responses. Finally, refinement of these coding categories according to research aims was processed. The coding categories for the responses for challenges and its description are presented in Table 6.

Table 6 describes a comprehensive breakdown of coding categories for difficulties in teaching online and their description. This table demonstrates the key issues with teaching online that drive it not a substitute of teaching in face-to-face modality. Some coding categories, depicted in the above table are very crucial as challenges of online teaching-learning.

Challenges in Face-to-face Interaction

The category 'Challenges of face-to-face interaction' are operationally defined for the present study as the lack of face-to-face interaction and eye contact in online classes, where the chalk-and-talk method is not feasible due to during COVID – 19 pandemic.

As example of responses by **Participant 31** shared that

> *"… The chalk and talk method is not always possible in online teaching and a teacher can reach out to the students easily in any difficulty with the content…"*

The result of this part aligns with the findings of a study by Nishimwe et al. (2022) which emphasised that online learning not stimulating, lacked scope of interactions with peers and teachers and students were distracted, often lacking eye contact.

Psychosomatic Challenges

The category 'psychosomatic challenges' refers to the difficulties of students' attention, interest, and participation in online classes, which negatively affect the students' mental and physical health. The present study identifies this category as a significant challenge in online teaching during COVID – 19 pandemic. As **Participant 8** added,

> *"… Students' attention cannot be drawn properly and examination procedure is not ok in online teaching…".*

The similar category was proposed by Rajabalee & Santally (2021) in their study on other challenges of emergency online teaching during COVID –19 pandemic.

Challenges with the Digital Platform

Challenges with the digital platform included limitations due to the digital divide, network issues, unavailability of electronic devices, difficulties accessing online classes during the COVID – 19 period. This category was primarily identified from participants responses. Among them, the **Participant 27** shared that

> *"Everyone cannot access the online classes…some students have no digital devices to access online sessions…"*

In support, Ferri et al. (2020) and R. G. Arora & Chauhan (2021) identified similar categories of Challenges in online teaching during COVID –19 pandemic.

Challenges in the Affective Domain

This category refers to the challenges in the affective domain, such as lack of affection in human interactions and difficulties in emotional attachment between teachers and students in online classes during COVID - 19. To explain the category, **Participant 35** stated that

> *"No emotional attachment between teacher and taught. No space for individual attention in online classes…"*

This identified category aligns with a previous study by Rajabalee & Santally (2021), which examines learners' satisfaction and engagement in online learning during COVID – 19 pandemic and finds that learners are less engaged and emotionally attached with online module during this period.

Pedagogical Challenges

Table 6

Description of coding categories for challenges in online teaching.

Coding Category	Description	Snippets of responses
Challenges in Face-to-face interaction	Challenges in face-to-face interaction are operationally defined for the present study as the dearth of face-to-face interaction and eye contact in online classes where the chalk-and-talk method is not possible to use in online teaching.	"…Chalk and talk method always not possible in online teaching and a teacher can reach out to the students easily in any difficulty with the content…" [P31]
Psychosomatic challenges	Psychosomatic challenges are operationally defined as the difficulties of students' attention, interest and participation in online classes which affect the students' mental and physical health negatively.	"…Students attention cannot be drawn properly and exam procedure is not ok in online teaching…"[P8].
Challenges with the digital platform	Challenges with the digital platform are operationally defined as the limitations because of the digital divide as well as challenges of online platforms like network issues, unavailability of electronic devices, difficulties in accessing online classes etc.	"…Everyone cannot access the online classes (although I share notes for that) …" [P27]
Challenges in the affective domain	Challenges in the affective domain are operationally defined as the lack of affection for the human interaction and difficulties in emotional attachment between teachers and students in online classes.	"…No emotional attachment between teacher and taught. No space for individual attention…"[P35]
Pedagogical challenges	Pedagogical challenges are operationally defined in this study as the challenges to getting students' feedback, improvisation of class, following up with the students and difficulties in student evaluation in an online class.	"…Hands on experience with experiments, improvisation during class…" [P84]
Challenges in practical-based courses	Challenges in practical-based courses are operationally defined for the present study as the challenges in practical demonstration and difficulties in acquiring hands-on experiences of the students because of the limitations of the online class.	"…Practical classes can't be taken online & picture/diagram-based topics are very difficult to teach…" [P91]
Challenges in class organisation	Challenges in the class organisation are operationally defined as management-related issues especially time management in the organization of the online class.	"…time management and class organisation in online class have added more pressure to the teachers…" [P57]

Note. This table demonstrates a comprehensive description of Coding categories for challenges

This category of challenges is operationally defined in this study as difficulties in obtaining students' feedback, improvising classes, following up with students, and student evaluation in an online class. The study explored the pedagogical challenges encountered during the implementation of online teaching in response to COVID – 19. For instance, **Participant 84** quoted that

> *"Which kind of pedagogy is required in online teaching, is still to adapt. Also, modification of the pedagogical instructions cannot be assessed as feedback of online session does include facial expression of learners, scope of limited interactions with instructors …"*

The present study identified a category of pedagogical challenges that aligns with the findings of Thanh et al. (2023). The study highlights various pedagogical barriers that impede the teaching process, including lesson plan preparation, instruction delivery, the selection of instructional methods, limited interaction with learners, managing virtual classes, gathering learners' feedback, and overall teaching competencies.

Challenges in Practical-based Courses

The challenges in practical-based courses are operationally defined for the present study as those encountered during practical demonstrations and students' hands-on experiences, due to the limitations of online classes during the COVID–19 pandemic. Practical, skill-based online teaching faces specific challenges due to the limited scope for hands-on experience. As **Participant 91** stated that

> *"Practical classes can't be taken online & picture/diagram-based topics are challenging to teach in an online platform…"*

A study by Collazos et al. (2021) found challenges in practical classes on an online platform during COVID – 19 pandemic, which supports the result of this part of the present study.

Challenges in Class Organisation

This category of challenges in class organisation refers to management-related issues, particularly time management, in the organisation of online classes during the COVID-19 pandemic. The present study identified the class organisation of online sessions as a challenge in online teaching during COVID–19. As Participant 57 shared that

Table 7

Allocation of Challenges in Online Teaching as Not Replacement of Face-to-Face Teaching with Teacher Age

Challenges in online teaching		Teacher Age			Total
		Less than 35 Years	Falling between 35 - 45 Years	More than 45 Years	
Challenges in Face-to-face interaction	within Challenges	30.6%	46.9%	22.4%	100.0%
	within Teacher Age	25.9%	29.5%	36.7%	29.5%
Psychosomatic challenges	within Challenges	35.7%	53.6%	10.7%	100.0%
	Within Teacher Age	17.2%	19.2%	10.0%	16.9%
Challenges with the digital platform	within Challenges	30.6%	50.0%	19.4%	100.0%
	within Teacher Age	19.0%	23.1%	23.3%	21.7%
Challenges in the affective domain	within Challenges	40.0%	53.3%	6.7%	100.0%
	within Teacher Age	10.3%	10.3%	3.3%	9.0%
Pedagogical challenges	within Challenges	33.3%	55.6%	11.1%	100.0%
	within Teacher Age	10.3%	12.8%	6.7%	10.8%
Challenges in practical -based courses	within Challenges	53.3%	26.7%	20.0%	100.0%
	within Teacher Age	13.8%	5.1%	10.0%	9.0%
Challenges in class organization	within Challenges	40.0%	0.0%	60.0%	100.0%
	within Teacher Age	3.4%	0.0%	10.0%	3.0%
Total	within Challenges	34.9%	47.0%	18.1%	100.0%
	within Teacher Age	100.0%	100.0%	100.0%	100.0%

Note. This table presents the percentage of responses about challenges for teacher age

"…time management and class organisation in online class have added more pressure to the teachers…"

Quantitative Data Analysis

The Chi-square tests have been computed with a conjectural statement, "there is no significant association between teacher age with the challenges they encountered in online teaching that makes it not a replacement of face-to-face teaching." Textual data was arranged as a percentage of respondents who fall into each category to obtain the quantitative data, which is shown in Table 7.

In-depth information is presented in Table 7 about the challenges in online teaching identified under seven categories in terms of the percentage frequency in every teacher age group. Between the seven categories identified, a total of 29.5% and 21.7% of teachers accept *Challenges with Face-to-face interaction* and *Challenges with the digital platform,* respectively as comparatively crucial challenges in online teaching that make it not a replacement for face-to-face teaching. Moreover, 53.6% of teachers who voted for psychosomatic challenges are of the age group falling between 35 to 45 years. Also, 53.3% of teachers of age group less than 35 years faced challenges in practical-based courses online. Challenges in class organization got a much smaller number of votes, and no supportive responses to this challenge came from teachers of the age group between 35-45 years.

To investigate the relationship between challenges in online teaching that make it not a replacement of face-to-face teaching with teacher age, the Chi-square test (Challenges × teacher age) of independence was conducted using a statistical package, as shown in Table 8.

The results of the Chi-square test of independence at the 0.05 level of significance are shown in Table 8. At the 0.05 level of significance, the test confirmed that there was no association ($p > 0.05$) between challenges and teacher age. Table 9 provides symmetric measures to test for association between challenges and teacher age, further supporting this finding.

Table 8

Chi-Square Test (Challenges × teacher age) of independence

Pearson Chi-Square	df	Asymptotic Significance (2-sided), p-value
14.33	12	0.28

** at 0.05 level*

Table 9 presents symmetric measures estimation of challenges in online teaching with teacher age at 0.05 level of significance. From Table 9, the phi value (ϕ= 0.294), Cramer's V value (ϕ_c= 0.208), and at the 0.05 level of significance, the contingency coefficient (C = 0.282) verified a weak association between these categorical variables.

Table 9

Symmetric Measures (Challenges × Teacher age)

Nominal by Nominal	Value	Approximate Significance
Phi	0.294	0.28
Cramer's V	0.208	0.28
Contingency Coefficient	0.282	0.28

* at 0.05 level

Discussion

The emergency period of COVID-19 has compelled the researchers to search for an alternative option for the pathway of the teaching-learning process instead of face-to-face teaching. In this regard, technological advancements have provided an immediate solution as online education to overcome the difficulties arising from face-to-face teaching in the phase of the frightening COVID-19 outbreak. However, the journey of

online teaching has not been smooth and flawless in this emergency period. There have been a lot of challenges reflected in online teaching and it brings into being a lot of crucial questions regarding the adaptation to the new classroom environment of online teaching.

The teacher age (chronological) has functioned as the reference to assess the challenges identified and missing traits in online teaching in this study. The teacher ages are categorized into three sections i.e., Less than 35 years, Falling between 35-45 years, and more than 45 years. The research reflects (Table 3) that challenges with face -to-face interaction (29.5%) and challenges with the digital platform (21.7%) are identified widely among teachers in Higher Education Institutions contrasting with class organization is perceived to be minimal (3%). The teachers emphasized firmly to the challenges with Face-to-face interaction contrasted with the challenges in the affective domain and challenges in practical-based courses. It may be increased as the effects of the challenges with face-to-face interaction and Challenges with the digital platform create some stumbling blocks in class organization. A follow-up and probe research may be needed to know the underlying reason and latent variables that may be responsible for the contrasting identification of challenges.

The research attempts to explore what are the missing traits in online teaching that are enjoyable in face-to-face teaching. The research suggests that the Chalk and Talk approach is more evenly distributed among teachers of all age groups, with a slightly higher representation among younger teachers (less than 35 years). This finding is consistent with the idea that younger educators may be more inclined to adopt traditional teaching methods, possibly due to their recent training or familiarity with modern technology (Nissim & Simon, 2020). Also, it is noteworthy that younger teachers (less than 35 years old) voted less for Face -to-face interaction in contrast to those who are older. That is consistent with previous studies suggesting that younger teachers often exhibit greater comfort with and reliance on technology-mediated online teaching (Oliveira et al., 2021). Non-verbal interaction is somewhat evenly distributed among the three age groups, with a slight preference among teachers aged 35-45 years (35.7%). Younger teachers missed the trait of the student-centered classroom (40.6%) in online teaching whereas there was a decline from the older age group (more than 45 years) (18.8%). This observation is consistent with research indicating that younger educators prefer more student-centred pedagogies, possibly reflecting changing paradigms in education (Kozanitis & Nenciovici, 2023). Psychological traits are a sign of significant traits that are missed in online teaching as majorly voted by teachers of the age group 35-45 years (50%). This finding may be consistent with the research highlighting that mid-career teachers often develop a deeper understanding of the psychological aspects of teaching, which can enhance their effectiveness in the classroom (Bardach et al., 2022). There is an agreement among teacher age groups that the trait-student assessment is missing in online teaching. Hands-on experience is most prevalent among teachers over 45 years (50%). The Chi-square tests were conducted to ascertain the association between missing traits and found that teacher age did not yield statistically significant results ($p > 0.05$). This indicates that teacher age does not have a noteworthy influence on the insight of these missing traits in online teaching.

The results also reveal that there are no takers of the challenges in class organization for the age group falling between 35-45 years. The revelation carries an importance where the frequencies of the teachers under the age group less than 35 years and more than 45 years are 40% and 60%, respectively. The disclosure of the contrasting result within the challenge (in class organization) indicates that the higher age or lower age of the teachers may be a crucial factor in class organization for online teaching. The challenges in the affective domain are least identified by the teachers (6.70%) in the age group more than 45 years. For Psychosomatic challenges, the teachers between 35-45 years of age group perceived the challenge mostly in comparison to its counterpart, i.e., age group less than 35 years, and more than 45 years. Likewise, very less teachers (11.10%) with chronological age of more than 45 years pedagogical challenges as one of the reasons that online teaching is not a replacement for face-to-face teaching. The teacher with seniority in chronological age may not be affected firmly by these challenges (Psychosomatic and Pedagogical challenges). There may be years of experience gained from their length of years in teaching. The number of years encountering their environment might have given them the insight to deal with these challenges. The overall results uncover multifarious and complicated challenges in online teaching with minimum impact on teacher age. The Chi-square tests have revealed that there is no association ($p > 0.05$; $\chi^2 = 0.28$) between identified challenges (in Online Teaching as Not Replacement of Face-to-Face Teaching) and teacher age at a 0.05 level of significance. For rechecking the outcome obtained, the symmetric measures used to test the association between challenges and teacher age divulge that, at the 0.05 level of significance, there is a weaker association between challenges in online teaching and teacher

age, as indicated by the phi value (ϕ = 0.294), Cramer's V value (ϕ_c = 0.208), and the contingency coefficient (C = 0.282). How background variables may affect online teaching, In Additionally, Alzahrani (2022) found that engagement of the student, expectancy, managing time as well as a variety of teaching abilities were key indicators employed in assessing the legitimacy of teaching online for numerous educational institutions throughout the outbreak of COVID-19. There is an earnest need for holistic, integrated, and age-inclusive approaches to facilitate teaching effectively and prevail over the hindrances accompanying web-based instruction.

In addition, Wekullo et al. (2024) uncover in their study that the educational institution, teachers, and students were taken aback as well as unprepared for the instantaneous and enormous shift to online teaching and learning and had difficulties involving virtual advancements for teaching and learning during the lockdown in COVID-19. These challenges ranged from inadequate or absence of internet transmission, preparation, and expanded teaching and learning workloads to restricted time for interactions.

Conclusion

The COVID-19 pandemic triggered an abrupt and large-scale shift from traditional face-to-face instruction to online teaching across the globe. This emergency transition, though necessary, exposed several critical gaps in digital education, especially in replicating the pedagogical richness of in-person classrooms. The present study attempted to shed some light to answer two major questions - What are the missing traits in online teaching that are enjoyable in face-to-face teaching and what are the challenges that make online teaching not a replacement for face-to-face teaching?

The present research highlights the missing traits in teaching online instruction as opposed to conventional teaching in face-to-face instruction. These traits encompass aspects such as "chalk and talk," "face-to-face interaction," "non-verbal interaction," "student-centric classroom," "psychological traits," "student assessment," and "Hands-on experience." The result indicates that teacher age does not significantly impact the perception of these missing traits in online teaching. This insight offers opportunities for enhancing online teaching by bridging the gap between the enjoyable aspects of face-to-face instruction and the landscape of digital education, benefiting educators and students alike.

The research further emphasizes the complex and multifaceted nature of the challenges encountered in online teaching, with minimal influence from teacher age. These findings underscore the need for holistic and age-inclusive approaches to support educators in effectively overcoming the obstacles associated with digital instruction. While specific issues may vary, the absence of a significant age-related influence implies a shared need for comprehensive support and professional development to enhance online teaching effectiveness across all age groups.

Considering the high impact of the research outcome, the major implications may be indicative to enlist. Online teaching during the COVID-19 pandemic lacked key elements of traditional classroom instruction, such as real-time interaction, non-verbal communication, and hands-on learning. Thus, it necessitates blended or hybrid pedagogy models that combine the strengths of both online and face-to-face approaches. Moreover, teacher education programme should device pedagogies for online teaching. Across all age groups, teachers perceived these missing traits. Hence, an inclusivity in professional development irrespective of teacher age and experience should be ensured by the Higher education to make teachers (effectively) adapt digital teaching environments. As previous research suggests aligning with the present study, challenges faced in online instruction are universal that point the need for board-based, inclusive support for all educators. Since, ‘chalk and talk’ and student centered classroom are valued by many teachers, these should be creatively adapted in online class environments through interactive whiteboard, e-quiz and rewarding, virtual collaborative activities. For the challenges with digital platforms that are more profound among faculty, the tailored professional skill enhancement sessions may be provided focusing on building digital competency, innovative use of online tools. There may be challenges in holding practical based courses and hands-on learning outcomes in online mode. In this regard, institutions should develop virtual labs, using simulation software. The research indicates a pathway for reframing the curriculum and pedagogy to normalize or mainstream digital platforms for teaching learning in higher education institutions.

Teachers’ background variables such as age, experience, educational qualification, or training provide only a partial view of what influences online teaching outcomes. The teaching-learning process is complex and affected by multiple interacting factors. The present research is limited to teacher age as background variable. Hence, future research may be conducted considering other occupational; sociological and psychological variables, like, teacher experience

and digital competency. Future research may enlist the demographic diversity of the sample of the study that limits the scope of generalizability of the findings to a broader population of teachers. In addition, the impact of online teaching is not immediate. Students and teachers may adapt gradually, or challenges may worsen as fatigue, motivation loss, or technological issues accumulate. Hence, A longitudinal study may be considered to investigate the effects on teaching-learning process caused by sustainability of these challenges in online teaching. Thus, the study cues for similar research to be conducted on diverse cross-cultural populations.

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