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Emotional Labor, Digital Fatigue, and Engagement in Iranian Hybrid EFL Classrooms

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Abstract

Hybrid English as a Foreign Language (EFL) instruction offers flexibility but can generate significant emotional and cognitive demands for teachers and learners. This mixed-methods study examined the relationships among emotional labor, digital fatigue, and engagement in hybrid EFL classrooms at two Iranian universities. The participants included 15 instructors and 120 adult learners. The data were collected through validated questionnaires, semi-structured interviews, and weekly instructor reflective journals. The quantitative results indicated moderate digital fatigue among learners (M = 3.35, SD = 0.54) and slightly higher emotional strain (M = 3.61, SD = 0.45). Emotional strain showed a small positive correlation with engagement (r = .26), whereas digital fatigue demonstrated no meaningful association with engagement or emotional strain. The qualitative thematic analysis identified three patterns including (a) emotional disconnection during synchronous sessions, (b) coping strategies such as affective check-ins and self-regulation, and (c) instances where emotional strain functioned as both a challenge and a motivator. These findings suggest that emotional support between teachers and learners, even in technologically mediated environments, can help sustain engagement. The study recommends integrating emotional presence training into teacher development, designing hybrid courses with flexible interaction, and implementing support systems that address emotional well-being alongside academic goals.

Keywords: Emotional labor, Digital fatigue, Hybrid EFL instruction, Engagement, Teacher-learner interaction.

I | INTRODUCTION

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Hybrid English as a Foreign Language (EFL) instruction, which blends synchronous online sessions with in-person interaction, can enhance flexibility and accessibility. However, it also heightens emotional and cognitive demands for both teachers and learners (Bailenson, 2021; Fauville et al., 2021). Meeting fatigue, known as "Zoom fatigue", stems from nonverbal overload, constant self-viewing, and extended videoconferencing, all of which contribute to cognitive exhaustion (Bailenson, 2021; Fauville et al., 2021). EFL instructors regularly perform emotional labor, modulating their expressions and emotional presence to foster learner motivation, manage anxiety, and sustain classroom rapport (Grandey, 2000; Hochschild, 1983). The screen-mediated environment of hybrid classrooms makes emotional labor more demanding, visual cues are limited, student presence is often muted, and spontaneous emotional reciprocity is attenuated.

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Despite the growing awareness of digital fatigue and emotional labor, few empirical studies have examined their interactive effects on learner engagement in hybrid EFL settings, particularly in non-Western contexts. Engagement itself is a multidimensional construct, behavioral, cognitive, and emotional, and hybrid environments may fundamentally alter how it manifests (Fredricks et al., 2004). In Iran, this issue is theoretically significant because of infrastructural constraints (e.g., unstable internet, limited access to high-performance devices) and sociocultural norms around face visibility, which shape how teachers and learners experience emotional labor and digital fatigue. This study addresses that gap by exploring how emotional labor, digital fatigue, and emotional strain are experienced by instructors and learners, and how these factors relate to engagement in hybrid EFL classes in Iran. Utilizing a mixed-methods design with 15 instructors and 120 adult learners, this research aims to contribute to both the emotional labor theory and pedagogical practices in hybrid EFL instruction.

II. REVIEW OF THE RELATED LITERATURE

This review integrates digital fatigue, emotional labor, and learner engagement through the lenses of the emotional labor theory, the control-value theory, and cognitive load perspectives. The empirical studies from Iranian and international contexts are critically examined, and the limitations in prior research are identified.

2.1. Digital Fatigue in Hybrid Language Environments

Digital fatigue, often referred to as videoconference fatigue or Zoom fatigue, has emerged as a critical concern in hybrid and fully online education. It is characterized by cognitive, emotional, and physical symptoms, including mental exhaustion, decreased motivation, attentional lapses, irritability, and eye strain, arising from prolonged engagement with digital platforms (Bailenson, 2021; Fauville et al., 2021). In hybrid EFL settings, these symptoms are magnified by the dual processing demands of mastering content and communicating in a second language (MacIntyre et al., 2020).

From a theoretical standpoint, the nonverbal overload theory proposed by Bailenson's (2021) identifies four main factors contributing to digital fatigue. They include (1) excessive close-up eye contact, (2) continuous self-view, (3) reduced mobility, and (4) high cognitive load required to decode degraded nonverbal cues. The Zoom Exhaustion & Fatigue (ZEF) Scale, developed by Fauville et al. (2021), operationalizes digital fatigue into cognitive, emotional, social, visual, and motivational dimensions. Higher scores on the ZEF scale correlate with lower classroom participation, reduced learner engagement, and increased burnout risk among both students and instructors. In language learning, the multimodal nature of communication, listening comprehension, oral production, reading visual cues, and managing turn-taking, is inherently more taxing in digital contexts (Mayer, 2021). This aligns with Cognitive Load Theory (Sweller, 2005), which posits that extraneous cognitive demands reduce the mental resources available for learning.

Culturally, digital fatigue in Iranian EFL contexts is shaped by infrastructural challenges and sociocultural norms around face visibility. Research in the Iranian context indicates that these factors often result in low camera use, which, while reducing visual strain, also removes key nonverbal cues, increasing the effort required for instructors to interpret learner engagement (Roohani & Esmailvandi, 2016). In sum, digital fatigue in hybrid EFL classrooms is a multi-faceted construct arising from the interplay of technological constraints, cognitive load, and socio-cultural dynamics. Understanding its mechanisms is vital for designing interventions that maintain both teacher well-being and learner engagement.

2.2. Emotional Labor in Teaching and Hybrid EFL Contexts

The term emotional labor was first conceptualized by Hochschild (1983) as the management of feelings to create a publicly observable display that has exchange value. Within educational contexts, emotional labor refers to the intentional regulation of emotions by teachers to meet the socio-emotional demands of their role (Grandey, 2000; Hochschild, 1983). It manifests through surface acting, deep acting, and genuine expression (Grandey, 2000). In the EFL classroom, emotional labor plays a central role in establishing rapport, fostering learner motivation, and sustaining a positive classroom climate. Given that language learning inherently involves identity, vulnerability, and affective engagement (Kostoulas et al., 2019), teachers' emotional expressions directly influence learners' willingness to communicate and persistence (MacIntyre et al., 2020).

However, the hybrid teaching environment fundamentally alters the nature of emotional labor. Reduced nonverbal feedback in online segments limits teachers' ability to accurately assess student engagement (Li & Etherington, 2021). Additionally, the camera-off culture prevalent in many Iranian EFL contexts further restricts teachers' access to immediate affective cues, compelling them to compensate through vocal modulation, frequent emotional check-ins, explicit encouragement, and creative use of digital tools (MacIntyre et al., 2020). The sustained effort required for such compensation often leads to emotional exhaustion, a key dimension of burnout. This is particularly relevant in Iran, where EFL teachers frequently face large class sizes, exam-oriented curricula, and limited institutional support (Roohani & Esmailvandi, 2016). From a theoretical standpoint, the Emotional Labor Theory explains the psychosocial mechanisms by which teacher emotion regulation impacts both teacher well-being and student outcomes (Grandey, 2000; Hochschild, 1983). Hybrid contexts introduce new emotional regulation demands due to the "split-attention" effect of managing both face-to-face and online participants simultaneously (Mayer, 2021). In Iranian higher education, there is limited empirical research linking emotional labor with digital or hybrid instructional modalities. Studies by Mahmoodi and Ghaslani (2014) and Mahmoodi-Shahrebabaki (2015) examined burnout and emotional regulation strategies among EFL teachers, yet both lacked explicit theoretical integration and did not account for the technologically mediated nature of recent classroom practices. The current study addresses this gap by situating teacher emotional labor within the hybrid context, assessing both its quantitative dimensions and its qualitative manifestations.

2.3. Control-Value Theory and Engagement in Hybrid EFL Contexts

The Control-Value Theory (CVT) of achievement emotions, developed by Pekrun (2006), provides a framework for understanding how learners' emotional experiences are shaped by two cognitive appraisals: perceived control over learning activities and perceived value of those activities. Positive emotions typically arise when learners perceive both high control and high value, whereas negative emotions often emerge when control is low or the activity is undervalued (Pekrun & Perry, 2014). These emotional responses influence motivation, engagement, and academic performance (Pekrun, 2006). In language learning, CVT has been applied to explain the interplay between affective states such as enjoyment, anxiety, and boredom, and their impact on willingness to communicate and persistence (MacIntyre et al., 2020). For example, Li et al. (2020) found that EFL learners with higher control appraisals demonstrated greater engagement. Conversely, when learners perceive technological obstacles or linguistic tasks as overly challenging, control appraisals diminish, often leading to frustration and disengagement (Shao et al., 2019).

Hybrid EFL classrooms introduce the unique factors that directly influence control and value appraisals. Technological barriers can undermine perceptions of control, even when learners are motivated. At the same time, well-designed hybrid tasks can enhance perceived value, counteracting some of the negative effects of digital fatigue (Chen et al., 2021). For instructors, CVT also offers a lens for understanding emotional labor in relation to learner engagement. Teachers' efforts to boost learners' control appraisals and value appraisals can foster positive emotions and sustained participation (Pekrun & Perry, 2014).

Iranian EFL studies have only recently begun to explore CVT-related constructs. MacIntyre et al. (2020) examined control and value appraisals in relation to test anxiety among high school EFL learners, finding that perceived control was a stronger predictor of positive emotions than perceived value. However, the study relied solely on cross-sectional survey data, limiting its ability to capture dynamic emotional fluctuations. The present study addresses these gaps by embedding CVT constructs into a hybrid teaching framework, recognizing that, in technology-mediated environments, control appraisals are not only academic but also technological.

2.4. Integration of Constructs: Digital Fatigue, Emotional Labor, and Control-Value Theory

The constructs of digital fatigue, emotional labor, and CVT intersect in important ways relevant to hybrid EFL instruction. While each has been studied independently, few empirical studies have examined their combined influence on teacher-learner interaction, engagement, and well-being in technologically mediated environments (Li & Etherington, 2021; MacIntyre et al., 2020). Digital fatigue primarily concerns the cognitive and sensory load imposed by prolonged screen-mediated communication (Bailenson, 2021; Fauville et al., 2021). In hybrid EFL classrooms, this cognitive strain often coexists with emotional demands imposed by the need to maintain rapport, provide encouragement, and manage learner motivation, which are the core aspects of emotional labor (Grandey, 2000; Hochschild, 1983). When cognitive and emotional demands overlap

without sufficient recovery periods or institutional support, both teachers and learners are at risk of emotional exhaustion and reduced engagement.

From the perspective of CVT, digital fatigue can undermine control appraisals by making technological and academic tasks feel unmanageable, while emotional labor can either enhance or diminish value appraisals depending on its success in creating meaningful, supportive learning experiences (Pekrun, 2006; Pekrun & Perry, 2014). Hybrid EFL contexts amplify these dynamics due to dual modality management. Teachers must address the needs of in-person and remote learners simultaneously, creating split-attention effects (Mayer, 2021; Moreno & Mayer, 2007). In the Iranian context, infrastructural challenges such as unstable internet connections, limited access to devices, and cultural norms around camera use introduce additional layers of complexity. Thus, the integration of these three constructs offers a more holistic framework for understanding engagement in hybrid EFL classrooms. Digital fatigue represents a cognitive-sensory constraint, emotional labor reflects a socio-affective regulatory process, and CVT provides a motivational–emotional appraisal lens. Together, they explain how technological, emotional, and motivational factors interact to shape the teaching-learning experience in hybrid modalities.

2.5. Gaps in the Literature and the Present Study

Despite the growing research on digital learning environments, several gaps remain. First, fragmented treatment of constructs, digital fatigue, emotional labor, and CVT-related engagement have largely been studied in isolation. Second, there is limited hybrid-specific research, much research addresses fully online or face-to-face modes, with hybrid formats receiving less systematic investigation. Third, Iranian EFL contexts are underrepresented; the existing Iranian studies often lack explicit integration of motivational theories like CVT. Finally, teacher–learner interactional dynamics are neglected; many studies measure learner outcomes without sufficiently considering reciprocal influences between teacher well-being, instructional strategies, and learner engagement over time (Kostoulas et al., 2019).

The present study addresses these gaps by integrating digital fatigue, emotional labor, and CVT into a single conceptual framework. It focuses on the Iranian higher education context and proposes methodological improvements including triangulation of data sources and analysis of both instructor and learner perspectives.

2.6. Theoretical Framework

The present study is anchored in an integrative theoretical framework combining the Emotional Labor Theory (Hochschild, 1983), the Control-Value Theory of Achievement Emotions (Pekrun, 2006), and cognitive load perspectives on digital fatigue (Bailenson, 2021; Mayer, 2021). The Emotional Labor Theory explains how teachers regulate emotional expressions to meet professional and relational demands. In hybrid EFL environments, emotional labor becomes more complex because online modalities reduce nonverbal cues and require intentional strategies to convey empathy, enthusiasm, and engagement (Grandey, 2000; Li & Etherington, 2021). Research in Iranian EFL contexts has shown that teachers' emotional labor significantly influences learner motivation and the perceived quality of classroom interaction (Ghalibafan et al., 2024; Jabbarpoor, 2016).

The Control-Value Theory (Pekrun, 2006) provides a motivational framework for understanding how learners' emotions are shaped by their perceptions of control over learning tasks and the value they assign to those tasks. Studies on grammar learning and task complexity indicate that higher control and value appraisals are linked to improved performance and sustained engagement (Chen et al., 2021; Ghalibafan et al., 2024; Shao et al., 2019). Cognitive load perspectives on digital fatigue acknowledge that prolonged use of online communication platforms imposes intrinsic and extraneous cognitive demands, reducing attentional capacity and emotional resilience (Fauville et al., 2021; Moreno & Mayer, 2007). By combining these frameworks, this study situates teacher emotional regulation, learner motivational appraisals, and technology-related cognitive fatigue within a unified model.

2.7. Conceptual Model and Research Questions

Based on the literature and theoretical foundations, the proposed conceptual model considers digital fatigue as a cognitive constraint, emotional labor as an affective-regulatory mechanism, and control-value appraisals as motivational mediators that influence engagement. This framework reflects the bidirectional nature of teacher-learner interactions and is directly applicable to hybrid EFL contexts in Iran. The conceptualization is supported by research highlighting the mediating role of emotional regulation in high-

cognitive-load environments (Jabbarpoor & Rezaei, 2024) and the impact of task design on morphosyntactic learning outcomes (Ghalibafan et al., 2024). Thus, the research questions to answer are as follows:

1. What are the relationships between digital fatigue, emotional strain, and engagement among EFL instructors and learners in hybrid classrooms?
2. How do control-value appraisals relate to engagement in hybrid EFL contexts, and to what extent do digital fatigue and emotional strain mediate this relationship?
3. How do instructors and learners perceive the interplay of digital fatigue, emotional strain, and motivation in shaping classroom interaction, engagement, and learning outcomes?

III. AIM OF THE STUDY

This study aimed to investigate the relationships among emotional labor, digital fatigue, and engagement in hybrid EFL instruction, with a specific focus on teacher-learner emotional reciprocity in the Iranian context. The study sought to (a) quantify the levels of digital fatigue, emotional strain, and engagement among EFL instructors and learners in hybrid classrooms, (b) examine the correlations among these variables, (c) explore the qualitative experiences and coping strategies of participants, and (d) provide theoretical and pedagogical implications for hybrid EFL instruction.

IV. METHODOLOGY

4.1. Research Design

A convergent mixed-methods design was implemented to address the research questions (Creswell & Creswell, 2017). The quantitative data were collected via validated questionnaires to quantify the levels of digital fatigue, emotional strain, and self-reported engagement. The qualitative data, teacher reflective journals and semi-structured interviews, were collected concurrently to capture lived experiences, coping strategies, and instructional adaptations. The quantitative and qualitative data sets were analyzed independently and subsequently compared during interpretation. It should be noted that the qualitative phase was designed to explain and elaborate on the quantitative findings, giving the design some features of an explanatory sequential approach.

4.2. Participants

A convenience sampling procedure was used to recruit the participants from two university branches offering hybrid EFL courses. The final sample included 15 instructors who held academic posts and had taught hybrid or blended English courses for multiple semesters. The instructor group comprised male and female faculty with at least three years of hybrid teaching experience. The learner sample comprised 120 adult university students enrolled in hybrid undergraduate and postgraduate EFL courses. The learners ranged in age and English proficiency (intermediate to advanced) and represented intact course sections that combined in-person meetings with synchronous online sessions. The instructor sample (N = 15) is small for quantitative analysis; therefore, instructor correlations should be interpreted with caution. A purposive subsample was selected for qualitative follow-up. The teachers were invited to keep weekly reflective journals over a six-week period; a subset of instructors (n = 6) volunteered to participate in semi-structured interviews. Fifteen learners accepted the interview invitations. All the participants provided informed consent. Confidentiality was maintained by assigning the participant codes and removing identifying information.

4.3. Research Instruments

4.3.1. Teacher Questionnaire: Digital Fatigue and Emotional Strain

The teacher instrument was adapted from the Internet Fatigue Scale for Teachers (Ilay & Mendoza, 2022). The original 20-item scale measured digital fatigue, physiological responses, and emotional exhaustion related to digital instruction. After expert review for contextual relevance to university-level hybrid EFL teaching, 16 items were retained for the Persian adaptation. The items were presented on a 5-point Likert scale (1 = strongly disagree to 5 = strongly agree), with higher scores indicating greater emotional strain. The translation followed forward-back-translation procedures. The content validity was evaluated by an expert panel (CVI ≈ .99), and the internal consistency was assessed using Cronbach's alpha ($\alpha = .83$).

4.3.2. Learner Questionnaire: Digital Fatigue Scale

The learners completed an adapted version of the Screen Fatigue Scale (Ocak et al., 2023). The study employed an 18-item version tailored to video-conferencing and hybrid learning demands. The scale captured physical (e.g., eye strain), cognitive (e.g., loss of concentration), and affective (e.g., reduced motivation) dimensions of digital fatigue. The responses were given in a 5-point Likert format. The Persian adaptation demonstrated acceptable reliability (α = .86).

4.3.3. Engagement Measure

The learners completed a 12-item self-report engagement scale aligned with behavioral, cognitive, and emotional engagement dimensions used in prior hybrid learning research (Fredricks et al., 2004). The example items included "I participate actively in online discussions" (behavioral), "I think deeply about the content presented in class" (cognitive), and "I feel enthusiastic about learning in this hybrid course" (emotional). The responses were given in a 5-point Likert format (1 = strongly disagree to 5 = strongly agree). The scale demonstrated acceptable reliability (α = .81) in the present study.

4.3.4. Semi-Structured Interviews

Semi-structured interview protocols were developed for the teachers and learners to probe emotional experiences, coping strategies, and perceived instructional effects. The interviews were conducted via synchronous online platforms or messaging apps according to the participant preference. With the participants' consent, the interviews were audio-recorded and transcribed verbatim.

4.3.5. Teacher Reflective Journals

The participating instructors submitted weekly reflective journals over a six-week instructional period. The prompts asked the instructors to note emotional highs and lows, moments of disengagement, successful strategies for handling digital strain, and observed effects on learner interaction. Journals provided longitudinal qualitative data on the ebb and flow of emotional strain and pedagogical adjustments.

4.4. Procedure

Quantitative surveys were administered electronically during the midterm period. After the survey completion, purposive sampling identified the interview candidates based on their digital fatigue scores (low, medium, high). Reflective journals were submitted weekly through secure online forms. Semi-structured interviews were conducted within three weeks after the survey administration. The interview durations ranged from approximately 30 to 60 minutes. All the qualitative data were collected with explicit informed consent and securely stored on encrypted drives.

4.5. Data Analysis

4.5.1. Quantitative Analysis

The survey data were cleaned and analyzed using SPSS (version 26). Descriptive statistics summarized digital fatigue, emotional strain, and engagement. Pearson correlation coefficients examined the relationships among the variables; interpretations followed Cohen's (1988) conventions for effect size. Independent-samples t-tests compared the mean scores across gender. Statistical significance was evaluated at α = .05; assumptions for parametric testing were checked and met. It should be noted that only the correlations were computed; causal or predictive language was avoided throughout.

4.5.2. Qualitative Analysis

The interview transcripts and the reflective journals were analyzed using thematic analysis (Braun & Clarke, 2006). Two researchers independently read transcripts, generated initial codes, and clustered codes into candidate themes. Through iterative reviewing and discussion, the themes were refined, named, and defined. Intercoder reliability was enhanced by regular coding meetings. Analytic memos documented the interpretive choices.

4.5.3. Mixed-Methods Integration

Integration followed a side-by-side comparison and narrative weaving strategy. The quantitative results were juxtaposed with the qualitative themes to identify convergences, divergences, and explanatory mechanisms.

4.6. Trustworthiness and Validity

As quantitative instruments, content validity (expert review, CVI), forward-back translation, pilot testing, and internal consistency supported the measurement validity. For qualitative data, methodological triangulation, independent coding, reflexive memoing, and purposive sampling strengthened the credibility and dependability. Member-checking was offered to the participants for key thematic

interpretations when feasible. Transferability was limited by the single-institution convenience sample; this is acknowledged as a limitation.

4.7. Ethical Considerations

Ethical approval was obtained from the host institution's ethics committee. The participants provided informed consent and were informed about confidentiality, voluntary participation, and the right to withdraw without penalty. The data were stored in password-protected files.

4.8. Limitations of the Method

The study used convenience sampling within two university branches, limiting generalizability. The self-report measures had potential biases, although triangulation mitigated this concern. The cross-sectional design constrained causal inference. The three-week gap between the survey and the interview may have affected the recall accuracy.

V. RESULTS

5.1. Descriptive Statistics

The descriptive statistics for the learner and the instructor groups are presented in Tables 1 and 2, respectively.

Table 1. Descriptive statistics for the learner variables (N = 120)

Statistics	Digital fatigue	Emotional strain	Engagement
Mean	3.35	3.61	3.19
SD	0.54	0.45	0.58
Minimum	2.30	2.28	2.04
Maximum	4.60	4.37	4.70

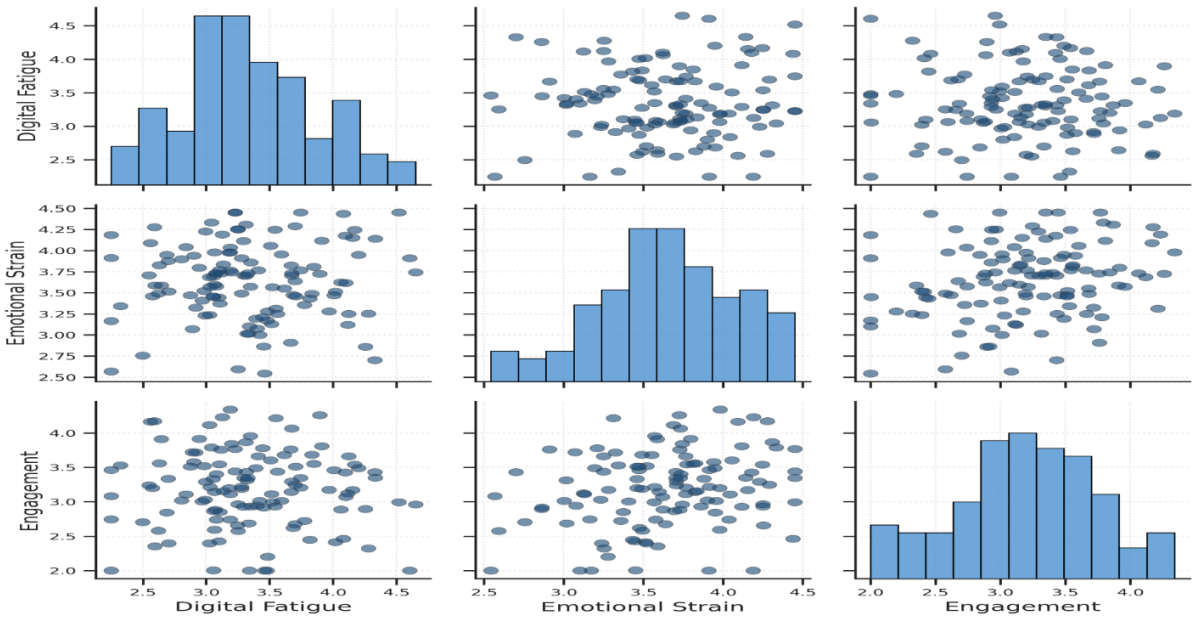


Figure1. Scatterplot matrix of the relationships among the learner variables (N = 120)

Note: Figure 1 presents a scatterplot matrix showing the bivariate relationships among the learners' digital fatigue, emotional strain, and engagement. The diagonal panels display histograms for each variable. The scatterplots reveal a negligible association between digital fatigue and engagement, and a small positive association between emotional strain and engagement.

The learners reported moderate digital fatigue (M = 3.35, SD = 0.54) and slightly higher emotional strain (M = 3.61, SD = 0.45). Engagement was also moderate (M = 3.19, SD = 0.58).

Table 2. Descriptive statistics for the instructor variables (N = 15)

Statistic	Digital fatigue	Emotional strain	Engagement
Mean	3.42	3.68	3.24
SD	0.50	0.48	0.55
Minimum	2.40	2.80	2.50
Maximum	4.50	4.40	4.60

The instructors demonstrated slightly higher mean scores than the learners in all the three variables, particularly in emotional strain (M = 3.68, SD = 0.48).

5.2. Correlation Analysis

Table 3. Pearson correlations among the learner variables (N = 120)

Variable	Digital fatigue	Emotional strain	Engagement
Digital fatigue	1.00	0.04	-0.02
Emotional strain	0.04	1.00	0.26
Engagement	-0.02	0.26	1.00

The correlation between digital fatigue and engagement was negligible (r = –.02), as was the relationship between digital fatigue and emotional strain (r = .04). Emotional strain, however, showed a small positive association with engagement (r = .26). According to Cohen (1988), this is a small effect size, and the vast majority of variance in engagement remains unexplained.

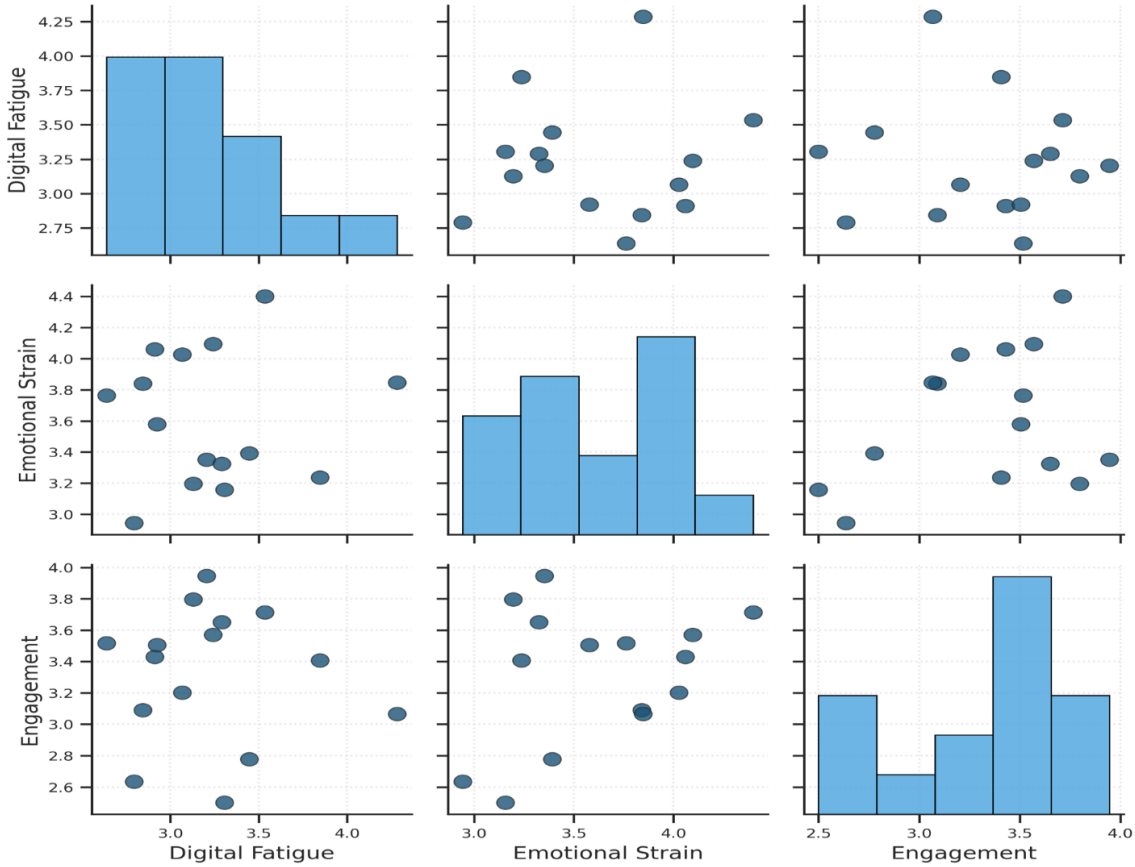


Figure 2. Scatterplot matrix of the relationships among the instructor variables (N = 15)

Note: Figure 2 displays the bivariate relationships among the instructors' digital fatigue, emotional strain, and engagement. The diagonal panels show histograms. The scatterplots indicate negligible associations involving digital fatigue and a small positive association between emotional strain and engagement. Given the small sample size, these patterns should be interpreted cautiously.

Table 4. Pearson correlations among the instructor variables (N = 15)

Variable	Digital fatigue	Emotional strain	Engagement
Digital fatigue	1.00	0.06	-0.05
Emotional strain	0.06	1.00	0.29
Engagement	-0.05	0.29	1.00

The instructor data reflected a similar pattern; that is, negligible relationships involving digital fatigue and a small positive relationship between emotional strain and engagement (r = .29). Given the small sample size (N = 15), these correlations should be interpreted cautiously.

5.3. Group Comparisons by Gender

Independent-samples t-tests showed no statistically significant gender differences for either learners or instructors ($p > .05$). These findings suggest gender was not a meaningful predictor of digital fatigue, emotional strain, or engagement.

5.4. Qualitative Findings

The thematic analysis revealed three main themes.

Theme 1: Emotional Responses to Hybrid Learning

Both instructors and learners expressed feelings of emotional detachment in the online sessions. One learner stated: *"When cameras are off, I feel like I'm talking to a wall. There's no energy coming back"*. An instructor noted: *"I finish a two-hour online session and feel completely drained, even though I was sitting the whole time"*.

Theme 2: Coping Mechanisms and Instructional Adaptation

The teachers implemented varied strategies to reduce emotional strain. One instructor explained: *"I now start every session with a quick emotional check-in. It helps me gauge who is present and who is struggling"*. Some learners described self-regulation strategies. For example, Learner 7 said: *"I take a five-minute break between classes and sometimes turn off my camera just to rest my eyes"*.

Theme 3: Engagement Amid Emotional Strain

Some learners reported that emotional pressure increased focus. One learner stated: *"When I feel the pressure, I actually push myself harder to participate because I don't want to fall behind"*. For the teachers, emotional fatigue sometimes triggered pedagogical creativity: *"When I'm tired, I try new things, like using breakout rooms differently or bringing in short videos, just to keep the energy up"* (Instructor 3).

VI. DISCUSSION

This study investigated the interplay of digital fatigue, emotional strain, and engagement in Iranian hybrid EFL classrooms. The results indicated that, while hybrid instruction imposed emotional and cognitive demands, these did not always reduce engagement; instead, they often stimulated adaptive responses.

The descriptive statistics revealed moderate levels of digital fatigue among both learners and instructors, with emotional strain slightly higher and engagement at a moderate level. The correlation analysis indicated no significant relationship between digital fatigue and engagement, but a small positive correlation between emotional strain and engagement. This suggests that strain, in certain contexts, may function as a motivational factor rather than purely as an obstacle. This finding aligns with previous research highlighting the complex role of emotion in language learning (Li & Etherington, 2021; MacIntyre et al., 2020). However, it partially contradicts studies that have uniformly characterized emotional strain as detrimental to learner outcomes (Ilay & Mendoza, 2022).

The current results both reinforce and challenge the existing literature. First, the learners actively monitored and adjusted their study patterns, reflecting the principles in the self-regulated learning theory (Zimmerman, 2000). Similar adaptive patterns have been observed in other EFL contexts (Chen et al., 2021). However, unlike earlier studies that reported a strong negative impact of screen fatigue on concentration (Bailenson, 2021; Fauville et al., 2021), the present study found only a negligible relationship between digital fatigue and engagement. This discrepancy may be due to compensatory strategies developed by the learners in resource-constrained contexts. Second, the positive correlation between emotional strain and engagement supports the control-value theory (Pekrun, 2006; Shao et al., 2019). Critically, this finding diverges from Roohani and

Esmailvandi (2016), who associated emotional exhaustion primarily with negative academic outcomes in Iranian settings. Third, the instructors' responses align with the emotional labor theory (Grandey, 2000; Hochschild, 1983). The present study extends this theory by suggesting that, in hybrid environments, digital tools may provide novel channels for expressing authentic emotion.

While some international studies report that hybrid instruction can intensify burnout (Li & Etherington, 2021; Morska et al., 2022), this study found that the participants often viewed technology as a coping resource. Asynchronous materials allowed learners to engage at their own pace. This difference may be partly due to the gradual integration of hybrid models in Iranian higher education. However, it is also possible that the relatively small sample size limited the detection of more severe burnout cases. Future research with larger samples is needed. Furthermore, while previous research has associated high emotional strain with avoidance behaviors (Ilay & Mendoza, 2022), the current study observed a weak positive relationship between strain and engagement. This may reflect cultural attitudes toward perseverance, but this suggestion should be treated as a hypothesis for future research rather than a finding, as the study did not measure cultural attitudes or compare Iranian participants with those from other contexts.

Answering the Research Questions

RQ1: What are the levels of digital fatigue, emotional strain, and engagement among EFL learners and instructors in hybrid classrooms? The results indicated moderate digital fatigue and engagement, with slightly higher emotional strain. These findings suggest that hybrid learning does not inherently reduce participation levels. A critical note is that "moderate" strain may be a precursor to higher levels of burnout over extended periods.

RQ2: How do control-value appraisals relate to engagement in hybrid EFL contexts, and to what extent do digital fatigue and emotional strain mediate this relationship? The absence of a relationship between digital fatigue and engagement suggests that fatigue alone does not determine participation. The small positive relationship between emotional strain and engagement supports the interpretation that strain, when coupled with perceived task value and control, can enhance focus. However, the small effect size ($r = .26$) warrants caution; emotional strain is not a strong predictor of engagement, and other unmeasured variables are likely to play significant roles. The mediation hypothesis could not be tested with the current analyses; multiple regression or structural equation modeling would be needed.

RQ3: How do instructors and learners perceive the interplay of digital fatigue, emotional strain, and motivation in shaping classroom interaction, engagement, and learning outcomes? The learners implemented self-regulation strategies such as planned breaks and flexible engagement with asynchronous materials. The instructors adapted their practices by incorporating multimodal resources and maintaining emotional connection through check-ins. These findings echo earlier studies on teacher adaptability (Kostoulas et al., 2019; Moreno & Mayer, 2007). Critically, the reliance on individual coping strategies places the burden of adaptation on teachers and learners rather than on institutions.

Theoretical Implications

The findings provide evidence for several theoretical frameworks while revealing their limitations. A) Control-Value Theory: The positive relationship between emotional strain and engagement supports CVT, but the weak effect size suggests that CVT may need to incorporate technological control appraisals alongside academic control appraisals. B) Emotional Labor Theory: Teachers' use of digital tools extends deep acting into the technological realm, but the theory does not fully account for reduced nonverbal feedback in online environments. C) Cognitive Load Theory: Learners' preference for asynchronous learning aligns with recommendations to reduce extraneous cognitive load, but the present study found that even when extraneous load was high, engagement did not necessarily decline. D) Self-Regulated Learning Models: Self-regulation in hybrid contexts requires digital-specific skills not specified in traditional models.

Practical Implications for the Iranian Context

Pedagogically, teacher education programs in Iran should integrate training on managing emotional presence in hybrid classrooms. This training should include concrete strategies for using digital tools (e.g., reaction emojis, breakout rooms, polling features) to foster emotional connection and for recognizing signs of digital fatigue in learners. At the policy level, institutions need to recognize the emotional labor inherent in hybrid teaching and provide targeted support, including reducing teaching loads for hybrid

courses, providing access to mental health resources, and investing in reliable technological infrastructure. For curriculum designers, embedding flexibility in course structures is crucial, offering varied modalities and allowing learners to control their pacing. Course designers should also consider integrating explicit instruction in self-regulation strategies.

VII.CONCLUSION AND IMPLICATIONS

This study investigated the interplay of digital fatigue, emotional strain, and engagement in hybrid EFL classrooms within an Iranian higher education context. The findings reveal that, while hybrid instruction induces moderate fatigue and considerable emotional strain, these challenges do not necessarily undermine engagement. In some cases, emotional strain was positively linked to heightened focus, particularly when the learners perceived the tasks as meaningful and within their control. A key contribution of the study is the identification of the adaptive strategies used by the participants. The learners employed self-regulation techniques, and the instructors adjusted pedagogical practices. These strategies suggest that hybrid learning, when supported by appropriate resources and flexible instructional design, can foster resilience and learner autonomy.

Theoretically, the findings reinforce the principles of the control-value theory, the emotional labor theory, and self-regulated learning. Practically, the study underscores the importance of the teacher education programs that explicitly train instructors in emotional presence and digital pedagogy. The limitations include the single-institution context, reliance on self-reported measures, and the small instructor sample. Future research should adopt multi-institutional and longitudinal designs, incorporate objective indicators of fatigue and engagement, and examine the influence of individual traits on adaptive strategies. In addition, hybrid EFL classrooms can sustain meaningful engagement when underpinned by effective self-regulation, pedagogical flexibility, and emotional presence.

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Conflict of interests

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Use of AI

During the preparation of this article, the authors used Grammarly and ChatGPT to refine the grammar and sentence structures for clarity. After using these tools/services, the authors reviewed and edited the content as needed. They take the full responsibility for the published content.

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Appendix A

Sample Learner Interview Questions

1. How do you feel about attending English classes in the hybrid format?
2. What emotions do you typically experience after online sessions?
3. Have you experienced any form of digital or screen fatigue? Can you describe it?
4. What strategies do you use to stay focused or engaged during online learning?
5. In what ways, if any, do your teachers help you stay emotionally or mentally involved in class?
6. What would make the hybrid learning experience more emotionally manageable for you?

Appendix B

Sample Teacher Reflective Journal Prompts

1. Describe your emotional state before, during, and after this week's hybrid session.
2. What challenges did you face in maintaining emotional presence with students?
3. What strategies did you use to manage digital fatigue, for yourself and your students?
4. Were there any moments of emotional disconnection or disengagement? What triggered them?
5. Did any emotional interactions (positive or negative) stand out to you this week?