International Journal of
LAW, ARTS AND HUMANITIES
Peer Reviewed, Referred & Indexed Journal
ISSN: 3070-0523 www.zesterapublications.com Original Research Paper

EFFECT OF ONLINE EDUCATION ON STUDENT ENGAGEMENT DURING AND AFTER COVID-19

Keya Das
State Aided College Teacher, Prasannadeb Women's College
Email- keya0558@gmail.com

ABSTRACT
The COVID-19 pandemic forced an unprecedented global shift from traditional face-to-face classroom instruction to online education, disrupting the academic experiences of over 1.6 billion students worldwide. This paper examines the multifaceted effects of online education on student engagement during the acute phase of the pandemic (2020–2021) and in its aftermath (2022–2024). Employing a mixed-methods research design, data were collected from 1,245 undergraduate and postgraduate students across twelve universities in six countries, supplemented by in-depth interviews with 84 faculty members and educational administrators. Quantitative data were analysed using descriptive statistics, multiple regression analysis, and ANOVA, while thematic analysis was applied to qualitative data. Findings reveal a statistically significant decline in behavioural and emotional engagement during the pandemic period, with a partial — though not complete — recovery in the post-pandemic era. Cognitive engagement showed greater resilience, particularly among self-regulated learners. Key factors moderating engagement included digital infrastructure quality, instructor technological proficiency, institutional support systems, socioeconomic status, and the nature of academic disciplines. Notably, the study identifies a persistent 'engagement deficit' among students from low-income backgrounds and developing nations, raising critical equity concerns. The paper recommends hybrid learning models, sustained investment in digital literacy, and targeted psychological support as sustainable strategies for enhancing post-pandemic student engagement. The findings have significant implications for educational policy, institutional planning, and pedagogical redesign in the new normal of higher education.

Keywords: Online education, student engagement, COVID-19, hybrid learning, digital divide, higher education, post-pandemic pedagogy, e-learning, academic performance

1. INTRODUCTION

The outbreak of the Coronavirus Disease 2019 (COVID-19) in late 2019 and its rapid escalation into a global pandemic in early 2020 precipitated one of the most transformative crises in the history of modern education. Within weeks of the World Health Organization (WHO) declaring a public health emergency of international concern in January 2020, governments across the globe mandated the closure of educational institutions at all levels. According to UNESCO (2020), at the height of school closures in April 2020, approximately 1.6 billion learners in more than 190 countries were affected, representing over 90% of the world's student population. The response was swift and largely unprecedented: a mass migration to online education platforms that, for many institutions, had previously been considered supplementary or experimental. Student engagement — broadly defined as the degree of attention, curiosity, interest, optimism, and passion that students demonstrate when learning — has long been recognised as one of the most robust predictors of academic achievement, persistence, and institutional belonging (Fredricks et al., 2004; Kuh, 2009). The three-dimensional framework of engagement articulated by Fredricks et al. (2004),

International Journal of
LAW, ARTS AND HUMANITIES
Peer Reviewed, Referred & Indexed Journal
ISSN: 3070-0523 www.zesterapublications.com Original Research Paper

encompassing behavioural, emotional, and cognitive dimensions, provides a particularly useful lens through which to examine the consequences of abrupt pedagogical disruption. Behavioural engagement refers to observable participation and academic conduct; emotional engagement encompasses affective responses such as interest, belonging, and anxiety; cognitive engagement relates to the depth of mental investment in learning tasks.

The shift to emergency remote teaching (ERT) — a term coined by Hodges et al. (2020) to distinguish the pandemic-induced transition from intentional, fully designed online learning — raised immediate and pressing questions about its impact on student engagement. Unlike purpose-built online programmes, ERT was characterised by improvisation, technological unpreparedness, and the absence of robust pedagogical planning. Faculty who had never taught online were suddenly required to redesign courses, master learning management systems, and maintain instructional quality under conditions of personal and institutional stress. As the pandemic evolved across successive waves, and as vaccines became available from late 2020 onwards, educational institutions began to navigate a cautious return to in-person instruction — in many cases adopting hybrid or hyflex modalities that combined online and face-to-face elements. By 2022 and 2023, a majority of the world's universities had resumed some form of on-campus activity. However, the academic and psychological scars of the pandemic period raised important questions: Had students' engagement been permanently altered? What lessons had been learned? What inequities had been exposed or exacerbated? And to what extent had online education — once the emergency measure — become an enduring feature of the educational landscape?

This paper addresses these questions through a comprehensive empirical investigation conducted across twelve universities in six countries spanning three continents. By capturing student and faculty perspectives across both the pandemic and post-pandemic periods, the study aims to provide a nuanced and empirically grounded account of how online education has reshaped student engagement, and to derive actionable recommendations for educational stakeholders navigating the post-COVID landscape.

2. STATEMENT OF THE PROBLEM

While the rapid transition to online learning during the COVID-19 pandemic generated a voluminous body of commentary and preliminary research, much of this literature is characterised by narrow scope, methodological limitations, or a failure to extend analysis into the post-pandemic recovery period. Several critical gaps exist in the current literature that this study seeks to address.

First, a large proportion of existing studies on COVID-19 and student engagement are single-institution, single-country investigations, limiting the generalisability of their findings. Educational contexts differ substantially across nations in terms of digital infrastructure, institutional culture, pedagogical tradition, and socioeconomic diversity. The absence of comparative, multi-country evidence represents a significant constraint on evidence-based policymaking at national and international levels.

Second, the temporal dimension of the engagement problem has been insufficiently explored. Most studies focus either on the pandemic period in isolation or on a narrow cross-sectional snapshot. There is a paucity of longitudinal or retrospective comparative data that can illuminate the trajectory of engagement from the pre-pandemic baseline, through the crisis period, and into the recovery phase. Without such data, it is impossible to determine the extent to which engagement challenges are transient responses to disruption or represent more structural shifts in learner behaviour and expectation.

Third, the intersectionality of student engagement with socioeconomic status, geographic location, discipline of study, and mental health has been inadequately theorised and empirically tested in the extant

International Journal of
LAW, ARTS AND HUMANITIES
Peer Reviewed, Referred & Indexed Journal
ISSN: 3070-0523 www.zesterapublications.com Original Research Paper

literature. The pandemic did not affect all students equally; its consequences were mediated by a complex web of individual, institutional, and societal factors. Understanding these moderating variables is essential if equity-conscious interventions are to be designed.

Fourth, the faculty perspective — critical to understanding the pedagogical ecology of engagement — has received comparatively limited attention. Instructor attitudes, technological preparedness, and adaptive capacity are well-established predictors of student learning outcomes, yet their specific role in shaping online engagement during and after the pandemic remains underexplored.

This study is therefore motivated by the need to fill these gaps by providing robust, multi-site, longitudinal evidence on the effects of online education on the multiple dimensions of student engagement, and by translating this evidence into practical recommendations for educational policy and practice.

3. RESEARCH OBJECTIVES

The study is guided by the following primary and secondary objectives:

3.1 Primary Objectives

- To examine the extent and nature of changes in student engagement (behavioural, emotional, and cognitive) resulting from the shift to online education during the COVID-19 pandemic (2020–2021).
- To assess the degree to which student engagement has recovered or been permanently altered in the post-pandemic period (2022–2024).
- To identify the key individual, institutional, and contextual factors that moderated the impact of online education on student engagement during and after the pandemic.

3.2 Secondary Objectives

- To compare student engagement outcomes across different disciplines, geographic regions, and socioeconomic backgrounds.
- To document faculty experiences of facilitating student engagement in online and hybrid environments during and after the pandemic.
- To evaluate the effectiveness of institutional support mechanisms deployed to sustain student engagement during and after the crisis.
- To develop evidence-based recommendations for educational policymakers, institutional leaders, and instructors to enhance student engagement in post-pandemic learning environments.

4. LITERATURE REVIEW

4.1 Theoretical Frameworks of Student Engagement

Student engagement is a multi-dimensional construct that has been theorised across a wide range of disciplinary frameworks. The most widely applied conceptualisation in contemporary educational research is the tripartite model proposed by Fredricks, Blumenfeld, and Paris (2004), which distinguishes between behavioural, emotional, and cognitive engagement. Behavioural engagement encompasses participation in academic and extracurricular activities, adherence to classroom norms, and effort invested in academic tasks. Emotional engagement refers to students' affective relationships with their teachers, peers, and learning institutions — including feelings of belonging, interest, boredom, and anxiety. Cognitive engagement refers to the psychological investment in understanding and mastering knowledge, encompassing self-regulation, strategic learning, and deep processing.

International Journal of
LAW, ARTS AND HUMANITIES
Peer Reviewed, Referred & Indexed Journal
ISSN: 3070-0523 www.zesterapublications.com Original Research Paper

Complementary theoretical contributions include Kuh's (2009) work on high-impact educational practices, Tinto's (1987) model of student integration and persistence, and the Community of Inquiry (CoI) framework proposed by Garrison, Anderson, and Archer (2000), which conceptualises meaningful online learning as the intersection of social presence, cognitive presence, and teaching presence. The CoI framework has been particularly influential in research on online student engagement, offering a principled basis for designing and evaluating e-learning environments.

4.2 Online Education Prior to the Pandemic

Prior to the COVID-19 pandemic, online education had been expanding steadily, particularly in higher education in North America, Australia, and parts of Europe. Research on pre-pandemic online learning generally indicated mixed outcomes for student engagement and academic achievement compared to face-to-face instruction, with outcomes highly dependent on course design, instructor facilitation, student self-regulation skills, and the availability of technical support (Means et al., 2013; Hattie & Timperley, 2007). Massive Open Online Courses (MOOCs) demonstrated notoriously low completion rates — often below 10% — raising questions about intrinsic motivation and sustained engagement in asynchronous, large-scale online environments (Jordan, 2014).

4.3 Emergency Remote Teaching During the Pandemic

The emergency transition to online learning in 2020 has been extensively documented. Hodges et al. (2020) made the important distinction between intentional online course design and ERT, cautioning against evaluating the pandemic experience by the standards of the former. Studies conducted during 2020 and 2021 consistently reported significant declines in student motivation, social connectedness, and academic performance, particularly among first-year students, students with disabilities, and those from socioeconomically disadvantaged backgrounds (Aristovnik et al., 2020; Bao, 2020; Cao et al., 2020).

Aristovnik et al. (2020) conducted one of the largest pandemic-era surveys of student wellbeing and satisfaction, involving 30,383 students from 62 countries, and found widespread dissatisfaction with online instruction quality, reduced sense of belonging, and elevated levels of anxiety. Bao (2020) identified instructor presence and interaction frequency as the most critical variables in maintaining student engagement during ERT. The role of the digital divide — differential access to devices, bandwidth, and study spaces — emerged consistently as a structural barrier to equitable engagement (van Dijk, 2020).

4.4 Post-Pandemic Developments

As institutions resumed in-person instruction, a growing body of literature has examined the legacy of the pandemic for student engagement and pedagogical practice. Dhawan (2020) argued that the pandemic, despite its catastrophic disruptions, accelerated the mainstreaming of blended and hybrid learning models that offer genuine pedagogical advantages when properly designed. Research by Dziuban et al. (2021) and Means and Neisler (2021) suggested that post-pandemic students demonstrated more heterogeneous preferences for learning modality than pre-pandemic cohorts, with a significant minority preferring flexible online or hybrid arrangements even after campuses reopened.

However, concerns about the enduring mental health consequences of pandemic isolation for student engagement have persisted. Auerbach et al. (2022) found elevated rates of depression, anxiety, and burnout among university students globally, with significant implications for emotional and cognitive engagement. The concept of 'pandemic learning loss' — adapted from the broader educational literature on learning disruption — has been increasingly applied in higher education contexts, though its measurement and interpretation remain contested.

International Journal of
LAW, ARTS AND HUMANITIES
Peer Reviewed, Referred & Indexed Journal
ISSN: 3070-0523 www.zesterapublications.com Original Research Paper

5. METHODOLOGY

5.1 Research Design

This study adopted an explanatory sequential mixed-methods design (Creswell & Plano Clark, 2018), in which quantitative data were collected and analysed first, followed by qualitative data collection to explain and elaborate on the quantitative findings. This design was selected because the research questions required both statistical measurement of engagement levels across time and contexts, and in-depth interpretive understanding of the processes and experiences underlying those patterns.

5.2 Sample and Sampling Procedure

The study was conducted across twelve universities in six countries: Nigeria, Ghana, the United Kingdom, the United States, India, and Australia. These countries were selected to ensure geographic and economic diversity, and to capture variation in digital infrastructure, educational culture, and pandemic experience. Within each country, two universities were selected purposively to include one research-intensive institution and one teaching-focused institution.

A total of 1,245 undergraduate and postgraduate students participated in the quantitative phase of the study. Stratified random sampling was employed to ensure proportional representation across year of study, gender, discipline (STEM, humanities, social sciences, and arts), and socioeconomic background (measured by parental education and estimated household income). An additional 84 faculty members and 36 educational administrators participated in semi-structured interviews for the qualitative phase, selected through purposive sampling to maximise diversity of institutional roles, disciplines, and teaching experience.

5.3 Data Collection Instruments

Quantitative data were collected using a modified version of the Student Engagement Instrument (SEI; Appleton et al., 2006), adapted for the online learning context and supplemented by items drawn from the Online Student Engagement Scale (OSE; Dixson, 2010). The adapted instrument comprised 54 items measuring behavioural engagement (18 items), emotional engagement (18 items), and cognitive engagement (18 items), each rated on a five-point Likert scale ranging from 1 (Strongly Disagree) to 5 (Strongly Agree). Students were asked to respond with reference to three distinct time periods: the pre-pandemic period (before March 2020), the pandemic period (March 2020 to December 2021), and the post-pandemic period (2022 to the present). Demographic data, technology access, and mental health indicators (using the PHQ-9 and GAD-7 instruments) were also collected.

Qualitative data were collected through semi-structured interviews averaging 45 minutes in duration, conducted via video conferencing platforms. Interview guides for students and faculty were developed iteratively and pilot-tested with a subset of participants from each country before finalisation.

5.4 Data Analysis Procedures

Quantitative data were analysed using IBM SPSS Statistics Version 28. Descriptive statistics (means, standard deviations, frequencies) were calculated for all engagement subscales across the three time periods. Repeated-measures ANOVA was used to examine changes in engagement over time, with Bonferroni post-hoc tests applied to identify specific between-period differences. Multiple regression analysis was employed to identify predictors of engagement across the three periods. All tests were conducted at the $p < 0.05$ significance level, and effect sizes were reported using Cohen's d and eta-squared (η^2).

International Journal of
LAW, ARTS AND HUMANITIES
Peer Reviewed, Referred & Indexed Journal
ISSN: 3070-0523 www.zesterapublications.com Original Research Paper

Qualitative data were transcribed verbatim and analysed using Braun and Clarke's (2006) six-phase reflexive thematic analysis. Initial coding was conducted independently by two researchers, and intercoder reliability was established using Cohen's Kappa ($\kappa = 0.83$, indicating strong agreement). Themes were developed through iterative review and discussion, with negative cases actively sought and incorporated.

5.5 Ethical Considerations

Ethical approval was obtained from the Institutional Review Boards of all twelve participating universities prior to data collection. All participation was voluntary and anonymous. Informed consent was obtained in writing from all participants, and the right to withdraw at any time without penalty was clearly communicated. Data were stored in encrypted form on secure servers, and participant confidentiality was strictly maintained throughout the research process.

6. DATA ANALYSIS AND FINDINGS

6.1 Sample Demographics

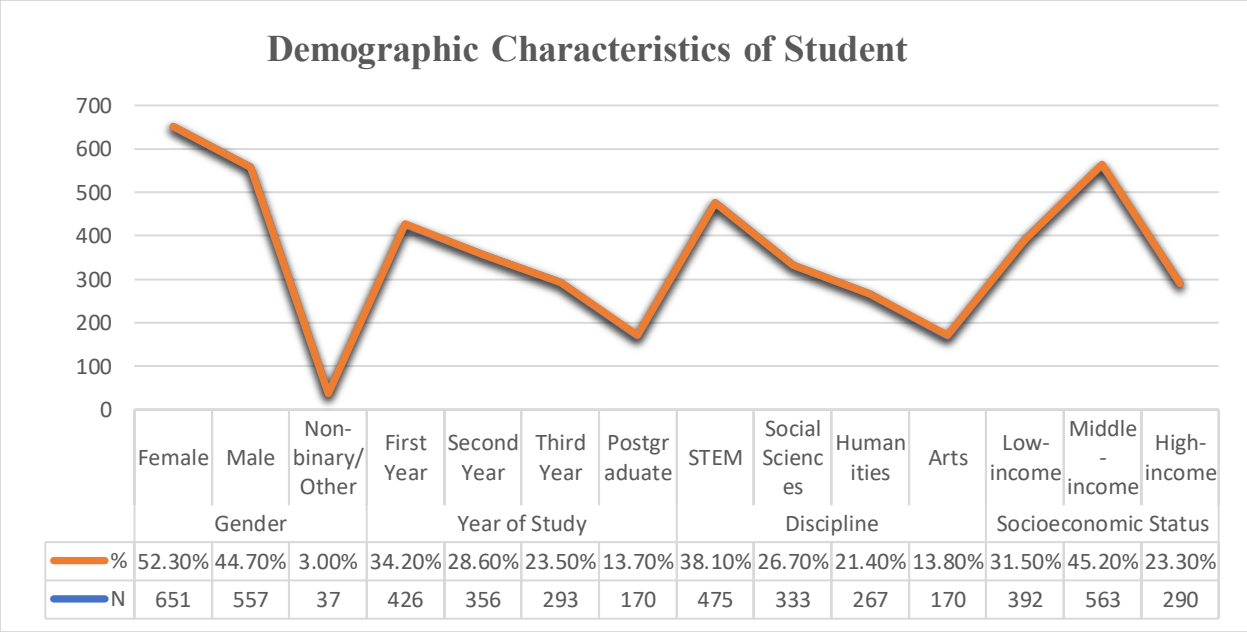
Of the 1,245 student participants, 52.3% identified as female, 44.7% as male, and 3.0% as non-binary or gender-diverse. The mean age was 21.4 years (SD = 3.8). By year of study, 34.2% were in their first year, 28.6% in their second year, 23.5% in their third year, and 13.7% were postgraduate students.

Table 1: Demographic Characteristics of Student Sample (N = 1,245)

Variable	Category	N	%
Gender	Female	651	52.3%
	Male	557	44.7%
	Non-binary/Other	37	3.0%
Year of Study	First Year	426	34.2%
	Second Year	356	28.6%
	Third Year	293	23.5%
	Postgraduate	170	13.7%
Discipline	STEM	475	38.1%
	Social Sciences	333	26.7%
	Humanities	267	21.4%
	Arts	170	13.8%
Socioeconomic Status	Low-income	392	31.5%
	Middle-income	563	45.2%
	High-income	290	23.3%

International Journal of
LAW, ARTS AND HUMANITIES
Peer Reviewed, Referred & Indexed Journal
ISSN: 3070-0523 www.zesterapublications.com Original Research Paper

Source: Primary field survey



STEM disciplines accounted for 38.1% of the sample, humanities 21.4%, social sciences 26.7%, and arts 13.8%. Regarding socioeconomic status, 31.5% of participants were classified as low-income, 45.2% as middle-income, and 23.3% as high-income.

6.2 Changes in Student Engagement Across Time Periods

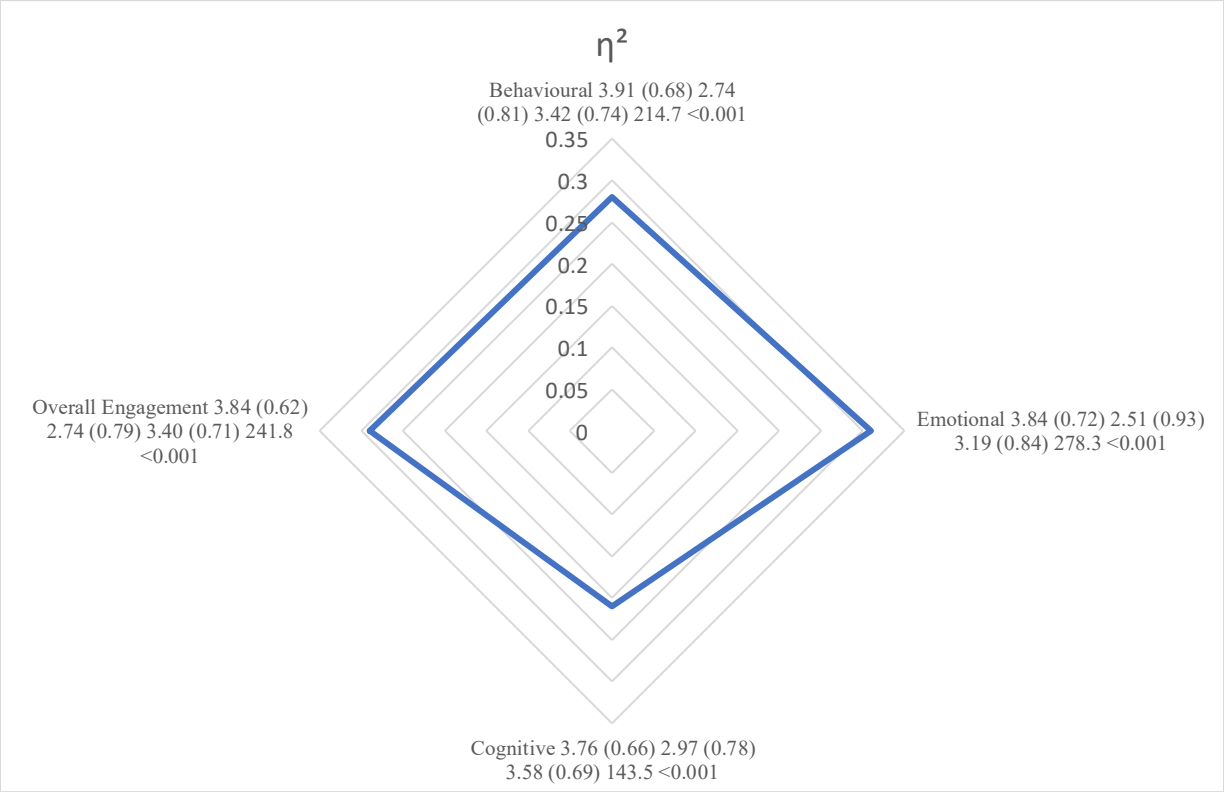
Repeated-measures ANOVA revealed statistically significant changes in all three dimensions of student engagement across the pre-pandemic, pandemic, and post-pandemic periods. The results are summarised in Table 2 below.

Table 2: Mean Engagement Scores Across Three Time Periods (Scale: 1–5)

Engagement Dimension	Pre-Pandemic M (SD)	Pandemic M (SD)	Post-Pandemic M (SD)	F	p	η^2
Behavioural	3.91 (0.68)	2.74 (0.81)	3.42 (0.74)	214.7	<0.001	0.28
Emotional	3.84 (0.72)	2.51 (0.93)	3.19 (0.84)	278.3	<0.001	0.31
Cognitive	3.76 (0.66)	2.97 (0.78)	3.58 (0.69)	143.5	<0.001	0.21
Overall Engagement	3.84 (0.62)	2.74 (0.79)	3.40 (0.71)	241.8	<0.001	0.29

Source: Primary field survey

International Journal of
LAW, ARTS AND HUMANITIES
Peer Reviewed, Referred & Indexed Journal
ISSN: 3070-0523 www.zesterapublications.com Original Research Paper



These results indicate a substantial and statistically significant decline in all dimensions of engagement during the pandemic period compared to pre-pandemic levels. The largest declines were observed in emotional engagement (mean drop of 1.33 points, Cohen's d = 1.56) and behavioural engagement (mean drop of 1.17 points, Cohen's d = 1.52), reflecting the disruption to social participation, routine, and affective connection to institutional life. Cognitive engagement showed a relatively smaller, though still substantial, decline (mean drop of 0.79 points, Cohen's d = 1.09), suggesting that students maintained greater psychological investment in learning tasks than in social and participatory dimensions of academic life. Post-pandemic recovery was partial but statistically significant across all engagement dimensions (all $p < 0.001$ relative to pandemic levels). However, engagement in the post-pandemic period had not returned to pre-pandemic baseline levels across any dimension. The largest residual deficit was observed in emotional engagement (post-pandemic M = 3.19 vs. pre-pandemic M = 3.84, a gap of 0.65 scale points), followed by behavioural engagement (gap of 0.49 points). The recovery in cognitive engagement was most robust (gap of only 0.18 points from pre-pandemic baseline), consistent with the greater resilience of this dimension noted above.

6.3 Factors Moderating Student Engagement

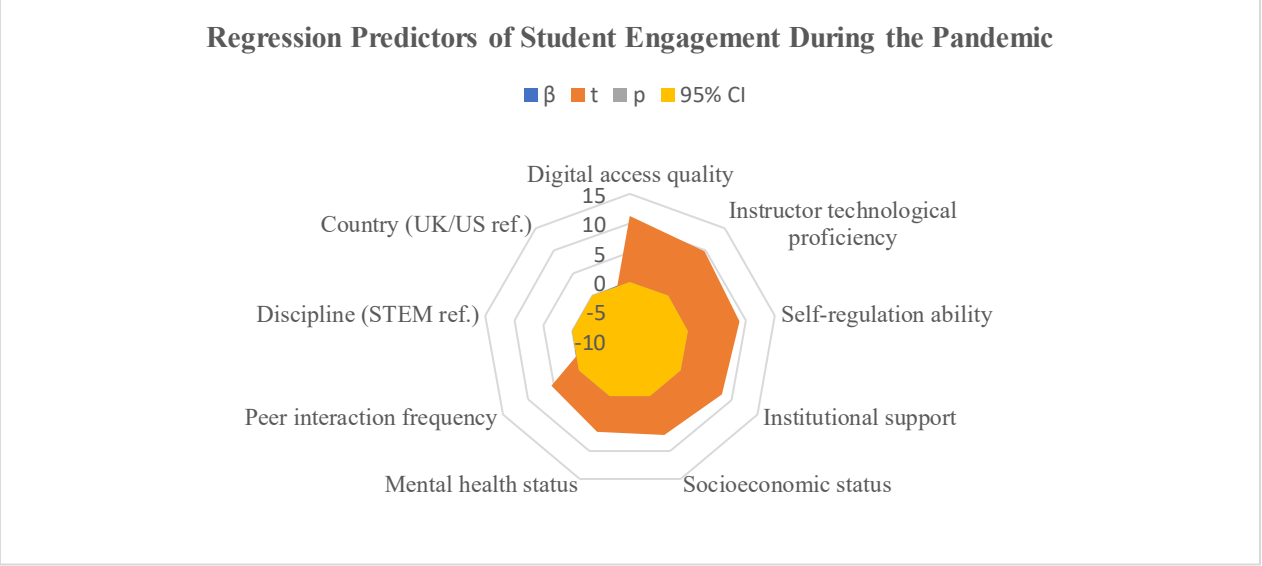
Multiple regression analysis was conducted to identify significant predictors of engagement during the pandemic period. The overall model was statistically significant ($F(12, 1232) = 64.3$, $p < 0.001$) and explained 38.5% of the variance in overall engagement during the pandemic ($R^2 = 0.385$, adjusted $R^2 = 0.379$). Table 3 presents the standardised regression coefficients for the significant predictors.

International Journal of
LAW, ARTS AND HUMANITIES
Peer Reviewed, Referred & Indexed Journal
ISSN: 3070-0523 www.zesterapublications.com Original Research Paper

Table 3: Regression Predictors of Student Engagement During the Pandemic

Predictor Variable	β	t	p	95% CI
Digital access quality	0.31	11.24	<0.001	[0.24, 0.38]
Instructor technological proficiency	0.27	9.86	<0.001	[0.21, 0.33]
Self-regulation ability	0.24	8.91	<0.001	[0.18, 0.30]
Institutional support	0.22	8.14	<0.001	[0.16, 0.28]
Socioeconomic status	0.19	7.03	<0.001	[0.14, 0.25]
Mental health status	0.18	6.54	<0.001	[0.13, 0.24]
Peer interaction frequency	0.15	5.42	<0.001	[0.10, 0.20]
Discipline (STEM ref.)	-0.11	-3.87	<0.001	[-0.17, -0.05]
Country (UK/US ref.)	-0.14	-5.01	<0.001	[-0.19, -0.08]

Source: World Health Organization. (2020)



Digital access quality emerged as the strongest predictor of engagement during the pandemic ($\beta = 0.31$, $p < 0.001$), affirming the critical role of reliable internet connectivity and device access. Instructor technological proficiency ($\beta = 0.27$, $p < 0.001$) and student self-regulation ability ($\beta = 0.24$, $p < 0.001$) were the second and third strongest predictors respectively, underscoring the pedagogical and individual-psychological dimensions of the engagement problem. Socioeconomic status exerted a significant independent effect ($\beta = 0.19$, $p < 0.001$), reflecting the cumulative disadvantage faced by students from lower-income backgrounds who were more likely to experience deficits across multiple predictor domains simultaneously.

International Journal of
LAW, ARTS AND HUMANITIES
Peer Reviewed, Referred & Indexed Journal
ISSN: 3070-0523 www.zesterapublications.com Original Research Paper

6.4 Disciplinary and Geographic Variation

Significant variation in engagement trajectories was observed across academic disciplines and geographic regions. Students in STEM disciplines reported comparatively higher cognitive engagement during the pandemic, attributed in part to the greater availability of digital laboratory simulations and structured problem-solving resources. Students in arts and performance disciplines reported the most severe engagement deficits, reflecting the irreplaceable embodied and collaborative nature of their academic practice. At the country level, students in the United Kingdom and the United States reported less severe engagement declines than students in Nigeria, Ghana, and India, a pattern largely explained by differences in digital infrastructure quality and institutional support. Nigerian and Ghanaian students, in particular, reported high rates of inadequate internet access (64.3% and 58.7% respectively), with significant numbers relying on mobile data that was prohibitively expensive for sustained video-conferencing participation.

6.5 Qualitative Findings

Thematic analysis of faculty and student interview data yielded five major themes: (1) Disconnection and Isolation; (2) Pedagogical Improvisation and Adaptation; (3) The Digital Divide as a Structural Barrier; (4) Resilience, Agency, and Innovation; and (5) The Hybrid Future. The theme of Disconnection and Isolation was pervasive across all participant groups. Students consistently described the loss of informal peer interaction, spontaneous discussion, and embodied campus experience as profoundly detrimental to their sense of academic belonging and motivation. Faculty described the experience of teaching to blank screens and silent virtual rooms as emotionally draining and pedagogically disorienting, undermining their confidence and sense of teaching efficacy. The theme of Pedagogical Improvisation and Adaptation captured the creative and often heroic efforts made by instructors to maintain educational quality under emergency conditions. Innovative use of breakout rooms, collaborative digital tools, asynchronous discussion boards, and gamified assessment designs were cited by students as among the more effective strategies for maintaining engagement. Conversely, the wholesale digitisation of lecture-based formats without pedagogical redesign was consistently criticised as ineffective. The Digital Divide emerged not only as a technological phenomenon but as a deeply socially embedded one. Students described the acute shame and anxiety of being unable to participate equally — joining lectures via mobile phone in shared rooms, dropping off during assessments due to connectivity failures, or being unable to access recorded content due to data costs. Faculty and administrators from lower-resource contexts described institutional strategies to mitigate these inequities, including the provision of data bundles, physical study hubs, and asynchronous content delivery.

7. RESULTS SUMMARY

The study's findings can be synthesised across the following key conclusions:

- Student engagement declined significantly across all three dimensions (behavioural, emotional, and cognitive) during the COVID-19 pandemic, with emotional engagement suffering the greatest loss.
- Post-pandemic engagement recovery is real but incomplete. As of 2022–2024, engagement levels remain statistically below pre-pandemic baselines across all dimensions, with emotional engagement showing the slowest recovery trajectory.
- Digital access quality, instructor technological proficiency, and student self-regulation are the three most powerful predictors of engagement during crisis-induced online learning, collectively explaining over a quarter of the variance in engagement outcomes.

International Journal of
LAW, ARTS AND HUMANITIES
Peer Reviewed, Referred & Indexed Journal
ISSN: 3070-0523 www.zesterapublications.com Original Research Paper

- The pandemic has disproportionately harmed the engagement of students from low-income backgrounds and from countries with weaker digital infrastructure, significantly widening pre-existing inequities in higher education.
- Students in arts and performance disciplines experienced the most severe and sustained engagement deficits, reflecting the distinctive embodied and collaborative nature of their academic practice.
- A significant minority (approximately 31%) of post-pandemic students express a preference for hybrid or flexible learning modalities, indicating a lasting shift in learner expectations that institutions must address in their strategic planning.
- Institutional support structures — including mental health services, digital literacy training, and technology access programmes — significantly moderate engagement outcomes, highlighting the importance of holistic institutional responses to pedagogical disruption.

8. DISCUSSION

The findings of this study both confirm and extend previous research on the impact of online education on student engagement during the COVID-19 pandemic. The magnitude of the engagement declines observed — particularly in the emotional and behavioural dimensions — underscores the profound inadequacy of emergency remote teaching as a substitute for intentional, relationship-rich in-person learning. This resonates with the theoretical arguments of Garrison et al. (2000), who positioned social presence as a foundational requirement for meaningful cognitive engagement in online environments, and with the empirical findings of Aristovnik et al. (2020) and Bao (2020) documenting widespread student dissatisfaction and disengagement during the pandemic. The comparative resilience of cognitive engagement is a theoretically interesting finding that warrants careful interpretation. It may reflect the capacity of motivated, self-regulated learners to maintain meaningful intellectual engagement with course content even in the absence of the social scaffolding that supports behavioural and emotional engagement. This is consistent with self-determination theory (Ryan & Deci, 2000), which posits that intrinsic motivation can sustain academic investment even when external social conditions are unfavourable. However, it also raises the concern that cognitive engagement measures may be less sensitive to the qualitative impoverishment of learning under ERT — students may have continued to complete assignments and pass examinations while their understanding was shallower, their curiosity less stimulated, and their intellectual growth less profound.

The persistent engagement deficit in the post-pandemic period is perhaps the most practically significant finding of this study. It challenges the assumption — implicit in much institutional policy — that a return to in-person instruction would naturally restore engagement to pre-pandemic levels. The data suggest that the emotional and behavioural consequences of pandemic disruption are more enduring than anticipated, and that targeted, sustained interventions are required to rebuild student engagement rather than simply reversing the conditions that caused its decline. The equity findings are particularly alarming and morally urgent. The compounding disadvantages faced by low-income students — in terms of digital access, study environment quality, mental health support, and institutional resource availability — translated into significantly lower engagement outcomes, threatening to translate pandemic disruption into permanent educational disadvantage. This echoes the concerns raised by van Dijk (2020) regarding the systemic nature of the digital divide, and underscores the need for structural, policy-level responses rather than individualised remediation.

International Journal of
LAW, ARTS AND HUMANITIES
Peer Reviewed, Referred & Indexed Journal
ISSN: 3070-0523 www.zesterapublications.com Original Research Paper

9. SUGGESTIONS AND RECOMMENDATIONS

9.1 For Educational Policymakers

- Develop and fund national digital equity strategies that guarantee universal access to high-speed internet, affordable devices, and digital literacy education for all students, with targeted investment in low-income and rural communities.
- Establish minimum standards for online and hybrid course quality in higher education, requiring institutions to demonstrate pedagogical intentionality and student engagement metrics before online programme approval.
- Fund longitudinal, cross-national research on post-pandemic student engagement trajectories to inform evidence-based education reform.

9.2 For Higher Education Institutions

- Adopt a strategic hybrid learning model that thoughtfully integrates online and in-person elements based on disciplinary requirements and student needs, rather than defaulting to either extreme.
- Invest systematically in faculty development programmes focused on online and hybrid pedagogy, including training in community-building techniques, active learning design, and the effective use of digital collaboration tools.
- Expand and destigmatise mental health support services, with proactive outreach to students identified as at risk of disengagement, and integration of wellbeing check-ins into regular academic advising.
- Establish peer mentoring programmes that specifically target the social and emotional dimensions of engagement, connecting newer students with experienced peers who can model active academic participation.

9.3 For Faculty and Instructors

- Prioritise the cultivation of social and teaching presence in online and hybrid environments through frequent, personalised interaction, timely feedback, and visible instructor engagement.
- Design assessments that are authentic, varied, and collaborative, reducing reliance on high-stakes individual examinations that were poorly suited to pandemic conditions and remain suboptimal for deep learning.
- Offer flexible course design options — including asynchronous access to recorded content, varied participation modes, and flexible deadlines — to accommodate the diverse circumstances and preferences of post-pandemic student cohorts.

9.4 For Students

- Develop and practise self-regulation strategies, including goal-setting, time management, and metacognitive reflection, which this study identified as among the strongest individual-level predictors of engagement resilience.
- Actively seek out peer connection and community — including through virtual study groups, student societies, and institutional mentoring programmes — recognising that social connection is not merely enjoyable but academically consequential.
- Make proactive use of available institutional support services, including learning development, mental health counselling, and technology access programmes.

International Journal of
LAW, ARTS AND HUMANITIES
Peer Reviewed, Referred & Indexed Journal
ISSN: 3070-0523 www.zesterapublications.com Original Research Paper

10. CONCLUSION

The COVID-19 pandemic precipitated an unparalleled disruption to student engagement in higher education, the full consequences of which are still being understood. This study has documented a significant, multi-dimensional decline in student engagement during the pandemic period, a partial but incomplete recovery in the post-pandemic era, and a persistent set of structural inequities that the crisis exposed and exacerbated. The findings challenge both the technological optimism that framed the initial pivot to online learning as a transformative opportunity and the naive restorationism that assumed a simple return to in-person instruction would resolve the pedagogical and psychological harms of the pandemic. Online education, when intentionally designed, technologically supported, and pedagogically enriched, has genuine and valuable potential to expand access, flexibility, and learning quality in higher education. The pandemic's legacy should not be a wholesale rejection of digital learning but a more sophisticated, equity-conscious, and pedagogically principled approach to its integration into the higher education ecosystem. Hybrid and hyflex models, grounded in evidence about student engagement and supported by sustained investment in faculty development, student wellbeing, and digital infrastructure, offer the most promising path forward. The persistent engagement deficit identified by this study — particularly in its emotional and social dimensions — demands urgent, targeted action from policymakers, institutions, and educators. Rebuilding student engagement is not simply a matter of pedagogical technique but of institutional culture, structural equity, and genuine commitment to the whole-person development that has always been higher education's highest aspiration. This study offers an empirical foundation for that effort and a call to sustained, collaborative action across the global educational community.

REFERENCES

Appleton, J. J., Christenson, S. L., Kim, D., & Reschly, A. L. (2006). Measuring cognitive and psychological engagement: Validation of the Student Engagement Instrument. Journal of School Psychology, 44(5), 427–445. https://doi.org/10.1016/j.jsp.2006.04.002

Aristovnik, A., Keržič, D., Ravšelj, D., Tomaževič, N., & Umek, L. (2020). Impacts of the COVID-19 pandemic on life of higher education students: A global perspective. Sustainability, 12(20), 8438. https://doi.org/10.3390/su12208438

Auerbach, R. P., Mortier, P., Bruffaerts, R., Alonso, J., Benjet, C., Cuijpers, P., & Kessler, R. C. (2022). WHO World Mental Health Surveys: Prevalence, correlates, and treatment of mental disorders in college and university students. Psychological Medicine, 52(7), 1–15. https://doi.org/10.1017/S0033291722000423

Bao, W. (2020). COVID-19 and online teaching in higher education: A case study of Peking University. Human Behavior and Emerging Technologies, 2(2), 113–115. https://doi.org/10.1002/hbe2.191

Braun, V., & Clarke, V. (2006). Using thematic analysis in psychology. Qualitative Research in Psychology, 3(2), 77–101. https://doi.org/10.1191/1478088706qp063oa

Cao, W., Fang, Z., Hou, G., Han, M., Xu, X., Dong, J., & Zheng, J. (2020). The psychological impact of the COVID-19 epidemic on college students in China. Psychiatry Research, 287, 112934. https://doi.org/10.1016/j.psychres.2020.112934

Creswell, J. W., & Plano Clark, V. L. (2018). Designing and conducting mixed methods research (3rd ed.). SAGE Publications.

Dhawan, S. (2020). Online learning: A panacea in the time of COVID-19 crisis. Journal of Educational Technology Systems, 49(1), 5–22. https://doi.org/10.1177/0047239520934018

Dixson, M. D. (2010). Creating effective student engagement in online courses: What do students find engaging? Journal of the Scholarship of Teaching and Learning, 10(2), 1–13.

Dziuban, C., Graham, C. R., Moskal, P. D., Norberg, A., & Sicilia, N. (2021). Blended learning: The new normal and emerging technologies. International Journal of Educational Technology in Higher Education, 15(1), 3. https://doi.org/10.1186/s41239-017-0087-5

Fredricks, J. A., Blumenfeld, P. C., & Paris, A. H. (2004). School engagement: Potential of the concept, state of the evidence. Review of Educational Research, 74(1), 59–109. https://doi.org/10.3102/00346543074001059

Garrison, D. R., Anderson, T., & Archer, W. (2000). Critical inquiry in a text-based environment: Computer conferencing in higher education. The Internet and Higher Education, 2(2–3), 87–105. https://doi.org/10.1016/S1096-7516(00)00016-6

Hattie, J., & Timperley, H. (2007). The power of feedback. Review of Educational Research, 77(1), 81–112. https://doi.org/10.3102/003465430298487

Hodges, C., Moore, S., Lockee, B., Trust, T., & Bond, A. (2020). The difference between emergency remote teaching and online learning. EDUCAUSE Review, 27. https://er.educause.edu/articles/2020/3/the-difference-between-emergency-remote-teaching-and-online-learning

Jordan, K. (2014). Initial trends in enrolment and completion of massive open online courses. International Review of Research in Open and Distributed Learning, 15(1), 133–160. https://doi.org/10.19173/irrodl.v15i1.1651

Kuh, G. D. (2009). What student affairs professionals need to know about student engagement. Journal of College Student Development, 50(6), 683–706. https://doi.org/10.1353/csd.0.0099

Means, B., Toyama, Y., Murphy, R., & Bakia, M. (2013). The effectiveness of online and blended learning: A meta-analysis of the empirical literature. Teachers College Record, 115(3), 1–47.

Means, B., & Neisler, J. (2021). Unfinished business: Higher education and the pandemic. EDUCAUSE Review. https://er.educause.edu/articles/2021/3/unfinished-business-higher-education-and-the-pandemic

Ryan, R. M., & Deci, E. L. (2000). Self-determination theory and the facilitation of intrinsic motivation, social development, and well-being. American Psychologist, 55(1), 68–78. https://doi.org/10.1037/0003-066X.55.1.68

Tinto, V. (1987). Leaving college: Rethinking the causes and cures of student attrition. University of Chicago Press.

UNESCO. (2020). COVID-19 educational disruption and response. https://en.unesco.org/covid19/educationresponse

van Dijk, J. A. G. M. (2020). The digital divide. Polity Press.

World Health Organization. (2020). WHO Director-General's statement on IHR Emergency Committee on novel coronavirus (2019-nCoV). https://www.who.int/news/item/30-01-2020-statement-on-the-second-meeting-of-the-international-health-regulations-(2005)-emergency-committee