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# Online to Offline Education- Stress, Ethics, and Operational Concerns in the Pandemic Transition

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**Abstract**

Amidst the COVID-19 pandemic, educators and students endured a tumultuous two-year period marked by hasty tech integration, unprepared academic stakeholders, limited screen space, and a lack of control over educational processes. The return to offline classes and campus life was anticipated as a stress relief for higher education, but students had acclimated to online learning, rendering this transition a "new normal."

This study aimed to explore how teachers and students perceived the choices between online and offline education under these circumstances and the extent of stress experienced and its underlying causes. A web-based, mixed-method survey was employed when students were still at home, but the prospect of physical classes was emerging. Findings revealed that a third of respondents reported experiencing stress, even after vaccinations. The COVID-19 experience significantly influenced their attitudes towards transitioning back to regular classes and examinations. Respondents anticipated physical classes and exams would enhance learning practices, reduce unethical behavior, and bolster market acceptance.

In conclusion, a balanced blend of online and offline methods, considering various factors such as subject matter, engagement objectives, time, location, and space constraints, can prove more productive than rigid segregation.

**Keywords**: Higher education, stress, pandemic, online mode, offline mode

**Introduction**

Many universities adopted the hybrid-flexible (HyFlex) model, allowing students of higher education (HE) to attend a synchronous class either physically in a classroom environment or remotely in a virtual setting when COVID-19 was receding (Pathak & Palvia, 2021). The onset of the pandemic generated public fear and worry, severely impacted education, and necessitated the imposition of online education, negatively affecting HE students' mental health (Yaghi, 2022). The sudden change to online pedagogy was not a smooth transition and caused anxiety among higher education students (Arora et al., 2021). During the pandemic, nearly forty percent of the HE students reported mild or moderate, and twenty percent reported severe or extremely severe depression, anxiety, and stress; it was a significant problem due to unexpected life changes (Jiang et al., 2021). Additionally, high exam anxiety affected university students' performance and well-being, and females reported significantly higher anxiety (Alsaady et al., 2020).

In conjunction with suitable stakeholder management and blended learning, new-age technology became widespread during the pandemic (Bhuwandeep & Das, 2020). However, while online instruction during the pandemic helped continue education, it was also fraught with challenges. The demand for information and technological (IT) infrastructure went up drastically. Technical problems, digital divide and bandwidth (García-Morales et al., 2021); network coverage and device type (Azionya & Nhedzi, 2021); internet technology access and availability of power (Nazir & Khan, 2021) were infrastructure-related challenges that affected online education. The poor network and range were the most common barriers experienced (Atri et al., 2022). The urban-rural divide was accentuated, especially for online education. The lack of technology infrastructure affected HE students living in rural areas more adversely than their urban counterparts (Nazir & Khan, 2021).

Irrespective of the subject, all types of education were forced to be online, which influenced performance and stress to a varying degree. Even students in online language learning classes reported anxiety (Prasetya, 2021). However, a study on medical students reported higher post-test knowledge, skill scores, and satisfaction ratings than offline education, thus suggesting online teaching as a potential educational method (Gao et al., 2022).

***Impact on teachers and students***

The inertia of higher education institutions toward innovation in teaching has been blamed for teaching remaining traditional (Børte et al., 2020). Compared to traditional lectures, the active methodology reduced stress and anxiety significantly and improved undergraduate students' performance (Cardozo et al., 2020). However, the lockdown due to COVID-19 disrupted the classical pedagogy methods and forced an unplanned online mode (Gupta et al., 2022). University teachers' lack of technical skills is a significant barrier to the digitalization of higher education. Additionally, teachers consider digitalization an effort to trivialize education (Røe et al., 2022). The IT skills of faculty were identified as constraints (Nazir and Khan, 2021; Nursjanti, Amaliawiati and Nurani, 2021). Teachers found it difficult to monitor and change the HE students' learning behaviors in online classrooms (Chang & Fang, 2020). When students and teachers do not share the same physical space (e.g., online mode of education), teachers find it difficult to contextualize the gaze and source of the voice, giving rise to the difficulties of a fractured ecology (Bannink & Van Dam, 2021). Digital competence negatively affected synchronous lecture participation and attendance (Azionya & Nhedzi, 2021).

Themes such as dialogue, structure, and learner autonomy were essential for the synchronous virtual classroom sessions. Undergraduate and graduate students rated convenience, technical issues, and pedagogical preferences as significant elements in their learning experiences (McBrien et al., 2009). The limited internet access, content of digital slides, student's perception toward online learning, power outages, fear of losing marks, impact on employment, faculty skills in imparting online education, student's stress and health in the pandemic, and student skills to use distance learning tools are some identified challenges for online education (Nazir & Khan, 2021). In addition to these, financial difficulty was also a challenge during the pandemic (Nursjanti et al., 2021). An excessive number of classes and long duration of classes were cited as dissatisfiers (Atri et al., 2022). Students reported communication barriers (both verbal and nonverbal) that included personal, physical, psychological, and emotional barriers. Additionally, they reported a deterioration of individual analytical abilities and speech skills (Shrivastava et al., 2021). Nearly fifty percent of students self-reported being inattentive, and about seventy percent reported dissatisfaction regarding their understanding of the topic (Gupta et al., 2022).

Management students reported student-centric, content-centric, instructor-centric, and environment-centric barriers to online education (Bhuwandeep et al., 2022). Boredom, isolation, lack of time to follow the different subjects, lack of self-organizing capabilities, and low peer engagement and collaboration in online education were also reported (García-Morales et al., 2021). Increased workload and screen time became serious concerns (Gupta et al., 2022). Lack of motivation and a sense of loneliness limited digitalization as a pedagogical practice and students' well-being (Røe et al., 2022). Even the time of the day and socioeconomic status negatively affected online classes and attendance (Azionya & Nhedzi, 2021). Management students indicated the "timing of online classes" and "method of teaching" as important attributes of online course design (Das & Bhuwandeep, 2022). The quality of online education, adequacy of training, and ability to build rapport with teachers caused worry and anxiety (Yaghi, 2022). Stress, anxiety, and intolerance of uncertainty negatively correlated with online learning motivation. However, the motivation was higher in a mixed mode (synchronous and asynchronous mode) (Göksu, et al., 2021). These issues suggested analyzing psycho-demographic variables in designing and implementing online education programs is important (Göksu, et al., 2021).

***Pedagogy and anxiety***

A sudden shift in learning mode and changes in assessment techniques impacted students' learning engagement and assessment (Abed et al., 2022). The anxiety due to online examination was higher than that induced by COVID-19 (Arora et al., 2021). The online exam anxiety was also higher than in offline mode (Michałowska et al., 2022). However, the anxiety results were inconsistent, and gender differences were also observed (Sudarso et al., 2021).

Ethical considerations surfaced in online education. A high level of cheating behavior was documented in online examinations (Adzima, 2020). In addition, the equity, surveillance, consent, identity, and confidentiality of data (voice/video/text) transacted in a multi-user environment caused concern (Anderson & Simpson, 2007). The technology-enabled live proctoring in the online synchronous mode was proposed to mitigate academic integrity-related concerns (Weiner & Hurtz, 2017). Nevertheless, close to ninety percent of participants in the online education process questioned academic integrity (Gupta et al., 2022).

Students who define their self-worth by academic achievement measures try to secure high grades, become perfectionists, overvalue extrinsic rewards, and as a result, often suffer from withdrawal, stress, depression, and anxiety (Winkler, 2022). Students' self-created fears significantly triggered anxiety, causing a lack of concentration, overthinking, and fear of failing examinations during the pandemic (Ali et al., 2020). However, the hypothesis that anxiety and stress vary by nationality did not match empirical realities, indicating the need for a different outlook toward the learning process and differences in achievement and persistence (Rappleye & Komatsu, 2018). Similarly, though higher stress declines cognitive functioning and reduces performance, no significant relationship between stressors in all domains and anxiety was established (Noerhidajati et al., 2018). However, during the pandemic, students significantly preferred offline classes to online ones (Shrivastava, Ovais and Arora, 2021; Shrivastava *et al.*, 2022).

**Theoretical Background**

The pandemic enforced isolation among education stakeholders and thereby removed the social context. Further, continuous isolation was responsible for the development of different habits. Technology emerged to mediate the process of education. Thus, the social context, habits, education process, and outcome became the focus of research. Social constructivism and its extension to the web environment, technology acceptance, and challenges, the perception of distributive justice in education due to technology access, cognitive adaptation, and the role of habit to cause action and trigger emotion became broad theoretical debates during the pandemic. Constructivism indicates learning as an active and socio-culturally rooted experience (Fernando & Marikar, 2017). Social constructivism extends and emphasizes the collaborative nature of learning, showing that knowledge forms from how people interact with each other, their culture, and society. A different conceptualization indicates the role of the personal learning environment and the techno-social context in education, emphasizing technology dominance (Dabbagh & Castaneda, 2020). Web-based learning environments are another extension of social constructivism being focused on in extant research (Hill et al., 2009). The differential level of access to technology and expertise among the teachers and students brought forth the normative principles and distributive justice aspects of education. In the education process, habit indicates actions and practices interacting through the mind-body-environment to experiment in the present (Zembylas, 2021). Habit is also proposed to

be a generally effective form of action conduct, and its change is triggered by emotion (Petit & Ballet, 2021). The theory of cognitive adaptation postulates that creating positive illusions helps individuals cope with threats and protect their mental health (Czajkowska, 2017).

**Research Gap and Methodology**

As against the sudden change to online classes during the pandemic, reverting to normal offline classes was gradual. The COVID-19 incidences and infections, restrictions/lockdowns had decreased, and vaccination coverage increased. In addition, local governments have given extensive guidelines for reopening. Educational institutions were also cautious to avoid an infection panic and reopened gradually after preparation.

In this context, how eager were the students to revert to the offline mode of education? How did the habit (of the past two years), preference for, or advantage of online education influence their decision to revert to offline classes? Admittedly, there was a dearth of literature on the transition from online to offline. How this change was perceived was the broad objective of this research.

This study considered the following specific research objectives for the transition to offline classes and examination: (a) the comfort feel among respondents, (b) the feeling of stress, (c) preference for the mode of examination and class in the future, and (d) the impact of COVID-19 experience on the comfort feel, stress, and preference for mode in future.

A mixed methodology approach was adopted to identify the association of stress with the change in the mode of education, and the reasons for respondents' perception was investigated from their qualitative response. The second part of the study (qualitative) assessed if the current comfort levels about the classes and Examinations are related to the future preference for the classes and mode of examinations. The survey was anonymous, and no identifiable data was collected. The responses were voluntary, and respondents could exit at any time from the study.

***Instrument***

The instrument contained three sections. The first section included questions such as (1) class mode during COVID-19 and currently (In-person/online/mixed), (2) Mode of examination during COVID-19 and currently (In-person/online/mixed), (3) how comfortable one is for regular offline classes and examination (5-point Likert scale, 1- Not at all comfortable to 5-very comfortable), (4) Reason for their responses preferring mode of class and examination (qualitative), (5) Feeling of stress or anxiety in offline classes and examination (No/Yes); if yes then the reasons (qualitative), (6) Benefits or disadvantages of online classes and exams (qualitative), (7) Preferred mode of classes and examination in the future (offline/online/mixed) and reasons (qualitative). The second section constituted demography (gender, age, education level, student, and teacher). Finally, the third section included if respondents or their family members were exposed to COVID-19 and if one takes any regular medicine for illness.

***Sample***

*Site:* The study was conducted in Odisha, an eastern state of India. The sample consisted of teachers and students of various undergraduate and post-graduate programs in this part of India. *Sampling method:* Researchers forwarded the questionnaire link to their teachers and student contacts, requesting them to solicit additional responses. It was a convenience and snowball sampling method. The nature of sampling limited the responses to mostly Indian students and teachers in the study location.

*Procedure:* Responses were collected from 14$^{th}$ May 2022 to 17$^{th}$ June 2022 (during the second wave of COVID-19) through online mode. The questionnaire (web-based, self-reported) link was shared through the mail and social media platforms, requesting respondents to solicit additional responses. It was anonymous and depended on the respondents' choice to respond. By the time of data collection, 99.5 percent had taken at least one vaccination dose. Some qualitative responses used directly are indicated within quotation marks.

*Analysis:* Likert scale results were regrouped into three groups to improve comprehensibility. Chi-square and t-statistics were used to analyze and interpret the results.

**Results**

The sample consisted of 367 respondents, including 304 students and 63 teachers. The mean and standard deviation of students (21.3 ± 2.52) indicated adult learners. Compared to students, the age of teachers (45.60 ± 8.98) was expectedly high. Families of half of the respondents were exposed to COVID-19, but two-thirds of respondents did not have personal exposure. About 28 percent did not feel comfortable or were ambivalent in the offline class. Similarly, about 43 percent were not comfortable or ambivalent in the offline exams (Table 1).

*Table 1: Distribution of responses*

| | Online | % of total | Mixed | % of total | Face to Face | % |
|---|---|---|---|---|---|---|
| Class during COVID-19 | 300 | 81.7 | 52 | 14.2 | 15 | 4.1 |
| Exam during COVID-19 | 317 | 86.4 | 30 | 8.2 | 20 | 5.4 |
| Class Now | 92 | 25.1 | 117 | 31.9 | 158 | 43.1 |
| Exam Now | 137 | 37.3 | 62 | 16.9 | 168 | 45.8 |
| Preference for teaching in future | 39 | 10.6 | 108 | 29.4 | 220 | 59.9 |
| Preference for exams in future | 68 | 18.5 | 84 | 22.9 | 215 | 58.6 |
| | Not at all / not | % | Neutral | % | Comfortable /very comfortable | % |
| Comfort feel for F2F Class | 49 | 13.4 | 57 | 15.5 | 261 | 71.1 |
| Comfort feel for F2F exam. | 72 | 19.5 | 83 | 22.6 | 212 | 57.9 |
| | | | | | | |
| Stress Felt | No | % | Yes | % | | |
| | 243 | 66.2 | 124 | 33.8 | | |
| Gender | M | % | F | % | Did not disclose | % |
| | 203 | 55.3 | 160 | 43.6 | 4 | 1.1 |
| Teacher/ Student | Teacher | % | Student | % | | |
| | 63 | 17.2 | 304 | 82.8 | | |
| Covid Y/N | Yes | % | No | % | | |
| | 119 | 32.4 | 248 | 67.6 | | |
| Covid in Family Y/N | Yes | % | No | % | | |
| | 184 | 50.1 | 183 | 49.9 | | |
| Daily Medication Y/N | Yes | % | No | % | | |
| | 68 | 18.5 | 299 | 81.5 | | |

Table 1 indicates that 25 percent of the classes and 37 percent of the exams were online by the time of data collection. Around 45 percent of classes and exams were in offline mode. About 60 percent preferred offline classes and exams, but 19 percent preferred online examinations. However, the comfort feel for offline classes was much higher (71 percent). Thirty-four percent indicated that they felt stress.

*Table 2: Stress in face F2F class and exam by different categories*

| | Stress in F2F class and exam | | | |
|---|---|---|---|---|
| Category | No | Yes | Total | Pearson's Chi-Square, df, p |
| Teacher | 53 (84.1) | 10 (15.9 ) | 63 (100.0) | 10.910, 1, 0.001 |
| Student | 190 (62.5) | 114 (37.5) | 304 (100.0) | |
| Total | 243 (66.2) | 124 (33.8) | 367 (100.0) | |
| COVID= Yes | 68 (57.1) | 51 (42.9) | 119 (100.0) | 6.475, 1, 0.011 |
| COVID= No | 175 (70.6) | 73 (29.4) | 248 (100.0) | |

| | | | | |
|---|---|---|---|---|
| Total | 243 (66.2) | 124 (33.8) | 367 (100.0) | |
| Family COVID = Yes | 108 (58.7) | 76 (41.3) | 184 (100.0) | 9.320, 1,0.002 |
| Family COVID = No | 135 (73.8) | 48 (26.2) | 183 (100.0) | |
| Total | 243 (66.2) | 124 (33.8) | 367 (100.0) | |

Table 2 indicates students reported higher stress compared to teachers. In addition, teachers reported more comfort with F2F classes and exams than students. Personal and family exposure to COVID-19 was also significantly associated with stress experienced by the respondents.

The comfort feel was associated with the current mode of class and examination. Respondents with the current offline class and exam mode showed a significantly higher association with being comfortable (Table 3).

*Table 3: Comfort feel for F2F and Exam by current class and exam mode*

| | Comfort in a F2F class | | | | |
|---|---|---|---|---|---|
| | Not Comfortable | Neutral | Comfortable | Total | Pearson Chi-square, df, p |
| **Class now= Online** | 21 (22.8) | 24 (26.1) | 47 (51.1) | 92 (100) | 26.880, 4, 0.000 |
| **Class now= Mixed** | 12 (10.3) | 19 (16.2) | 86 (73.5) | 117 (100) | |
| **Class now= F2F** | 16 (10.1) | 14 (8.9) | 128 (81) | 158 (100) | |
| **Total** | 49 (13.4) | 57 (15.5) | 261 (71.1) | 367 (100) | |
| **Exam now= Online** | 25 (18.2) | 33 (24.1) | 79 (57.7) | 137 (100) | 21.041, 4, 0.000 |
| **Exam now= Mixed** | 7 (11.3) | 9 (14.5) | 46 (74.2) | 62 (100) | |
| **Exam now= F2F** | 17 (10.1) | 15 (8.9) | 136 (81) | 168 (100) | |
| Total | 49 (13.4) | 57 (15.5) | 261 (71.1) | 367 (100) | |
| | **Comfort in F2F exam** | | | | |
| | Not Comfortable | Neutral | Comfortable | Total | |
| **Class now= Online** | 30 (32.6) | 26 (28.3) | 36 (39.1) | 92 (100) | 31.664, 4, 0.000 |
| **Class now= Mixed** | 23 (19.7) | 33 (28.2) | 61 (52.1) | 117 (100) | |
| **Class now= F2F** | 19 (12) | 24 (15.2) | 115 (72.8) | 158 (100) | |
| **Total** | 72 (19.6) | 83 (22.6) | 212 (57.8) | 367 (100) | |
| **Exam now= Online** | 37 (27) | 40 (29.2) | 60 (43.8) | 137 (100) | 30.841, 4, 0.000 |
| **Exam now= Mixed** | 14 (22.6) | 19 (30.6) | 29 (46.8) | 62 (100) | |
| **Exam now= F2F** | 21 (12.5) | 24 (14.3) | 123 (73.2) | 168 (100) | |
| **Total** | 72 (19.6) | 83 (22.6) | 212 (57.8) | 367 (100) | |

There is a significant association between the current mode of class and comfort feel in offline class, exam mode now and comfort feel in the offline exam, preference for a future mode of class and current mode of class, and comfort feel in the offline exam, and preference for exam mode in future was observed. In all these cases, the offline mode shows a higher preference. Thus, it indicates a long-term persistence of behavior.

The following table (Table 4) indicated respondents whose family members were not affected by COVID-19 showed a significantly positive association with the comfort feel toward current offline classes and exams.

*Table 4: Preference for class and exam in the future by personal and family COVID-19 exposure*

| | Preference of class in the Future | | | | |
|---|---|---|---|---|---|
| | Online | Mixed | F2F | Total | Pearson's Chi Square, df, p |

| | | | | | |
|---|---|---|---|---|---|
| COVID= Yes | 24 (20.2) | 41 (34.5) | 54 (45.4) | 119 (100.0) | 22.832, 2, 0.000 |
| COVID= No | 15 (6.0) | 67 (27.0) | 166 (66.9) | 248 (100.0) | |
| Total | 39 (10.6) | 108 (29.4) | 220 (59.9) | 367 (100.0) | |
| Family COVID = Yes | 26 (14.1) | 61 (33.2) | 97 (52.7) | 184 (100.0) | 9.218, 2, 0.01 |
| Family COVID = No | 13 (7.1) | 47 (25.7) | 123 (67.2) | 183 (100.0) | |
| Total | 39 (10.6) | 108 (29.4) | 220 (59.9) | 367 (100.0) | |
| | Preference of Exam in the Future | | | | |
| | Online | Mixed | F2F | Total | |
| COVID= Yes | 37 (31.1) | 28 (23.5) | 54 (45.4) | 119 (100.0) | |
| COVID= No | 31 (12.5) | 56 (22.6) | 161 (64.9) | 248 (100.0) | 20.276, 2, 0.000 |
| Total | 68 (18.5) | 84 (22.9) | 215 (58.6) | 367 (100.0) | |

Irrespective of family exposure to the pandemic, the preference for offline exams in the future was not indicated. However, no significant difference between teachers and students was found for the preference for future classes and exams.

Table 5 (as shown below) indicates teachers are more comfortable in offline classes and exams ($p<0.05$), males are more comfortable in offline classes ($p<0.05$), but there is no difference in offline exams compared to females.

*Table 5:Mean Difference in the means of comfort feel by different categories for F2F class and exam*

| Comfort feel | Category | N | Mean | SD | t, df, p |
|---|---|---|---|---|---|
| F2FClass | Teacher | 63 | 4.3 | 0.8 | t= 3.7, df= 365, p= 0.000 |
| | Student | 304 | 3.7 | 1.2 | |
| F2F Exam | Teacher | 63 | 4.4 | 0.7 | t= 6.2, df= 365, p= 0.000 |
| | Student | 304 | 3.3 | 1.3 | |
| F2FClass | M | 203 | 4.0 | 1.1 | t= 2.1, df= 361, p= 0.039 |
| | F | 160 | 3.7 | 1.2 | |
| F2F Exam | M | 203 | 3.6 | 1.3 | t= 1.2, df= 361, p= 0.232 |
| | F | 160 | 3.4 | 1.2 | |
| F2FClass | COVID=Yes | 119 | 3.4 | 1.4 | t= -5.2, df= 365, p=0.000 |
| | COVID=No | 248 | 4.1 | 1.0 | |
| F2F Exam | COVID=Yes | 119 | 3.2 | 1.4 | t= -4.0, df= 365, p= 0.000 |
| | COVID=No | 248 | 3.7 | 1.1 | |
| F2FClass | COVID in Family=Yes | 184 | 3.6 | 1.3 | t= -3.3, df= 365, p= 0.001 |
| | COVID in Family=No | 183 | 4.0 | 1.0 | |
| F2F Exam | COVID in Family=Yes | 184 | 3.4 | 1.4 | t= -1.8, df= 365, p= 0.068 |
| | COVID in Family=No | 183 | 3.6 | 1.1 | |
| F2FClass | Daily Medicine=Yes | 68 | 3.3 | 1.4 | t= -4.3, df= 365, p=0.000 |
| | Daily Medicine=No | 299 | 4.0 | 1.1 | |
| F2F Exam | Daily Medicine=Yes | 68 | 3.2 | 1.3 | t= -2.5, df= 365, p= 0.011 |
| | Daily Medicine=No | 299 | 3.6 | 1.2 | |

If there is no exposure to COVID-19, then offline classes and exams are preferred ($p<0.05$). In case of no COVID-19 infection in the family, the offline class is preferred but not the offline exam. If the respondents take daily medicine, they do not prefer offline classes or exams ($p<0.05$). Daily medication did not show any statistical association with offline exams, stress, or preference for offline classes or exams in the future. This also indicates that persistent behavior does not induce stress.

***Qualitative Analysis***

Qualitative responses were categorized on the similarity of the theme and presented in conjunction with the specific questions.

*Preference for offline class*

Respondents comfortable or very comfortable proffered reasons under different categories such as (a) Improved learning (understanding, interactive, practical, effective, attention, concentration, monitoring (cannot sleep/ feedback in class), (b) Ambience or infrastructure (library access), (c) Socialization (know fellow students/ connect/ fun, exposure, communication, group/peer learning), (d) Habit (prior experience, normal expectation, change routine), (e) Avoid negative consequences (no cheating in the exam, high screen time, boredom/inactivity, technology hindrance, just entertainment) (f) Situation (no fear of infection)

Respondents not at all comfortable, ambivalent, or not comfortable responded (a) Habit (not attended offline class for 2 years, sudden change, addicted to the online class, require time to change, used to home comfort) (b) Health concern (risk of infection, existing health, possible physical exertion, bad personal experience in the pandemic, climate (heat), tiring, not vaccinated, lack of social distancing (c) Academic (ambiguity, comfortable for class but uncomfortable for syllabus and exam, not supportive teacher, hard to concentrate, examination, and faculty questions) (d) Technology availability (acquiring technical skill) (e) Social anxiety (meeting people, drug abuse/trauma in the hostel, relocation).

*Preference for offline examination*

Respondents who felt comfortable or very comfortable in offline examination responded (a) examination quality (fair, right, honest, real, sincere, authentic, quality, makes you serious, test knowledge and understanding, excitement), invigilation (improved, better, easy to monitor), evaluation (easy, right, actual performance, real, immediate satisfaction, and motivation) (b) normative belief (good for future, beneficial for students, true to ourselves, right feedback to parents, good for good students, rectify mistakes, transparent, prior expectation/ habit, normal way, tougher but necessary) (c) disadvantages of online (Dishonesty, laidback, network problem/ technology failure) (d) efficacy (No fear, capable of studying)

Respondents who were not at all comfortable, ambivalent, or not comfortable in offline examination described (a) Habit (not appeared in the offline exam in the last 2 years, need time to gain confidence, used to online, lack of time, cannot decide, not prepared, conditional on offline class and understanding, hard work, managing time, and the liberty to choose (b) effective (productive, no stress, no disturbances), (c) health concern (d) time-consuming (e) Unethical practice (no cheating possible) (f) social anxiety (not comfortable to write whey others are around, fear) (g) efficacy (not confident, not comfortable, give probable questions for the exam, and workload, teachers teach fast) (h) academic ambiguity (online study but offline exam).

*Stress in offline classes and examination*

Respondents who reported feeling stressed in reverting to offline classes and exams were asked to indicate their reasons. Stress reasons were as follows: (a) change of habit (getting up early, going to class every day, discipline), (b) efficacy (heavy course, lack of confidence, examination anxiety, specific subject-related difficulty, out of practice (gap of 2 years, lost the habit of writing fast), managing time) (c) Social engagement anxiety (possible distraction, physical interaction, sharing a room in the hostel) (d) Personal issues (bad mental health, no compassion, missing home environment) (e) context (health safety, unsuitable weather) (f) values (reduced chance of cheating). One response was, "Change is stressful."

Preference for the mode of class and exam in the future:

In addition to the advantages and disadvantages described earlier, respondents preferred mode for the future indicated (a) emotional bond with students in offline classes, (b) avoiding gadget addiction, and (c) building trust among recruiters as reasons to attend offline classes.

The mixed mode advocates indicated global exposure, access to subject experts online, nature of learning (seminar, workshops, conference- online, theory online, practical offline), and giving a choice to the learner. The importance of time in mode was indicated (regular classes should be offline, but other activities, e.g., student presentations in an online mode beyond the class time). The preference for mixed-mode exams were due to (a) inability to reach exam location, (b) decreased writing capabilities, (c) subject relevance and objective (e.g., entrance–online but regular exam offline, core subject offline but electives online), and (d) the liberty to choose.

Respondents advocating online indicated cost and time reduction, introverted students (not judged), physical safety (e.g., low immunity), record and playback facility, and preference for the home environment. For example, one response was, "I refer to YouTube even in offline mode to understand concepts. It doesn't matter how well the teacher teaches." In addition, online exam reasons were (a) more accurate, (b) no paper wastage, (c) avoiding distractions, (d) absence of an invigilator, (e) less exam anxiety, and (f) scoring better grades.

**Discussion**

The requirement of academic rigor, risk of infection, and prior personal and family exposure to COVID-19 were crucial contextual factors influencing the stress and preference for the mode of exams and classes. In addition, individuals were continually quarantined at home for two years; home comfort, duties, responsibilities, and concomitant distractions formed a habit and likely influenced the choice of mode. Offline classes are long-duration activities, and exams are short-duration, end-of-period events, thus explaining the differences in preferences between the modes. But, various periodic assessments in higher education courses make it long-duration activities.

Expectedly, teachers were more comfortable in offline classes and exams than students, possibly due to their habit or lack of technical efficacy (Børte et al., 2020; Cardozo et al., 2020; Røe et al., 2022; Azionya & Nhedzi, 2021). Teachers also indicated significantly lower stress compared to students.

Personal and family exposure to COVID significantly influenced the comfort in offline classes and exams, perceived stress to returning to offline classes and exams, and their preference for future classes. In addition, own health and family's health were of concern due to the contagious nature of the virus. Similarly, those not taking any daily medication expressed higher comfort with offline classes but not with other factors.

The current mode of classes indicated a significant association with the comfort feel of offline class, exam, and expected mode of class and exam in the future. This shows two distinct aspects. First, the comfort feel possibly depends on physical interaction and progressively increases in online, mixed, and offline modes. Secondly, a transition being in place was appreciated to break the monotony of quarantine. Prior research also suggested similar findings, albeit offline to online. García-Morales et al. (2021) indicated technical problems, digital divide, bandwidth connection, boredom and sense of isolation, lack of time to follow the different subjects, and lack of self-organizing capabilities, peer engagement, and collaboration as relevant factors.

The qualitative analysis richly contributed to understanding the choices of modes of class and examination. Broadly, the differences in the mode of education and exam hinged upon (a) perceived learning, (b) evaluation integrity, (c) long-term outcome, (d) ambiance/ infrastructure, (e) Personality factors (introvert/ extrovert), (f) socialization (peer, teacher-student, socialization anxiety), (g) habit (avoidance of negative consequences due to medium), (h) context/ situation, (i) role of technology (infrastructure, efficacy), (j) individual efficacy, (k) other competitive priorities (e.g., family responsibility, space and time flexibility required), (l) market acceptance/ valuation due to the mode, and (m) cost differential between different modes.

The qualitative analysis also indicated the deontological principle where respondents considered education-related duties (e.g., sincerity of teachers and students). Furthermore, the procedural justice aspect of education being fair acted in favor of offline class (e.g., the reduced scope for cheating), and finally, the distributive justice (urban/ rural divide and inability of teachers to identify weak students to take remedial action) were responsible for choices of the medium of education and examination.

Online mode of education can increase audience capacity. However, the span of vision, monitoring, and control in digital screen space is much more limited than in offline mode. The inability to monitor or feeling left out can cause dissatisfaction. Teachers cannot effectively assess non-verbal cues to judge comprehension and address difficulty. The fractured ecology (where teachers and students do not share the same physical space) makes it challenging to manage the class. First, students gain some control to become inattentive (switching off/ mute/ non-responsive). Secondly, students are subjected to multiple information flows from their environment (multiple devices/ home environment), causing them to multi-task (e.g., texting, responding to other information available on various devices, and sharing multiple spaces), resulting in inattentiveness. The physical class environment ensures isolation from the environment, which is impossible in a digital mode.

***Limitations***

Pathak and Palvia (2021) classified various methods as HyFlex, Hybrid, offline, and online traditional. This research considered only synchronous online and offline modes, as was prevalent during COVID-19. This study has generic limitations applicable to the online survey method. Though the variation in stress levels was not measured, the study focused on stress due to a change in teaching-learning mode from online to offline. The research did not seek responses on additional non-academic facilities that could influence stress perception. The sample also excluded international students and their requirements, thereby limiting the findings.

***Future research direction***

Respondents of this study indicated that offline education improves motivation, competitive spirit, and understanding. Given the similarity of processes between online and offline, how proximity brings such improvements is poorly understood. Online education has been associated with a lack of control, inattentive behavior, and unethical practices during the examination. On the other hand, the proliferation of online education programs suggests higher acceptability and engagement. Respondents indicated higher willingness and sincerity in offline mode, but how to influence the willingness needs further explanation in higher education. One observation indicated that recruiters have different attitudes toward candidates with offline or online education. This perception needs to be substantiated by further research.

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