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Emotion Regulation Strategies and Emotional Experiences in Blended EFL Contexts: A Case Study of Saudi University Learners

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ABSTRACT

This mixed-methods study examines how Saudi undergraduate EFL learners regulate their emotions within blended learning environments, in line with Saudi Arabia's Vision 2030 educational reform goals. Drawing on Gross's process model of emotion regulation and Pekrun's control-value theory, the research collected data from 120 students via surveys, semi-structured interviews, and reflective journals. Findings reveal that learners predominantly employ adaptive strategies such as cognitive reappraisal (68%), task-focused problem-solving (52%), and religious practices like prayer (74%). However, maladaptive approaches, including emotional suppression (61%) and avoidance (39%), remain prevalent, often shaped by cultural norms surrounding emotional restraint and gender roles. Emotional experiences were modality-dependent: online learning elicited higher anxiety ($M = 3.8$) due to technological disruptions and delayed feedback, whereas face-to-face settings promoted enjoyment (65%) through collaborative peer interaction. Cultural elements, particularly Islamic rituals and same-gender peer networks, were integral to learners' emotional coping strategies. Despite these supports, students reported considerable technostress (63%) and disparities in digital access, which weakened their emotional resilience. The study underscores the importance of designing culturally responsive blended learning models that align with students' religious and social realities. Practical recommendations include integrating faith-informed emotional support, gender-

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sensitive group structures, and enhanced digital infrastructure. These findings contribute to the development of inclusive pedagogical practices in Saudi and other Arab EFL contexts.

Keywords: Emotion Regulation; Blended Learning; EFL; Saudi Arabia; Cultural Practices; Learner Affect

1. Introduction

The global expansion of digital education has profoundly transformed traditional teaching paradigms, particularly through the rise of blended learning formats that combine face-to-face instruction with online components. In the context of English as a Foreign Language (EFL) education, this shift offers several pedagogical advantages, such as increased flexibility, wider access to instructional materials, and opportunities for more personalized learning experiences.

Yet, alongside these benefits come emotional challenges for learners. Technical difficulties can heighten anxiety, and asynchronous learning environments may foster feelings of isolation due to reduced real-time interaction. These emotional demands highlight the growing importance of emotion regulation (ER), a construct now widely recognized as essential to successful language learning^[1].

More broadly, emotions are increasingly acknowledged as integral to academic performance and student engagement^[2]. This is particularly evident in language learning, where affective variables—such as anxiety, motivation, and self-confidence—directly influence learners' linguistic development^[3,4]. Notably, ER strategies are context-dependent; they are shaped by cultural norms, institutional practices, and technological settings.

In Saudi Arabia, the adoption of blended learning has gained momentum under the Vision 2030 initiative, which seeks to modernize education while preserving Islamic values and local traditions^[5]. Within this unique socio-cultural landscape, Saudi EFL learners encounter emotional experiences that are both instructional and deeply rooted in broader cultural dynamics.

English language acquisition is widely regarded as a strategic national goal, closely tied to Saudi Arabia's efforts toward economic diversification and global integration^[6]. Despite this emphasis, the emotional and psychological dimensions of EFL learning remain underexplored. Learners often grapple with oral performance anxiety, frustration

with unfamiliar digital platforms, and culturally influenced expectations—especially those related to gender and emotional expression.

To date, much of the ER research has focused on Western and East Asian contexts^[3] with limited attention paid to Arab learners. Even within Saudi-specific studies, the focus tends to revolve around infrastructural or technological concerns^[7], rather than learners' emotional adaptation to blended environments.

This oversight is significant, given that Saudi social norms—such as collectivism (*takaful*), gender segregation, and religious practices—profoundly shape emotional behavior and regulation^[8]. For instance, students may use prayer (*salat*) to manage anxiety or practice emotional restraint to preserve group harmony. However, such culturally embedded strategies are seldom acknowledged in the broader ER literature. Moreover, while online platforms may reduce logistical barriers, they often generate technostress, such as stress from connectivity issues or delayed feedback^[9]. In contrast, face-to-face settings may alleviate isolation but introduce different pressures rooted in culturally specific expectations, including limitations on mixed-gender communication.

This study seeks to address these gaps by investigating: (1) the ER strategies employed by Saudi EFL learners in blended learning contexts, and (2) how emotional experiences vary across different learning modalities. Using a convergent parallel mixed-methods design, this research draws on models developed by Gross and Pekrun to examine both the psychological and cultural dimensions of ER. The ultimate aim is to contribute to a culturally responsive and emotionally supportive approach to EFL pedagogy.

2. Literature Review

Emotion regulation (ER) and emotional experiences have gained increasing recognition in English as a Foreign Language (EFL) research. Although blended learning introduces new affective dimensions to the learning process,

relatively few studies have examined these dynamics within Saudi higher education. Evidence suggests that the regulation of academic emotions significantly influences learner engagement and achievement in blended EFL contexts^[10]. This review synthesizes relevant research across four key domains: (1) ER in EFL learning, (2) emotional aspects of blended learning, (3) sociocultural influences in Saudi Arabia, and (4) their intersections to identify gaps and guide future inquiry.

2.1. Emotion Regulation in EFL Contexts

Emotion regulation refers to the ability to manage the onset, intensity, and expression of emotions^[11,12]. In EFL education, it is considered crucial for academic persistence and success, especially as learners navigate stress-inducing situations like oral presentations, time-bound writing tasks, and unfamiliar linguistic environments. Unmanaged negative emotions—such as anxiety or self-doubt—can disrupt engagement and impede language acquisition^[13].

To counteract these effects, learners frequently adopt adaptive strategies like cognitive reappraisal, mindfulness, and seeking social support^[14]. For instance, Shen et al.^[15], using Structural Equation Modeling (SEM) with 540 Chinese EFL students, demonstrated that positive academic emotions enhance self-regulation, which in turn predicts academic achievement. Likewise, Teng and Pan^[16] investigated domain-specific achievement emotions in online settings and found that feelings such as pride and enjoyment are positively linked to self-regulatory behaviors and improved performance.

Yildirim and Atay^[17] further explored how learners manage achievement-related emotions, revealing that both reappraisal and suppression strategies are commonly employed, varying in relation to emotional intensity and academic pressure. Recent evidence supports the importance of context-specific ER strategies. One SEM-based study involving 540 university ESL learners showed that emotional engagement directly predicts academic achievement ($\beta = 0.26, p < 0.01$), and also does so indirectly through cognitive engagement^[18]. These findings align with multidimensional models that emphasize the interplay of emotional and cognitive support in learning.

In addition, control-value theory has been applied to understand the link between teacher efficacy, achievement emo-

tions, and instructional change. A study of 386 Chinese EFL teachers working abroad revealed that higher self-efficacy was associated with positive emotions like hope, pride, and enjoyment, which in turn encouraged instructional innovation^[19]. Despite this growing body of research, emotion regulation within blended or digital EFL environments—particularly in the Saudi Arabian context—remains underexplored.

2.2. Blended Learning and Emotional Dimensions in EFL Education

Blended learning, which integrates face-to-face instruction with online modalities, has rapidly expanded in Saudi higher education as part of the national Vision 2030 initiative aimed at modernizing teaching practices^[20]. While this format offers benefits such as greater autonomy, flexible pacing, and increased resource access, it also presents emotional challenges. EFL learners may face limited feedback, heightened demands for self-regulation, and a sense of isolation—especially during asynchronous activities^[20].

Emotional states such as enjoyment and academic stress play a significant role in shaping English language proficiency. Cognitive regulation strategies like reappraisal can enhance positive emotions while mitigating stress, indirectly supporting learning outcomes^[5]. Enjoyment tends to boost engagement, whereas manageable levels of stress may foster persistence. Nevertheless, much of the existing research remains focused on structural and logistical aspects of blended learning, with limited attention to the affective experiences of learners—particularly within Saudi Arabia's collectivist, gender-segregated educational landscape^[6].

2.3. Cultural Influences on Emotion and Learning in Saudi Arabia

Saudi Arabia's educational environment is deeply influenced by cultural norms emphasizing social harmony, respect for hierarchy, and religious commitment. These values shape students' emotional behaviors and regulatory strategies^[6]. Learners may suppress negative emotions to maintain classroom cohesion or adhere to gendered expectations that discourage emotional expression. Moreover, faith-based coping mechanisms such as prayer (salat) are frequently employed but remain underrepresented in mainstream ER literature^[8].

Gender segregation in Saudi universities introduces

further emotional complexities. Although intended to align with cultural and religious expectations, these arrangements can increase self-consciousness, reduce peer interaction, and hinder collaborative learning. Despite these culturally specific challenges, the emotional experiences of Saudi EFL learners—especially in blended learning contexts—have received relatively little scholarly attention. Most studies continue to prioritize infrastructural or technological readiness over students’ affective adaptation^[7].

2.4. Identified Gaps and the Present Study

While previous research has contributed valuable insights into ER within language education, much of it focuses on conventional classroom settings or emphasizes teachers’ emotional experiences (e.g., Li^[21]). Similarly, although the logistical advantages of blended learning in Saudi Arabia have been well-documented^[7], the emotional and cultural dimensions remain insufficiently addressed.

Specifically, there is a lack of empirical research examining how Saudi EFL learners regulate their emotions across different learning modalities, and how cultural and technological factors influence these regulatory processes. This study aims to fill this gap by investigating the ER strategies and emotional experiences of Saudi university students in blended EFL environments. In doing so, it contributes to a growing body of literature that seeks to contextualize emotional experiences within culturally specific educational settings. By foregrounding the interplay of technological, cultural, and emotional factors, this research offers a more comprehensive understanding of learner engagement and supports the development of pedagogies that are both emotionally responsive and culturally grounded.

3. Materials and Methods

This study employed a convergent parallel mixed-methods design^[22] to explore the emotion regulation strategies and emotional experiences of Saudi university students enrolled in blended EFL courses. By simultaneously collecting and analyzing both quantitative and qualitative data, this design enabled a comprehensive investigation of learners’ emotional processes from both statistical and interpretive standpoints.

Given the cultural and educational specificities of the Saudi context, a mixed-methods approach was particularly

suitable. It allowed for a nuanced exploration of how students manage emotions within technologically mediated learning environments, accounting for both measurable trends and culturally embedded perspectives.

3.1. Research Design

This study followed a two-phase design: a quantitative phase utilizing a structured survey, and a qualitative phase involving semi-structured interviews (Appendix A) and reflective journals. Each phase was conducted independently and analyzed separately before the results were integrated to identify both converging and diverging patterns. The quantitative phase focused on assessing the frequency and types of ER strategies learners employed, along with self-reported emotional states such as anxiety, enjoyment, and frustration experienced during blended EFL learning. In contrast, the qualitative phase aimed to uncover learners’ personal interpretations of their emotional experiences, the challenges they encountered, and the culturally informed strategies they adopted to regulate their emotions.

3.2. Research Procedures

Data collection was carried out over a single academic semester at a public university in Saudi Arabia. Ethical approval was secured in advance, and informed consent was obtained from all participants. Initially, students completed the survey, either in person during class or through a secure online platform. Completion time averaged 20 minutes.

Following the survey, a selected group of participants was invited to join the qualitative phase. Semi-structured interviews were conducted in Arabic to facilitate rich, culturally grounded responses. Each interview lasted between 30 and 45 minutes and was scheduled at a time convenient for the participant. Alongside the interviews, participants were also asked to maintain weekly reflective journals for eight weeks. These journals captured emotional fluctuations and the strategies students used to cope with their experiences in the blended EFL environment.

3.3. Participants

The study involved a purposive sample of 120 undergraduate students—60 males and 60 females—aged between

18 and 24 years. All participants were enrolled in at least one blended-format EFL course, with instructional time evenly split between face-to-face and online components. Eligibility criteria included an intermediate to advanced level of English proficiency, corresponding to CEFR levels B1 to C1, and voluntary agreement to participate. Demographic information such as age, gender, and academic major was collected to provide contextual insights into the findings.

3.4. Data Collection Instruments

3.4.1. Quantitative Survey

The quantitative survey combined items from two validated tools: the Emotion Regulation Questionnaire (ERQ)^[23] and the Foreign Language Classroom Anxiety Scale (FLCAS)^[24]. The final instrument included 35 items rated on a five-point Likert scale (1 = strongly disagree to 5 = strongly agree). It was organized into three thematic sections:

1. **Emotion Regulation Strategies:** Adapted from the ERQ (Appendix B), this section measured cognitive reappraisal (e.g., “I control my emotions by changing the way I think about the situation”) and expressive suppression (e.g., “I control my emotions by not expressing them”).
2. **Emotional States in Blended Learning:** Based on FLCAS and enriched with context-specific items, this section assessed key emotional states such as anxiety (e.g., “I get nervous when I speak English in front of a webcam”), enjoyment (e.g., “I enjoy learning English through online platforms”), and frustration (e.g., “Technical problems make it hard for me to stay focused”).
3. **Perceived Challenges:** This custom-developed section explored emotional challenges unique to blended learning, including feelings of isolation, difficulties with time management, and the absence of immediate feedback.

A pilot study with 20 students was conducted to ensure linguistic and cultural appropriateness. Minor adjustments were made for clarity. The final survey showed strong internal consistency (Cronbach’s $\alpha = 0.83$).

3.4.2. Semi-Structured Interviews

Fifteen participants (eight females, seven males) took part in individual interviews guided by open-ended questions

that encouraged detailed accounts of emotional experiences and coping strategies in both online and face-to-face components of the blended courses. Focus areas included:

- Emotional triggers linked to technology use, peer interaction, and assessment,
- Cultural influences on emotional expression and regulation, such as reliance on religious practices or social support systems,
- Perceptions of how blended learning impacted motivation, engagement, and self-efficacy.

To ensure cultural sensitivity, interviews were conducted in Arabic by gender-matched interviewers. All sessions were audio-recorded, transcribed verbatim, and translated into English for analysis.

3.4.3. Reflective Journals

Participants in the qualitative phase maintained reflective journals for eight weeks. Weekly prompts guided them to document emotionally significant events and describe their responses. One sample prompt was: “Describe a moment this week when you felt anxious or motivated in your EFL course. How did you respond?” These journals offered longitudinal insights into students’ emotional development and self-regulation strategies over time.

3.5. Data Analysis

3.5.1. Quantitative Analysis

Survey data were analyzed using SPSS (Version 28). Descriptive statistics (means, standard deviations) summarized usage patterns of ER strategies and emotional responses. Pearson correlation coefficients explored relationships between emotional states and regulation strategies, while independent samples t-tests examined differences across gender and proficiency levels.

3.5.2. Qualitative Analysis

Interview transcripts and journal entries were analyzed thematically using NVivo 12, following Braun and Clarke’s^[25] framework. An inductive coding process was adopted. Two researchers independently performed open coding, identifying recurring elements such as “technical frustration,” “peer support,” and “self-encouragement.” Coding discrepancies were resolved through discussion to ensure

intercoder reliability.

These initial codes were then organized into broader thematic categories, including “technology-induced stress,” “personal agency,” and “cultural influences on emotion regulation,” using axial coding. The iterative process involved constant comparison across data sources, enabling triangulation and revealing both consistent themes and individual differences.

Credibility was reinforced through researcher reflexivity. The team regularly discussed emerging interpretations to minimize bias and enhance the trustworthiness of findings.

3.5.3. Integration of Data

Quantitative and qualitative findings were merged using a joint display matrix. This facilitated direct comparisons between numerical trends (e.g., high use of suppression) and personal narratives (e.g., masking emotions to conform to social norms). Integration provided a more nuanced understanding of emotion regulation in blended EFL contexts by highlighting alignment and discrepancies between what students reported and how they described their experiences.

3.6. Validity and Reliability

To ensure methodological rigor, both quantitative and qualitative components adhered to established validity and reliability standards. Quantitatively, all scales demonstrated strong internal consistency (Cronbach’s $\alpha > 0.80$). Qualitative credibility was supported through member checking—where participants verified their transcripts—and data triangulation across interviews and journals.

Cultural sensitivity was maintained by employing bilingual researchers, verifying translations, and assigning gender-matched interviewers. These steps allowed participants to express themselves freely while preserving the authenticity of culturally embedded experiences.

3.7. Ethical Considerations

The study received ethical clearance from the university’s Institutional Review Board (IRB). Informed consent was obtained from all participants, who were assured of their right to withdraw at any point without consequence. Data were anonymized using coded pseudonyms (e.g., “Participant F3”) to ensure confidentiality. Any sensitive disclosures were handled with care, and participants were informed about

mental health support services available on campus.

3.8. Limitations

Like most self-report studies, this research may be subject to recall bias and social desirability effects, particularly in participants’ accounts of emotional experiences. Additionally, the study’s focus on a single Saudi public university limits the generalizability of its findings. Cultural norms, institutional policies, and technological access vary across universities and regions, potentially influencing both emotional dynamics and regulation strategies.

Despite these limitations, the study offers valuable insights into an underexplored context. Future research should aim to validate and expand upon these findings by incorporating more diverse samples, including students from private institutions and different geographic areas, to capture a broader spectrum of emotion regulation in blended EFL learning.

4. Results

This section presents the integrated findings of the convergent parallel mixed-methods investigation into Saudi EFL learners’ emotion regulation (ER) strategies and emotional experiences within blended learning environments. Data sources include quantitative survey responses ($N = 120$), semi-structured interviews ($n = 15$), and reflective journals. Results are organized thematically, aligning with the study’s research questions.

4.1. Emotion Regulation Strategies

Saudi learners in blended EFL settings use diverse emotion regulation (ER) strategies influenced by personal and cultural factors. These include adaptive, maladaptive, social, cultural, and technology-mediated approaches. Adaptive strategies like cognitive reappraisal and religious practices were common, but many also used maladaptive behaviors such as emotional suppression and task avoidance, reflecting tensions between self-expression, cultural norms, and blended learning demands. **Table 1** summarizes quantitative data and qualitative examples, illustrating how these strategies appear in learners’ experiences and the emotional and situational contexts that shape them^[1].

Table 1. Emotion Regulation (ER) Strategies.

Category	Strategy	Quantitative Data	Qualitative Example
Adaptive Strategies	Cognitive Reappraisal	68% frequently used (M = 4.1, SD = 0.7)	“I saw presentations as interview practice.” (F3)
	Problem-Solving	52% use task breakdown	“I broke essays into parts to stay calm.” (M8)
	Mindfulness/Relaxation	74% use prayer or Quran recitation	“Reciting Ayat al-Kursi calms me before exams.” (F12)
Maladaptive Strategies	Suppression	61% hide emotions	“I stayed quiet to avoid conflict.” (M5)
	Avoidance	39% skip tasks (r = 0.42 with anxiety)	“I avoided forums fearing mistakes.” (F6)
Social Strategies	Peer Support	57% rely on same-gender peers	“Female peers clarify confusing topics.” (F9)
	Instructor Support	28% seek help	“I feared seeming unprepared.” (M2)
Cultural Strategies	Religious Practices	82% use Islamic rituals	“Prayer helps me focus.” (M10)
	Gender Dynamics	Females prefer same-gender interaction	“I share struggles more with women.” (F14)
Tech-Mediated Strategies	Tech-Specific Coping	45% use apps (e.g., “Forest”)	“The ‘Forest’ app keeps me focused.” (F7)
	Tech-Induced Stress	63% report anxiety from tech issues	“LMS crashes make me panic.” (M11)

Overall, adaptive ER strategies were the most prevalent, especially those aligned with religious and cultural values. Cognitive reappraisal helped learners reframe stress-inducing tasks—like online presentations—as growth opportunities. Prayer and Quran recitation served both emotional and spiritual functions, cited by 74% of students. However, maladaptive behaviors, such as emotional suppression (61%) and avoidance (39%), revealed emotional strain under blended learning pressures.

Gender differences were evident. Female students favored peer support and reappraisal, while males more often reported suppressing emotions—reflecting Saudi masculinity norms. Religious coping strategies were widely adopted across genders, emphasizing their cultural resonance.

Technology emerged as both a facilitator and stressor: apps aided focus for some, but tech failures heightened anxiety for others. These findings underscore the multidimen-

sional and culturally embedded nature of ER in blended EFL contexts.

4.2. Emotional Experiences in Blended Learning

Learners in blended EFL courses reported distinct emotional patterns depending on whether the learning occurred online or face-to-face. Emotions such as anxiety, enjoyment, and frustration were experienced differently across these two modes, shaped by both pedagogical structure and the learning environment. Notably, students expressed heightened emotional strain during asynchronous online tasks, while face-to-face settings fostered a greater sense of engagement and community.

Table 2 presents a comparative overview of these emotional experiences across modes, integrating both statistical results and student-reported triggers.

Table 2. Emotional Experiences in Blended Learning.

Emotion	Reported Frequency	Blended Mode with Higher Intensity	Common Triggers
Anxiety	63% online, 38% face-to-face	Online (M = 3.8 vs. M = 2.9; $p < 0.05$)	Asynchronous tasks, delayed feedback, tech issues
Enjoyment	42% online, 65% face-to-face	Face-to-face	Peer interaction, group debates, real-time feedback
Frustration	58% during online writing, 22% during presentations	Online	Vague instructions, technical problems

Quantitative data showed significantly higher anxiety in online settings ($p < 0.05$), particularly during asynchronous tasks. For example, M11 shared, “When Zoom disconnects or LMS crashes, I panic about losing marks.” By contrast, face-to-face sessions were more enjoyable, with 65% of students reporting increased motivation due to peer interaction and immediate instructor feedback (F4: “Face-to-face group debates make learning fun and real”).

Frustration levels also spiked in online environments, with students citing unclear instructions and delayed responses. These findings highlight the emotional toll of remote components and reinforce the importance of real-time communication and technical clarity.

4.3. Cultural Influences on Emotion Regulation

Saudi cultural and religious norms strongly influence emotion regulation (ER), as shown in both quantitative and qualitative data (see **Table 3**). Seventy-six percent of participants identified prayer as a key coping strategy for managing emotional stress. One participant stated, “Prayer

reminds me Allah rewards effort” (F12), highlighting faith’s stabilizing role. Gender norms also significantly affect ER, with male students reporting greater pressure to suppress vulnerability, aligning with masculinity expectations. Participant M7 remarked, “Men can’t show stress—it’s weakness.” This was supported by higher suppression scores among males, indicating gendered influences on emotional expression.

These findings emphasize the need for culturally informed ER frameworks that incorporate religious beliefs and gender dynamics to support learners’ emotional well-being in Saudi blended EFL contexts. Male students reported greater pressure to suppress vulnerability, reflecting traditional masculinity norms, supported by higher suppression scores and qualitative comments like, “Men can’t show stress—it’s weakness” (Participant M7). Conversely, female students valued same-gender peer groups as safe spaces for emotional expression. These gendered dynamics highlight the importance of integrating both religious and gender considerations in ER frameworks to effectively address learners’ emotional needs in this context.

Table 3. Cultural Influences on ER.

Influence	Quantitative Data	Qualitative Insight
Religious Practices	76% viewed prayer as vital	“Prayer reminds me Allah rewards effort.” (F12)
Gender Norms	Male suppression pressure	“Men can’t show stress—it’s weakness.” (M7)

4.4. Technology-Related Challenges and Coping

Technology emerged as a double-edged sword in shaping students’ emotional experiences during blended learning. As summarized in **Table 4**, 70% of participants reported experiencing tech-induced stress, primarily due to connectivity issues. This was vividly illustrated by Participant M11’s statement: “Zoom disconnects make me panic,” underscoring how technical failures exacer-

bate anxiety and frustration, particularly in asynchronous online components. Conversely, a significant subset of learners (45%) leveraged technology proactively to regulate emotions and enhance performance. The use of digital tools such as Grammarly and focus-enhancing apps like Forest facilitated emotional coping and improved engagement. Participant F5 remarked, “Grammarly reduces my writing anxiety,” highlighting how adaptive tech use supports effective ER.

Table 4. Technology-Related Challenges & Coping.

Aspect	Quantitative Data	Qualitative Insight
Tech-Induced Stress	70% cited connectivity issues	“Zoom disconnects make me panic.” (Participant M11)
Adaptive Tech Use	45% used focus apps	“Grammarly reduces my writing anxiety.” (Participant F5)

The interplay between technological challenges and adaptive strategies suggests that infrastructural reliability

and digital literacy are critical for fostering positive emotional experiences in blended EFL environments.

4.5. Integration of Findings

Integrating data from both strands of the study reveals a complex emotional landscape. Adaptive strategies, especially cognitive reappraisal (used by 68% of learners), were effective when combined with peer support and religious practices. However, these strategies were often undermined by technological challenges and sociocultural constraints, particularly for male students discouraged from expressing vulnerability.

While online learning exacerbated anxiety and frustration, face-to-face sessions boosted enjoyment and engagement. This dichotomy suggests the need for balanced instructional design, incorporating real-time interaction, clear feedback channels, and culturally aligned emotional support systems.

5. Discussion and Implications

This study provides nuanced insights into how Saudi EFL learners regulate their emotions in blended learning contexts by drawing on a mix of psychological strategies and culturally embedded practices. By bridging established emotion regulation theories with sociocultural realities, particularly within a conservative Islamic society undergoing rapid educational digitization, the findings contribute meaningfully to both theoretical discourse and applied pedagogical practice in EFL and language education.

5.1. Theoretical Implications

The results extend Gross's process model of emotion regulation^[1] by demonstrating how emotion regulation is not only psychological but also culturally mediated. While cognitive reappraisal and expressive suppression were widely reported, the prominent use of Islamic rituals—such as prayer and Quranic recitation by 74% of participants—suggests an expanded view of adaptive regulation grounded in religious identity and cultural values. This supports Alrabai's^[6] argument for incorporating culturally grounded ER strategies into models applied in non-Western educational contexts. These findings challenge the universality of Western-centric models and point to the need for culturally sensitive revisions that reflect localized practices.

Gender emerged as a critical variable influencing ER

behaviors. Consistent with broader sociocultural norms in Saudi Arabia, female learners reported greater use of peer support and cognitive reappraisal, often relying on same-gender peer networks for emotional expression. In contrast, male learners exhibited a stronger tendency toward suppression, citing social pressure to maintain emotional composure and avoid perceived weakness. These patterns align with prevailing cultural narratives around masculinity and emotional restraint and indicate the importance of considering gender as a mediating factor in emotion regulation. Designing emotionally supportive blended learning environments requires sensitivity to these gendered dynamics, ensuring emotional safety without violating cultural expectations.

The findings also refine Pekrun's control-value theory of achievement emotions^[2] by illustrating how learners' emotional experiences differ significantly across learning modalities. Echoing insights from Sutton and Wheatley^[3], students reported higher anxiety in asynchronous online settings ($M = 3.8$) compared to face-to-face contexts ($M = 2.9$), attributing this to reduced immediacy, increased uncertainty, and limited opportunities for real-time clarification. These results suggest that technology-mediated environments can lower perceived control and social connectedness, key variables in emotional appraisal. Conversely, face-to-face settings fostered greater enjoyment due to interactive group dynamics, immediate feedback, and more familiar social structures. This modality-specific variation supports recent research^[16] showing that emotions like anxiety and enjoyment not only vary across online learning formats but also directly influence engagement and performance through their interaction with self-regulation strategies.

Overall, these theoretical implications highlight the value of contextualizing emotion regulation theories within sociocultural frameworks. Doing so enables a more accurate understanding of learner experiences and supports the development of pedagogical models that respect and reflect learners' identities and environments.

5.2. Practical Implications

The prominent use of religious coping mechanisms (82%) alongside gendered peer support (57%) underscores the urgent need for culturally responsive pedagogy in Saudi blended EFL contexts. Incorporating Islamic mindfulness practices, such as a brief dua before assessments, can effec-

tively alleviate anxiety while respecting cultural values^[8]. Similarly, promoting same-gender group work fosters emotional openness in gender-segregated classrooms, creating safe spaces for expression.

With 63% of students reporting anxiety triggered by technical failures and 70% citing connectivity issues, addressing infrastructure alone is insufficient. Institutions should prioritize training instructors in affective online pedagogy that emphasizes timely, empathetic feedback and fosters social connection in asynchronous settings^[9]. Emotional engagement is critical for supporting self-regulated learning and can indirectly improve academic outcomes by enhancing learner autonomy^[15]. The fact that 45% of learners use apps like Grammarly and Forest indicates the potential of formally integrating such tools to support emotional resilience and sustained engagement.

High rates of maladaptive strategies—suppression (61%) and avoidance (39%)—especially among male learners, point to areas needing intervention. Workshops that teach adaptive ER techniques, such as cognitive reframing, can empower students to manage stress more effectively within their cultural frameworks. Such training may reduce reliance on suppression, improving emotional well-being and academic performance under pressure^[17].

At the policy level, Saudi Arabia's Vision 2030 prioritizes innovation and human capital development^[5]. Policymakers should invest in ER-focused pedagogical training, bridge digital divides, and design gender-sensitive, culturally aligned blended learning models that promote equitable participation and emotional health.

6. Limitations

While this study offers valuable culturally situated insights into emotion regulation among Saudi EFL learners in blended environments, several limitations exist. Data were collected from a single public university, limiting generalizability across diverse Saudi higher education institutions where urban-rural divides and public-private distinctions may influence emotional experiences and coping mechanisms differently. Reliance on self-reports and reflective journals introduces risks of social desirability and recall bias, although interviews helped mitigate these concerns. The cross-sectional design captures learners' emotional regula-

tion at one point in time, preventing analysis of developmental trajectories or causal relationships. Future research should explore longitudinal changes in ER, examine regional and institutional variability, and incorporate instructors' perspectives on ER and emotional support^[21]. Cross-cultural comparisons could also illuminate universal versus culture-specific ER patterns within Arab and Muslim-majority contexts.

7. Future Research Directions

Future studies should broaden the scope to include diverse Saudi universities, especially private and regional institutions, to enhance generalizability. Longitudinal designs can reveal how emotional experiences and regulation strategies evolve over time within blended learning. Employing objective emotional measures alongside self-reports could reduce bias. Given significant gender differences uncovered, further exploration of the intersection between gender, age, academic discipline, and cultural norms is warranted. Additionally, research focusing on technology's role in shaping gendered emotional experiences will inform more tailored and effective pedagogical interventions^[4,6,9,13,16,17,20].

8. Conclusions

This mixed-methods study provides a comprehensive examination of Saudi university students' emotional experiences and emotion regulation (ER) strategies in blended English as a Foreign Language (EFL) learning environments. Integrating quantitative surveys, interviews, and reflective journals, the findings reveal how learners negotiate emotional challenges at the crossroads of technology, pedagogy, and culture.

Saudi learners predominantly employ adaptive strategies such as cognitive reappraisal, peer collaboration, and Islamic religious practices, with 74% reporting prayer and Quranic recitation as means to alleviate stress. These align with global ER models^[1,2], while also highlighting culturally specific approaches often overlooked in mainstream research. Nonetheless, maladaptive strategies—emotional suppression (61%) and task avoidance (39%)—reflect social norms emphasizing emotional restraint, especially among males.

Blended learning introduces emotional contrasts: face-to-face sessions foster enjoyment and social support, whereas online components heighten anxiety linked to technological issues and social isolation. The fact that 63% of learners report stress due to connectivity problems, alongside 45% using apps like Forest for emotional support, underscores technology's dual role in learners' emotional lives.

In alignment with Saudi Vision 2030, the study emphasizes that infrastructural improvements alone are insufficient. Emotional well-being and cultural sensitivity are critical, advocating for curriculum integration of Islamic mindfulness, gender-appropriate peer support, ER-informed teaching, and equitable digital access to reduce technostress. This research advances understanding of ER in EFL contexts within conservative, digitally evolving societies, offering directions for culturally and technologically informed educational strategies.

Author Contributions

A.A.M.M.A.E.D. and M.M.A.M. contributed equally to all aspects of the research and manuscript preparation. Both authors were responsible for conceptualization, methodology, software development, validation, formal analysis, and investigation. They both manage resources and data curation. Writing of the original draft, as well as the review and editing process, were carried out collaboratively by both authors. Visualization, supervision, project administration, and funding acquisition were also undertaken jointly. Both authors have read and agreed to the published version of the manuscript.

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Institutional Review Board Statement

The study was conducted in accordance with the Declaration of Helsinki and approved by the Institutional Review Board of Imam Muhammad bin Saud Islamic University. Although no formal protocol code was issued, official approval was granted prior to data collection.

Informed Consent Statement

Informed consent was obtained from all subjects involved in the study. Participation was voluntary, and students were assured of the confidentiality of their responses and their right to withdraw at any time without penalty.

Data Availability Statement

The data that support the findings of this study are not publicly available due to ethical restrictions related to participant confidentiality and institutional policies. Data may be made available from the corresponding author upon reasonable request and with appropriate institutional approvals.

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Conflicts of Interest

The author declares no conflict of interest. The funders had no role in the design of the study; in the collection, analyses, or interpretation of data; in the writing of the manuscript; or in the decision to publish the results.

Appendix A

Guiding Interview Questions

The following semi-structured interview questions are designed to explore Saudi EFL learners' emotional experiences and emotion regulation strategies in blended learning contexts. Questions are open-ended to encourage rich, reflective responses while aligning with the study's focus on cultural, technological, and pedagogical influences.

A. Emotional Experiences in Blended EFL Learning:

1. Can you describe a recent situation in your blended EFL course where you felt a strong emotion (e.g., anxiety,

- enjoyment, frustration)? What triggered this emotion?
- Probes: Was this during an online task or in-person session? How did this emotion affect your participation or learning?
 - 2. How do your emotional experiences differ between online and face-to-face components of your EFL course?
 - Probes: Do you feel more comfortable expressing emotions in one setting over the other? Why?
 - 3. What aspects of blended EFL learning do you find most emotionally challenging?
 - Probes: Are there specific tasks (e.g., asynchronous writing, live discussions) that evoke stronger emotions?

B. Emotion Regulation Strategies:

- 4. When you feel anxious or frustrated during blended EFL activities, what do you do to manage these emotions?
 - Probes: Do you seek help from peers, instructors, or family? Use specific techniques like deep breathing or positive self-talk?
- 5. Have you developed any personal strategies to stay motivated or calm during online EFL tasks (e.g., video lectures, discussion boards)?
 - Probes: How do these strategies compare to what you use in face-to-face classes?
- 6. How does your cultural or religious background influence how you handle emotions in learning settings?
 - Probes: Are there practices (e.g., prayer, peer collaboration) that help you cope with stress?

C. Social and Cultural Dynamics:

- 7. How do interactions with peers or instructors in blended EFL courses affect your emotions?
 - Probes: Do group activities reduce or increase stress? How does gender segregation (if applicable) shape these interactions?
- 8. In Saudi culture, expressing certain emotions (e.g., frus-

tration) might be discouraged. How does this impact your willingness to share feelings in class?

- Probes: Do you ever suppress emotions to maintain harmony? How does this affect your learning?

D. Technology and Emotional Engagement:

- 9. How do technological tools (e.g., LMS platforms, video calls) shape your emotional connection to the course content or peers?
 - Probes: Do technical issues ever heighten anxiety? How do you resolve them?
- 10. Do you feel emotionally “seen” or supported by instructors in online vs. in-person settings?
 - Probes: What feedback or support do you wish instructors provided more often?

Suggestions for Improvement:

- 11. Based on your experiences, what changes could make blended EFL learning more emotionally supportive?
 - Probes: Structural changes (e.g., shorter online modules)? Instructor-led interventions (e.g., mindfulness exercises)?
- 12. Is there anything else you’d like to share about your emotional journey in blended EFL courses?

Follow-Up Prompts for Depth:

- “Can you give an example of when that happened?”
- “How did that make you feel at the time, and how do you feel about it now?”
- “Why do you think that strategy worked (or didn’t work) for you?”

Appendix B

Coding Scheme for Emotion Regulation Strategies

Theme	Subtheme	Definition	Example from Saudi Context
1. Adaptive Strategies	1.1 Cognitive Reappraisal	Reframing emotional triggers positively or neutrally.	“When I felt anxious about a live presentation, I told myself it’s just practice for the future.”
	1.2 Problem-Solving	Actively addressing stressors (e.g., time management, task breakdown).	“I split the online essay into smaller parts and set daily goals to avoid panic.”
	1.3 Mindfulness/Relaxation	Using breathing, prayer, or meditation to calm emotions.	“Before online exams, I pray Salat al-Istikharah to reduce anxiety.”

Theme	Subtheme	Definition	Example from Saudi Context
2. Maladaptive Strategies	2.1 Suppression	Inhibiting emotional expression to conform to social norms.	"I hid my frustration during group work to avoid conflict."
	2.2 Avoidance	Evading tasks or situations that trigger negative emotions.	"I skipped the discussion forum because I feared making grammar mistakes."
3. Social Strategies	3.1 Peer Support	Seeking emotional or academic help from classmates.	"My study group reassured me when I felt lost in asynchronous tasks."
	3.2 Instructor Support	Relying on teachers for guidance or encouragement.	"I emailed my professor after feeling overwhelmed, and she extended the deadline."
4. Cultural Strategies	4.1 Religious Practices	Using Islamic rituals (e.g., prayer, dhikr) to cope with stress.	"Reciting Quran verses helps me focus before online quizzes."
	4.2 Gender Dynamics	Navigating emotions within gender-segregated norms (e.g., same-peer reliance).	"I feel safer sharing my anxiety with female classmates than male instructors."
5. Technology-Mediated Strategies	5.1 Tech-Specific Coping	Adjusting emotions through digital tools (e.g., timers, apps).	"I use 'Forest' app to stay focused during online writing tasks."
	5.2 Tech-Induced Stress	Emotions triggered by technical issues (e.g., LMS failures, poor connectivity).	"When Zoom disconnects, I panic about missing instructions."

Framework for Applying the Coding Scheme

1. Familiarization: Read transcripts/journals holistically to identify emotional episodes.
2. Initial Coding: Tag segments with relevant subthemes (e.g., "suppression," "religious practices").
3. Theme Development: Group codes into broader themes (e.g., Cultural Strategies).
4. Cultural Nuance Integration: Highlight context-specific patterns (e.g., gender segregation influencing peer support).
5. Triangulation: Compare codes with survey data (e.g., high suppression scores + interview quotes about hiding frustration).

Validation and Reliability

- Inter-Coder Agreement: Train coders using a subset of data; calculate Cohen's κ to ensure consistency.
- Member Checking: Share preliminary codes with participants to confirm accuracy (e.g., "You mentioned using prayer—does this code reflect your experience?").
- Cultural Sensitivity: Use bilingual coders to verify Arabic-to-English translations and interpret culturally embedded terms (e.g., tawakkul [reliance on God]).

Example of Coded Excerpt

Excerpt: "I felt embarrassed after my grammar mistake in the Zoom chat, so I didn't speak again. Later, I prayed and reminded myself that Allah rewards effort."

- Codes:
 - Suppression (avoiding participation post-embarrassment).
 - Religious Practices (prayer for emotional recovery).
 - Tech-Induced Stress (embarrassment linked to Zoom visibility).

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