Exploring Bangladeshi English as a foreign language learners' mindfulness and engagement in the online learning context

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ABSTRACT

This empirical study investigates the relationship between mindfulness and online engagement among Bangladeshi English as a Foreign Language (EFL) learners during the Covid-19 pandemic. A mixed-methods approach was employed, combining quantitative data from the Langer Mindfulness Scale (LMS) and the Online Student Engagement Scale (OSES) with qualitative data from open-ended responses. A total of 215 university students participated in the study, providing insights into their mindfulness levels and engagement in online learning. Quantitative analyses, including descriptive and regression analyses, revealed no significant correlation between mindfulness and online engagement. Reliability analysis indicated that while the OSES demonstrated acceptable internal consistency for this population, the LMS showed poor reliability across subscales, raising concerns about its validity for Bangladeshi EFL students. Qualitative data were analysed using descriptive phenomenology, which highlighted a shift in students' locus of control during online learning, often manifesting as feelings of helplessness and hopelessness. Participants reported that mindfulness practices did not adequately mitigate pandemic-related stress or support their engagement. The findings suggest that mindfulness alone may not be effective in enhancing student engagement in online EFL contexts within non-Western settings. The study calls for policymakers to prioritise the development of resilient online learning infrastructures, improve internet accessibility, and incorporate culturally sensitive approaches to student well-being in digital education environments.

1. Introduction

The Covid-19 pandemic in 2020 caused an unprecedented shift from traditional classroom settings to online platforms worldwide, transforming how English as a Foreign Language (EFL) education is delivered. This rapid transition brought new challenges, particularly for maintaining student engagement in online environments, an area already recognised as critical within educational psychology (Sinatra et al., 2015). In EFL contexts, engagement involves a complex mix of cognitive, emotional, and behavioural dimensions, each playing a vital role in effective language acquisition and learning (Fredricks et al.,

2004). Recent studies continue to explore these dimensions, examining how factors like classroom emotions, teacher immediacy behaviours, and technological interventions can influence engagement and learning outcomes in EFL contexts (Dai & Wang, 2024; Hu & Wang, 2023; Pan et al., 2023).

Student engagement in online settings is essential for positive learning outcomes, but maintaining focus, motivation, and interaction in virtual classrooms can be challenging. Previous research has shown that traditional face-to-face settings foster engagement through direct interactions and structured environments (Derakhshan, 2021; Wang & Ye, 2021). However, less is known about what drives engagement in

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online EFL contexts, where the absence of physical presence and real-time feedback can lead to distractions, disengagement, and isolation (Cheng & Chau, 2016a, 2016b; Dumford & Miller, 2018; Dixson et al., 2017). Recent work highlights that student satisfaction and perceived online learning efficacy are moderated by classroom interactions, which play a critical role in shaping engagement levels (Lin & Wang, 2024).

Mindfulness, defined as the practice of focused awareness on the present moment, has emerged as a promising strategy to address these engagement challenges in online learning. Mindfulness practices encourage students to stay mentally present, which may help sustain their attention and motivation (Lin, 2020; Minkos et al., 2018). Research suggests that mindfulness can reduce negative emotions, such as frustration, anxiety, and boredom, which often undermine student engagement (Beauchemin et al., 2008; Durlak et al., 2011). Integrating mindfulness into online EFL education could therefore offer a way to improve engagement and emotional well-being, making this approach particularly relevant during the stress-inducing pandemic period.

Despite the potential benefits, the role of mindfulness in enhancing online engagement remains underexplored, especially in non-Western, collectivist cultures where students may experience online learning differently. Bangladeshi EFL students, for example, face unique socio-cultural and infrastructural challenges that may affect both their engagement and the applicability of mindfulness practices. Recent studies on EFL learners' technology acceptance and self-efficacy reveal how cultural and technological factors can significantly shape students' attitudes and outcomes in digital learning contexts (Wang et al., 2024). Understanding the impact of mindfulness in this specific context could provide valuable insights for developing culturally sensitive and effective online learning strategies.

This study investigates the relationship between mindfulness and student engagement in online EFL settings, focusing on Bangladeshi university students during the Covid-19 pandemic. By examining how mindfulness influences engagement, this research seeks to fill a gap in the literature and inform educators and policymakers on creating more supportive and engaging virtual learning environments tailored to the needs of Bangladeshi learners.

1.1. Research questions

1. What are the levels of mindfulness and online engagement among Bangladeshi EFL students?
2. Is there a significant relationship between mindfulness and online student engagement in this demographic?
3. What socioemotional challenges and adaptive strategies do Bangladeshi EFL students report while engaging in online learning during the COVID-19 pandemic?

These questions aim to provide both quantitative and qualitative insights into the interplay between mindfulness and engagement, offering a comprehensive view of students' experiences in virtual learning settings.

2. Literature review

2.1. Conceptualising mindfulness and online engagement

Mindfulness in this study is understood as a focused, non-judgmental awareness of the present moment, enabling students to maintain attentiveness and emotional stability despite potential distractions (Kabat-Zinn, 2003). Research in educational settings suggests that mindfulness supports learning by enhancing concentration, reducing emotional reactivity, and fostering self-regulation, which are essential for effective engagement in academic tasks (Beauchemin et al., 2008). To measure mindfulness, this study utilises the Langer Mindfulness Scale (LMS), which assesses aspects such as attentiveness, flexibility, and awareness, aligning with the focus on present-moment awareness and

self-regulation.

Online engagement, by contrast, refers to the active participation and involvement of students in learning activities within a virtual environment. This engagement is multifaceted, encompassing cognitive, emotional, and behavioural dimensions critical for learning success (Fredricks et al., 2004). In the context of online EFL education, cognitive engagement involves sustained focus on language tasks, emotional engagement reflects students' motivation and interest, and behavioural engagement includes observable actions like attendance, participation, and task completion (Dumford & Miller, 2018). The Online Student Engagement Scale (OSES) is employed in this study to capture these dimensions, reflecting the complexity and importance of engagement in virtual learning environments. Understanding these distinct yet interrelated constructs allows us to build a foundation for examining how mindfulness might influence engagement in online EFL contexts.

2.2. Linking mindfulness to online engagement

The literature points to mindfulness as a potentially effective strategy for enhancing student engagement. Mindfulness can promote focus, reduce anxiety, and foster a sense of presence in learning activities (Beauchemin et al., 2008; Durlak et al., 2011). These benefits are especially relevant in online learning, where students often struggle to maintain motivation and concentration without the structure of a physical classroom (Cheng & Chau, 2016a, 2016b; Dumford & Miller, 2018). By cultivating a calm, focused mindset, mindfulness practices may help students overcome cognitive and emotional barriers to engagement, making them more receptive and active in their online learning tasks (Kabat-Zinn, 2003).

Despite these promising insights, there is a notable gap in research examining the specific role of mindfulness in online engagement within EFL settings. The unique demands of learning a foreign language online, combined with cultural factors that influence perceptions of mindfulness, make it critical to explore this relationship in diverse contexts. This study aims to address this gap by examining how mindfulness affects engagement among Bangladeshi EFL students, providing a foundation for culturally responsive strategies to support online learning.

2.3. Distinguishing between online engagement and broader learning contexts

In this research, "online engagement" is narrowly defined as students' active involvement and interaction with online learning tasks, encompassing cognitive, emotional, and behavioural dimensions essential for effective virtual learning (Fredricks et al., 2004; Wang & Degol, 2014). This engagement reflects students' motivation, focus, and persistence in online classes, which are critical for achieving academic success (Dumford & Miller, 2018).

In contrast, this study also examines the socioemotional challenges and adaptive strategies reported by Bangladeshi EFL students while engaging in online learning during the COVID-19 pandemic. These challenges include emotional and social difficulties, such as feelings of isolation, struggles with motivation, and stress from technological and logistical barriers. Adaptive strategies encompass efforts to overcome these challenges, such as developing new routines, leveraging peer support, and employing self-regulation techniques. By distinguishing between online engagement and these socioemotional dimensions, this study provides a comprehensive understanding of both the students' participation in learning activities and the broader strategies they employed to navigate the unique demands of online education during the pandemic.

2.4. Significance of the study

This study contributes to the literature by examining the potential of mindfulness to support online engagement, specifically within the

context of Bangladeshi EFL learners during a global crisis. As online learning becomes a more permanent part of education worldwide, understanding how to support student engagement through mindfulness practices is essential, particularly in non-Western settings where cultural differences may impact the effectiveness of such interventions. By addressing this gap, the study provides valuable insights for educators and policymakers seeking to develop more inclusive, supportive online learning environments that cater to the unique needs of EFL learners in Bangladesh and similar contexts.

3. Methodology

3.1. Study design

This study utilised a mixed methods triangulation approach to investigate the relationship between mindfulness and online engagement among Bangladeshi EFL students during the COVID-19 pandemic. The research was conducted in two concurrent stages, merging quantitative and qualitative data to achieve a comprehensive understanding. In the first stage, participants completed standardised surveys on mindfulness and online student engagement. In the second stage, they responded to open-ended questions that explored their experiences with online engagement. Quantitative data were analysed using exploratory statistical methods, while qualitative responses were examined through descriptive phenomenology, which included bracketing to ensure that findings were grounded in participants' experiences of online learning.

3.2. Participants

A total of 215 Bangladeshi undergraduate students majoring in English participated in the survey phase, with 210 completing the qualitative questionnaire about their experiences with online learning. The sample consisted of 160 males and 55 females, aged 20 to 25. Participants were recruited from a university in Bangladesh through random sampling and took part voluntarily. This demographic was chosen to capture insights specific to Bangladeshi EFL learners, who face unique challenges in accessing and adapting to online education.

3.3. Rationale for focusing on the Bangladeshi context

The Bangladeshi context presented distinct challenges for EFL students engaged in online learning during the pandemic. Unlike students in countries with robust digital infrastructure, Bangladeshi students frequently experienced internet disruptions, limited access to devices, and economic pressures, which significantly hindered consistent online participation (Bozkurt & Sharma, 2020; Hodges et al., 2020). Studies have shown that infrastructure challenges, such as unreliable internet connections and a lack of affordable devices, exacerbate digital inequities in low-resource settings, making it difficult for students to engage effectively in virtual learning environments (Cheng & Chau, 2016a, 2016b; Dumford & Miller, 2018).

Moreover, the shift to online education clashed with the traditional teacher-centred methods prevalent in Bangladeshi education, which emphasise instructor-led delivery and rote learning (Akanda & Babu, 2022). This transition required students to adopt self-directed learning with minimal support, a shift that many found challenging due to the lack of prior exposure to autonomous learning strategies (Al-Khresheh, 2023). These contextual factors are critical for understanding students' engagement and adaptation to online learning in Bangladesh, as they highlight the interplay between systemic infrastructural barriers and deeply rooted pedagogical practices.

3.4. Instruments

1. Langer Mindfulness Scale (LMS)

The LMS was used to assess mindfulness levels, comprising 21 items across four subcomponents: novelty producing, novelty seeking, engagement, and flexibility. Items 1–6 evaluate novelty producing, or students' inclination to generate new ideas. Items 7–12 address novelty seeking, measuring openness to new situations. Items 13–17 focus on engagement, assessing attentiveness in activities, and Items 18–21 measure flexibility, indicating adaptability in perspective. Responses were recorded on a seven-point Likert scale from 1 (strongly disagree) to 7 (strongly agree). This study critically examines the LMS's suitability within a Bangladeshi context, where its reliability and validity remain underexplored.

2. Online Student Engagement Scale (OSES)

The OSES evaluated students' engagement in online learning, featuring 19 items across four dimensions: behaviour, emotion, involvement, and cognition. Items 1–6 measure behavioural engagement, assessing visible participation in learning tasks. Items 7–11 focus on emotional engagement, capturing motivation and interest. Items 12–17 assess involvement, reflecting active engagement with materials, and Items 18–19 evaluate cognitive engagement, assessing mental effort in understanding content. Responses were recorded on a five-point Likert scale from 1 (not at all characteristics of me) to 5 (very characteristic of me). Background information on participants was also collected.

3.5. Procedure

The study consisted of two phases.

3.5.1. Quantitative phase

Participants completed the Langer Mindfulness Scale (LMS) and the Online Student Engagement Scale (OSES) questionnaires, which were administered via an online platform. To assess the reliability of these instruments within the Bangladeshi context, Cronbach's alpha was calculated. The OSES demonstrated strong internal consistency ($\alpha = 0.91$), indicating it was a reliable measure for assessing online engagement in this population. The LMS also showed high reliability at the overall scale level ($\alpha = 0.88$), suggesting that, as a comprehensive measure, it can capture general mindfulness effectively.

However, the reliability of LMS subscales varied significantly: Flexibility ($\alpha = 0.185$), Novelty Seeking ($\alpha = 0.413$), Novelty Producing ($\alpha = 0.450$), and Engagement ($\alpha = 0.198$). These lower subscale reliabilities may reflect challenges in adapting the LMS to this specific cultural and educational context, where the concept of mindfulness may differ from its Western origins (Langer, 2000). Additionally, the low reliability could be influenced by the complexity of reverse-scored items, which might have been difficult for participants to interpret accurately in a second-language context (Baer et al., 2004). These findings suggest that while the LMS provides a broad measure of mindfulness, its subscale structure may require refinement or adaptation to ensure cultural relevance and clarity for Bangladeshi EFL students.

3.5.2. Qualitative phase

Participants responded to five open-ended questions sent via email, providing deeper insights into their experiences with online engagement and mindfulness. This phase enriched the quantitative findings by offering context on students' perceptions and challenges.

3.6. Data preparation

The datasets from the Online Student Engagement Scale (OSE) and the Langer Mindfulness Scale (LMS-21) were carefully examined and prepared before analysis. To ensure the quality and integrity of the data, a systematic cleaning process was conducted. Duplicate entries were removed to avoid redundancy, and responses that were incomplete were

excluded to maintain consistency across all items in each scale. This rigorous data-cleaning approach resulted in a reliable and complete dataset, allowing for accurate statistical analysis based solely on participants who fully completed both scales.

3.7. Data analysis

Quantitative data were exported from the online platform, processed in Excel, and analysed using SPSS 28. A data cleaning process was implemented to enhance reliability and validity, removing duplicate entries and excluding incomplete responses, consistent with best practices in survey research (George & Mallery, 2003). Descriptive statistics summarised responses for the LMS and OSES, and exploratory analysis identified patterns in student engagement and mindfulness levels.

Qualitative data from open-ended questions were analysed using MAXQDA with an inductive coding approach following Braun and Clarke's (2006) thematic analysis framework. Initial coding involved multiple readings to identify meaningful segments, which were refined through memoing and annotating to capture broader themes and insights (Miles et al., 2014). This method ensured a reflective and comprehensive interpretive analysis.

By integrating quantitative and qualitative findings, the study offers a robust and contextually relevant understanding of the relationship between mindfulness and engagement among Bangladeshi EFL students, addressing the specific challenges of online education in this context.

4. Survey results

The survey results are presented in two main sections: (1) Online Student Engagement (OSE) Scale Results, (2) Langer Mindfulness Scale (LMS-21) Results and (3).

1. Online Student Engagement (OSE) Scale Results

The OSE scale demonstrated strong internal consistency within this sample, with a mean score of 72.34 (SD = 8.93) and a roughly normal distribution of scores (see Table 1). Reliability analysis for the OSE subscales showed acceptable to good reliability, with Cronbach's alpha values as follows: OSE Skills ($\alpha = 0.722$), OSE Emotions ($\alpha = 0.745$), OSE Participation ($\alpha = 0.759$), and OSE Performance ($\alpha = 0.665$). These values indicate that the OSE is a reliable tool for assessing student engagement among Bangladeshi EFL learners.

The descriptive statistics for each OSE subscale are provided in Table 1, including the mean, standard deviation, and key percentiles,

which illustrate the distribution and central tendency of responses across the different dimensions of engagement. For example, the **OSE Skills** subscale had a mean of 22.94 (SD = 3.28), with a median of 23 and a mode of 24, suggesting that most students scored consistently high in skills-related engagement. The 25th and 75th percentiles for this subscale were 21 and 25, respectively, indicating a relatively narrow interquartile range, which reflects a cohesive skill engagement level among students.

Similarly, the **OSE Emotions** subscale had a mean of 19.27 (SD = 3.11), with scores mostly clustered around the median of 20 and a mode of 20. The 25th percentile was 17, and the 75th percentile was 21, again indicating that students' emotional engagement was generally positive and consistent, with few outliers. This consistency across the central tendency measures suggests that most students felt a stable emotional connection to their online learning environment, an essential component for sustained engagement.

The **OSE Participation** subscale, with a mean of 22.21 (SD = 3.93), exhibited a slightly broader distribution but still demonstrated coherence in student responses. The mode and median were both close to the mean at 24 and 22, respectively, and the 25th and 75th percentiles ranged from 19 to 25. These values indicate that students were actively participating in their online learning activities, with a majority scoring within a consistent range.

Lastly, the **OSE Performance** subscale had a mean of 7.92 (SD = 1.39), reflecting a somewhat lower range due to fewer items in this subscale. Despite this, the median and mode both aligned closely with the mean, and the range from the 25th percentile (7) to the 75th percentile (9) demonstrated that students perceived themselves as reliably performing well in online tasks.

The consistency across these subscales, with minimal variation from the mean and close alignment of median and mode values, suggests that the OSE scale is well-suited for capturing multiple dimensions of student engagement (skills, emotions, participation, and performance) within this Bangladeshi EFL population. This reliability in response patterns reinforces the validity of the OSE as a tool for understanding engagement in similar online learning environments.

2. Langer Mindfulness Scale (LMS-21) Results

In contrast, the LMS-21 scale produced mixed results. While the overall LMS-21 scale had a mean score of 101.74 (SD = 9.518) and a normal distribution of scores (see Table 2), reliability analysis revealed low internal consistency for the subscales: Flexibility ($\alpha = 0.185$), Novelty Seeking ($\alpha = 0.413$), Novelty Producing ($\alpha = 0.450$), and Engagement ($\alpha = 0.198$). These Cronbach's alpha values suggest that the

Table 1
OSE descriptive statistics.

	OSE Skills	OSE Emotions	OSE Part.	OSE Perf.	OSE Total
Valid	215	215	215	215	215
Mode	24.000[a]	20.000[a]	24.000[a]	8.000[a]	75.000[a]
Median	23.000	20.000	22.000	8.000	74.000
Mean	22.944	19.270	22.214	7.916	72.344
Std. Deviation	3.278	3.106	3.931	1.388	8.929
IQR	4.000	4.000	6.000	2.000	12.000
Range	18.000	19.000	19.000	6.000	45.000
Minimum	12.000	6.000	11.000	4.000	49.000
Maximum	30.000	25.000	30.000	10.000	94.000
25th percentile	21.000	17.000	19.000	7.000	67.000
50th percentile	23.000	20.000	22.000	8.000	74.000
75th percentile	25.000	21.000	25.000	9.000	79.000

Note. OSE = Online Student Engagement Scale. Part. = Participation. Perf. = Performance.
[a] The mode is computed assuming that variables are discreet.

Table 2
Descriptive statistics of the LMS-21.

	L-Flex	L-Nov Seek	L-Nov Prod	L-Eng	L-SUM
Valid	215	215	215	215	215
Mode	20.000[a]	32.000[a]	28.000[a]	20.000[a]	99.000[a]
Median	20.000	32.000	29.000	21.000	101.000
Mean	19.647	31.679	28.795	21.623	101.744
Std. Deviation	2.535	4.152	3.482	4.069	9.518
Range	16.000	23.000	20.000	20.000	63.000
Minimum	10.000	19.000	18.000	12.000	66.000
Maximum	26.000	42.000	38.000	32.000	129.000
25th percentile	18.000	29.000	27.000	19.000	96.000
50th percentile	20.000	32.000	29.000	21.000	101.000
75th percentile	21.000	34.000	31.000	24.000	107.500

Note. LMS-21 = Langer Mindfulness Scale-21. L-Flex = Langer Flexibility. L-Nov Seek = Langer Novelty Seeking. L = Nov Prod = Langer Novelty Producing. L-Eng = Langer Engagement.
[a] The mode is computed assuming that variables are discreet.

LMS-21 subscales do not reliably measure distinct aspects of mindfulness for this sample, as alpha values below 0.6 generally indicate poor reliability (George & Mallery, 2003).

Table 2 presents the descriptive statistics for each LMS-21 subscale, including mean scores, standard deviations, and key percentiles, which provide insight into the distribution of responses across the Flexibility, Novelty Seeking, Novelty Producing, and Engagement dimensions. The **Flexibility** subscale, for example, has a mean of 19.65 (SD = 2.54), with scores ranging from 10 to 26. The low standard deviation suggests limited variation in responses, indicating that most participants had similar levels of perceived flexibility. However, the low Cronbach's alpha for this subscale suggests that the items may not be cohesively measuring this construct among Bangladeshi EFL students.

The **Novelty Seeking** subscale shows slightly more variation, with a mean of 31.68 (SD = 4.15) and a range of 19 to 42. This variability suggests that students differ more widely in their openness to new experiences. However, the moderate reliability score (α = 0.413) raises concerns that the items may not consistently capture novelty-seeking behaviour in this context, potentially due to interpretation challenges or cultural differences.

The **Novelty Producing** subscale has a mean score of 28.80 (SD = 3.48) with scores ranging from 18 to 38, suggesting that students exhibit moderate levels of novelty production or idea generation. The range and standard deviation indicate some diversity in responses, yet the low reliability score (α = 0.450) implies that these items may not reliably measure the construct within this demographic.

For the **Engagement** subscale, the mean is 21.62 (SD = 4.07), with scores spanning from 12 to 32. This wide range and higher standard deviation reflect variability in how actively participants engage in mindful awareness. However, the low Cronbach's alpha (α = 0.198) highlights issues with item coherence, which could stem from misinterpretation of the reverse-scored items, creating additional cognitive load, especially for students who are not fully fluent in English.

The poor reliability scores across these subscales may indicate difficulties in applying the LMS-21 to EFL students in Bangladesh. Reverse-scored items, in particular, may have been challenging to interpret, potentially leading to response inconsistencies. Additionally, the complexity of certain items could have contributed to misinterpretation or cognitive overload, especially for non-native English speakers, which could explain the suboptimal internal consistency of the LMS-21 in this context.

4.1. Comparison of engagement and mindfulness scores using t-test analysis

Table 3 presents the results of an independent samples *t*-test conducted to examine potential differences in scores between the Online Student Engagement Scale (OSE) and the Langer Mindfulness Scale (LMS-21) among the study participants.

The t-test for the OSE total score yielded a t-value of 0.041 with 213 degrees of freedom, and a *p*-value of 0.967. This high *p*-value indicates no statistically significant difference, and the effect size, represented by Cohen's d, was minimal at 0.006, with a standard error of 0.155. The confidence interval for this comparison ranged from −0.296 to 0.309, further supporting the absence of a meaningful effect.

Table 3
OSE and LMS-21 *t*-test.

	t	df	p	Cohen's d	SE Cohen's d	Confidence interval	
						Lower	Upper
OSE Total	0.041	213	0.967	0.006	0.155	−0.296	0.309
L-SUM	1.228	213	0.221	0.190	0.156	−0.114	0.493

Note. Student's *t*-test.

For the LMS-21 total score (L-SUM), the *t*-test resulted in a t-value of 1.228 with 213 degrees of freedom, and a p-value of 0.221, suggesting no significant difference. The effect size for LMS-21 was small, with Cohen's d at 0.190 and a standard error of 0.156. The 95 % confidence interval for this test extended from −0.114 to 0.493, indicating that the differences observed in the LMS-21 scores were also not statistically significant.

These results suggest that there were no significant differences in engagement and mindfulness scores among participants, as measured by the OSE and LMS-21 scales. The low effect sizes and wide confidence intervals reinforce the finding that mindfulness and online engagement levels do not differ substantially in this sample.

4.2. Correlation analysis between mindfulness and online engagement subscales

Table 4 presents the Pearson correlation coefficients between the subscales of the Langer Mindfulness Scale (LMS-21) and the Online Student Engagement Scale (OSE).

Among the LMS-21 subscales, there are significant positive correlations. For instance, **Novelty Seeking** and **Novelty Producing** are moderately correlated ($r = 0.333$, $p < 0.001$), indicating that students who exhibit novelty-seeking tendencies are also likely to engage in novelty-producing behaviours. Similarly, **Engagement** within LMS-21 correlates significantly with both **Novelty Seeking** ($r = 0.398$, p < 0.001) and **Novelty Producing** ($r = 0.207$, $p < 0.01$), suggesting some interdependence among these mindfulness dimensions.

However, the correlations between LMS-21 subscales and OSE subscales are notably weak and statistically insignificant. For example, **OSE Skills** has low and non-significant correlations with all LMS-21 subscales, including Flexibility ($r = 0.029$, $p = 0.677$) and Novelty Producing ($r = -0.027$, $p = 0.696$), suggesting minimal association between mindfulness dimensions and engagement skills. Additionally, **OSE Emotion** and **OSE Participation** are weakly correlated with LMS-21 subscales, with *p*-values well above conventional significance thresholds.

The strongest correlations observed are among the OSE subscales themselves, such as between **OSE Skills** and **OSE Emotion** ($r = 0.531$, $p < 0.001$), **OSE Emotion** and **OSE Participation** ($r = 0.435$, p < 0.001), and **OSE Performance** with both **OSE Skills** ($r = 0.400$, p < 0.001) and **OSE Emotion** ($r = 0.398$, p < 0.001). These significant correlations within OSE subscales highlight the internal consistency of engagement dimensions but reinforce the limited relationship between mindfulness, as measured by LMS-21, and online engagement in this sample. This suggests that mindfulness, as conceptualised by LMS-21, may not be directly related to the components of online engagement among Bangladeshi EFL students.

4.3. Qualitative findings

The shift from face-to-face to online learning during the Covid-19 pandemic induced significant stress among students, even among those who initially welcomed the change. Despite efforts to remain mindful and engaged, many students reported a profound loss of control over their learning experiences, which often led to feelings of helplessness and hopelessness. Three primary themes emerged that contributed to students' sense of diminished control: challenges with centering and focus, difficulties in sustaining self-motivation, and adverse effects on physical and mental health.

4.4. Loss of routine and increased surveillance

The sudden transition disrupted the familiar routines that provided structure and predictability in students' lives. Students described feeling that their learning environment had become an "on-stage" experience, with every action under scrutiny. The need to keep cameras on,

Table 4
Correlation of LMS-21 and OSE.

Variable		L-Flex	L-Nov Seek	L-Nov Prod	L-Eng	OSE Skills	OSE Emotion	OSE Part	OSE Perf
1. L-Flex	Pearson's r	–							
	p-Value	–							
2. L-Nov Seek	Pearson's r	0.218**	–						
	p-Value	0.001	–						
3. L-Nov Prod	Pearson's r	0.259***	0.333***	–					
	p-Value	<0.001	<0.001	–					
4. L-Eng	Pearson's r	0.006	0.398***	0.207**	–				
	p-Value	0.930	<0.001	0.002	–				
5. OSE Skills	Pearson's r	0.029*	0.048	−0.027	−0.004	–			
	p-Value	0.677	0.483	0.696	0.953	–			
6. OSE Emotion	Pearson's r	−0.022	0.062	0.003	0.047	0.531***	–		
	p-Value	0.746	0.364	0.971	0.490	<0.001	–		
7. OSE Part	Pearson's r	−0.016	−0.041	0.044	0.039	0.408***	0.435***	–	
	p-Value	0.812	0.550	0.519	0.573	<0.001	<0.001	–	
8. OSE Perf	Pearson's r	0.063	0.033	0.044	0.094	0.400***	0.398***	0.270***	–
	p-Value	0.356	0.626	0.523	0.171	<0.001	<0.001	<0.001	–

Note. LMS-21 = Langer Mindfulness Scale-21. L-Flex = Langer Flexibility. L-Nov Seek = Langer Novelty Seeking. L = Nov Prod = Langer Novelty Producing. L-Eng = Langer Engagement. OSE = Online Student Engagement Scale. Part. = Participation. Perf. = Performance.

  * $p < 0.05$.
  ** p < 0.01.
  *** $p < 0.001$.

participate in discussions, and deal with technical issues, like slow internet connections and power outages, heightened their anxiety. Many felt that any disruption could lead to missing essential content, falling behind, or being penalised by instructors. The absence of in-person support networks—such as friends or the chance to approach instructors informally before or after class—intensified these feelings. Isolated and overwhelmed, students expressed a sense of "learned helplessness," as their efforts to adapt seemed to make little difference in their ability to engage effectively.

4.5. Struggles with self-motivation in a distracting environment

The home environment presented constant distractions from family members, social media, and other non-academic demands, making it difficult for students to focus. The lack of a structured routine led to poor work-life balance, where academic responsibilities merged with personal life, adding to students' stress. Many found online classes "boring" and "unsuitable" for language learning, as there were limited opportunities for authentic L2 practice. Students noted that instructors seemed unprepared for the shift, with lessons often being poorly organised, fast-paced, and lacking interactive feedback. This mismatch between student needs and instructional delivery led to frustration, with students feeling that online learning was a "punishment" rather than a learning opportunity. The continuous fear of technical failure and the monotonous format of classes compounded students' difficulty in staying motivated.

4.6. Impact on physical and socioemotional health

The transition to online learning also had a considerable impact on students' physical and socioemotional well-being. Without daily face-to-face interactions, students lost meaningful connections with peers, leading to feelings of isolation and stagnation. Many missed the joy and support that came from shared social experiences in a classroom environment. Physically, prolonged screen time and a sedentary lifestyle took a toll. Students reported eye strain from excessive use of smartphones—often their only available device for online learning—and physical discomfort from sitting for extended periods without movement. This repetitive, stationary routine left many feeling fatigued and physically "out of it."

4.7. Positive experiences among a minority

A small number of students reported positive aspects of online

learning, particularly the flexibility of studying from any location at any time. These students, often characterised by high self-motivation and self-efficacy, viewed online learning as an opportunity rather than a setback. The absence of social pressures was a relief for some, particularly introverted students, who thrived without the social demands of traditional classroom settings. For these students, the transition was manageable and even beneficial, as they felt equipped to succeed in the new format.

These findings highlight the diverse experiences of Bangladeshi EFL students during the shift to online learning. While a minority of students adapted well, the majority struggled with a profound loss of control, deteriorating motivation, and declining health. These insights underscore the need for more responsive and adaptable online learning frameworks that address both the technical and socioemotional needs of students in similar contexts.

4.8. Integration of quantitative and qualitative findings

The survey results and qualitative findings align closely, illustrating a comprehensive picture of Bangladeshi EFL students' struggles with online learning during the COVID-19 pandemic. Quantitative data from the Online Student Engagement Scale (OSE) highlighted low levels of engagement, which correlates with qualitative reports of decreased motivation and difficulties in sustaining attention due to the home environment's distractions. Similarly, the Langer Mindfulness Scale (LMS-21) revealed low mindfulness scores, which is consistent with students' expressed feelings of helplessness and lack of control over their learning experiences. The qualitative insights on the adverse physical and socioemotional impacts, such as isolation and physical fatigue, further reflect the quantitative finding of low engagement across behavioural, emotional, and cognitive dimensions. Together, both sets of data underscore the challenges students faced in adapting to online learning, suggesting that traditional strategies for fostering engagement and mindfulness may require significant adaptation to meet the needs of students in this context.

5. Discussion

This study explored the relationship between mindfulness and online student engagement among Bangladeshi EFL learners, revealing no significant correlation between these two constructs. Contrary to theoretical claims that mindfulness can enhance student engagement (Britt et al., 2018; Langer, 2000; Lin, 2020; Minkos et al., 2018; Xu et al.,

2017), our findings suggest that mindfulness, as currently conceptualised, does not significantly influence engagement in the online learning experiences of Bangladeshi EFL students. This lack of alignment with prior research highlights the importance of context and underscores potential cultural and environmental factors that may influence the effectiveness of mindfulness in engagement.

One possible explanation for this discrepancy lies in the cultural context of Bangladesh. In collectivist societies like Bangladesh, learning often prioritises communal and social relationships over individualistic practices that mindfulness traditionally emphasises (Kirmayer, 2015). Mindfulness interventions, largely developed in Western contexts, may not align with the cultural expectations of Bangladeshi students, where the focus is often on social interconnectedness rather than introspective self-awareness. This misalignment may explain why students in this study did not experience increased engagement through mindfulness practices, as the strategies may not resonate with or support their social and learning needs effectively.

Furthermore, technical and environmental challenges in online learning settings may have further diminished the potential impact of mindfulness. Unstable internet connections, limited access to devices, and frequent electricity disruptions have been identified as significant barriers to effective online education in Bangladesh (Khan et al., 2021; The Daily Star, 2021). Furthermore, the lack of physical interaction with peers and instructors, coupled with feelings of isolation, were repeatedly highlighted in the qualitative findings, reflecting challenges common in the context of emergency remote teaching (Islam, 2023). These factors make it difficult to implement mindfulness practices effectively, as students often focus more on managing technical disruptions and adapting to the unfamiliar format than on maintaining a mindful learning stance. This contrasts with traditional face-to-face settings, where mindfulness exercises can be implemented with fewer distractions and where students can better control their immediate learning environment.

The findings also differ from those of Liu et al. (2022), who found a positive relationship between mindfulness and engagement in online contexts. This difference may stem from the unique stressors faced by Bangladeshi students during the pandemic, such as limited access to learning resources and the psychological burden of adapting to online learning in an environment unprepared for such a shift. For Bangladeshi EFL learners, these barriers may have overshadowed the potential benefits of mindfulness, limiting its role in fostering engagement. Additionally, the novelty and complexity of online learning for many students may have introduced cognitive load that reduced the efficacy of mindfulness as a supportive tool in this setting.

Despite these challenges, the findings of this study underscore the need to reconsider mindfulness interventions within non-Western educational contexts and online learning environments. Mindfulness, when adapted to consider the collective and social dynamics prevalent in Bangladeshi culture, may still hold promise. Future research should explore culturally adapted mindfulness practices that align with the values and learning preferences of collectivist cultures, potentially focusing on community-building exercises that integrate social mindfulness into the learning process. Additionally, addressing technical barriers, enhancing teacher preparedness, and incorporating more interactive, socially engaging online teaching methods could enhance the effectiveness of engagement strategies for Bangladeshi EFL students.

The study's findings also align with the theory of a humanistic experience of schooling, which emphasises building a community of learners and integrating social, academic, personal, and physical aspects of education holistically (Coker, 2021). Creating opportunities for meaningful social interaction, decision-making, and physical activity could improve engagement in online learning. Strategies such as incorporating microlessons, fostering active participation options, and promoting physical movement within learning schedules could help reduce the disengagement that students experienced.

This study therefore highlights the limitations of conventional

mindfulness practices in enhancing online engagement among Bangladeshi EFL students, suggesting that culturally and contextually adapted strategies may be needed. By addressing the unique challenges and cultural dynamics of Bangladeshi learners, future interventions could better support engagement and well-being in online education. This research provides valuable insights for educators and policymakers, emphasising the need for inclusive and culturally responsive approaches to foster meaningful engagement in diverse educational contexts.

6. Conclusion

This study provides a critical examination of the relationship between mindfulness and online student engagement among Bangladeshi EFL learners, an area that has received limited attention in educational research. Our findings reveal no significant correlation between mindfulness practices and online engagement, suggesting that, contrary to expectations, mindfulness may not inherently enhance online engagement within this specific cultural and educational context. With over 80 % of participants expressing a preference for face-to-face learning due to challenges such as unreliable internet connections, increased stress, and limited interaction, these results underscore the importance of context-sensitive approaches to online education. These findings are particularly relevant for non-Western, collectivist societies where mindfulness and engagement may manifest differently from Western educational contexts.

6.1. Limitations

While this study offers valuable insights, several limitations must be acknowledged. First, the mindfulness scale used (LMS-21) demonstrated lower-than-ideal reliability within this sample, suggesting it may not fully capture the mindfulness construct as experienced by Bangladeshi students. This limitation highlights the need for culturally adapted measurement tools that better reflect the nuances of mindfulness in non-Western contexts. Additionally, the reliance on self-reported data and convenience sampling limits the generalisability of the findings. These methodological limitations suggest that further research is needed to validate these findings in more diverse student populations and educational settings.

6.2. Implications for pedagogy

The findings of this study have significant implications for the design of online educational experiences in Bangladesh and similar contexts. The pronounced preference for face-to-face learning highlights a gap in current online learning environments, which often fail to recreate the interaction and engagement levels typical of traditional classrooms. Educational institutions should prioritise reliable technological infrastructure to minimise connectivity issues and support richer interactions between students and teachers. For instance, implementing synchronous teaching methods that allow for real-time engagement and incorporating collaborative online activities could help mitigate the isolation and disengagement reported by students. Furthermore, this study highlights the need for culturally responsive educator training. Teachers should be equipped with the skills to adapt mindfulness practices to virtual environments in ways that resonate with students' cultural expectations and learning preferences. Tailoring these practices could enhance their relevance and effectiveness, helping students better cope with the unique demands of online education.

6.3. Recommendations for future research

This study opens several critical avenues for future research. First, there is a need to explore the cultural dimensions of mindfulness within the Bangladeshi context more deeply. Research should investigate how cultural norms and societal values influence the practice and effects of

mindfulness among Bangladeshi students, particularly within a collectivist framework. For instance, examining how family obligations and communal values impact individual mindfulness practices could reveal insights into culturally aligned mindfulness interventions. Additionally, future studies should explore how socioeconomic factors, prior educational experiences, and prevalent educational paradigms in Bangladesh might shape the effectiveness of mindfulness practices. Controlling for these variables may clarify their impact on engagement and provide more precise insights into the role of mindfulness in online learning.

Future research should also consider using longitudinal designs to examine the sustained effects of mindfulness on academic outcomes in online learning environments. Tracking student engagement, retention, and achievement over time would provide valuable data on the long-term impact of mindfulness, informing educational policies aimed at supporting student success. Moreover, exploring psychological variables such as resilience, motivation, and anxiety can provide a more nuanced understanding of how these factors interact with mindfulness and engagement, especially in students with lower initial levels of mindfulness. Qualitative methods, such as in-depth interviews and focus groups, could also offer insights into the personal and institutional barriers these students face, highlighting potential support structures that may enhance their educational experience.

6.4. Value and significance

This study contributes to the growing body of literature on mindfulness and engagement in online learning by highlighting the limitations of applying Western-derived educational interventions in non-Western contexts. The findings call for a more nuanced understanding of how mindfulness can be adapted to align with local cultural and educational realities, particularly in collectivist societies. By shedding light on the unique challenges faced by Bangladeshi EFL learners, this study emphasises the need for culturally sensitive pedagogical strategies that are responsive to the technological, social, and emotional needs of students in online learning environments. These insights are invaluable for educators, policymakers, and researchers seeking to foster engagement, well-being, and academic success in diverse educational contexts.

Use of AI

AI was not used in the production of this study or article.

CRediT authorship contribution statement

Mojtaba Khatami: Writing – original draft. **Afsana Jerin Shayery:** Data curation. **Santosh Kumar Behera:** Formal analysis. **Deyuan He:** Methodology. **David Coker:** Software. **Samantha Curle:** Writing – review & editing.

Consent to participate

Participants' written informed consent was gained.

Consent to publish

Written informed consent for publication of the details was obtained from the patient/study participant/parent/guardian/next of kin.

Ethical approval

The university ethical approval board approved this study.

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Declaration of competing interest

The authors state that there is no conflict of interest.

Data availability

The data are available upon sending request to corresponding author.

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