
| RESEARCH ARTICLE

Two Decades of LMS Supported EFL Instruction: A Systematic-Review of Implementation, Use, Infrastructure, and Success Factors

Reima Al-Jarf

Full Professor of English and Translation Studies, Riyadh, Saudi Arabia

Corresponding Author: Reima Al-Jarf, **E-mail:** reima.al.jarf@gmail.com

| ABSTRACT

This study conducted a systematic review (SR) of the author's research on the use of Online Learning Management Systems (LMSs) in teaching English language skills between 2001 and 2021. The corpus consists of 44 studies categorized into three thematic clusters: implementation of blended learning in teaching language skills; LMS infrastructure, use, and utilization; and success factors in blended learning. The corpus covers experimental studies using LMS; reading and writing studies; investigations of the differential effects of online instruction on multiple EFL skills; studies using iRubrics for assessment; research employing web conferencing tools; extensive reading studies; online collaborative learning and cross cultural communication via LMS; explicit, strategy based online reading instruction; feasibility studies of different LMSs; LMS infrastructure and use; cases in which online learning failed; and studies on success factors. Results showed that the author's research provides a comprehensive account of how blended learning was implemented across different English language skills (reading, writing, vocabulary, grammar, ESP, translation) using Blackboard, WebCT, Moodle, Nicenet, RCampus, and Elluminate. The studies documented instructional procedures, task types, assessment methods, and patterns of student engagement in online and blended environments. Across twelve experimental studies, students who received a combination of online and textbook based instruction achieved higher gains than those who received textbook only instruction, and active participants consistently outperformed passive participants. Overall, students expressed positive attitudes toward online instruction, and LMS supported learning, enhanced autonomy, motivation, collaboration, and engagement. Additionally, the author's studies on LMS infrastructure and use identified institutional, technical, and training related factors that affected the utilization of online learning. Studies on success factors emphasized the importance of online collaboration, active participation, motivation, timely feedback, well designed tasks, and supportive learning environments. Notably, collaboration succeeded in the Saudi-Ukrainian-Russian study because interaction occurred in a culturally neutral, non threatening international space, whereas collaboration between King Saud University and Umm Al Qura University failed due to students' discomfort with cross university interaction in a gender segregated local context, which suppressed participation. In conclusion, the author's contributions to LMS based EFL instruction provide a foundation for understanding how online and blended learning evolved across different platforms, skills, and pedagogical contexts.

| KEYWORDS

Systematic review (SR), Al-Jarf research program, online courses, Learning Management Systems (LMS), LMS infrastructure, EFL/ESL online instruction, web based tools, technology enhanced learning, online engagement, online collaboration

| ARTICLE INFORMATION

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1. Introduction

A learning management system (LMS)¹ is a software application or web-based technology designed to plan, implement, and assess specific learning processes. It is a centralized software platform used to create, manage, deliver, and track educational courses or training programs. It serves as a digital hub for instructors to host materials and for learners to access content, complete assessments, and monitor their own progress. LMSs evolved from mechanical "teaching machines" into the cloud-based ecosystems of 2026. Between (1920s-50s): Early mechanical devices focused on automated feedback and programmed instruction (E.g., Pressey Testing Machine, Skinner Teaching Machine). In 1960s-1980s: Mainframe computers introduced networked learning and social features (forums/chat) (e.g., PLATO (University of Illinois), Project Athena (MIT)). In the 1990s: The

¹ https://en.wikipedia.org/wiki/Learning_management_system

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"Modern LMS" emerged, transitioning to commercial, browser-based software (e.g., FirstClass, EKKO, WebCT, Blackboard). In 2000s–2020s: Open-source platforms democratized access, followed by a massive growth surge during the COVID-19 pandemic (e.g., Moodle). Today (2026): LMS platforms are "Capability Ecosystems" powered by Generative AI, VR, and workflow integration (E.g. of *Corporate/AI are* CYPHER Learning, Docebo, TalentLMS, Adobe Learning Manager. An LMS consists of: (i) Tools to create and organize professional multi-media content. (ii) Managing hierarchies (admins, teachers, students) and permissions. (iii) Engines for automated tests, interactive quizzes, and surveys. (iv) Discussion boards, messaging, and notification systems. (v) Dashboards for visualizing completion rates and predictive performance. (vi) Responsive access and embedding learning into apps like Slack or Teams. It serves the following purposes: (i) Storing all materials (PDFs, videos, quizzes) in one secure hub. (ii) delivering the content of educational courses and training programs anywhere, anytime, to an unlimited number of users. (iii) Streamlining interaction between instructors, learners, and even parents (iv) Handling enrolments, grading, and notifications without manual intervention. (v) Using data to identify learning gaps and monitor real-time progress.

Due to the importance and prevalent use of LMSs in professional and educational domains, including language learning, a literature review revealed a plethora of studies, systematic reviews (SRs) and meta-analyses (MAs) that focused on a variety of issues related to LMS. One group of studies focused specifically on AI-enhanced LMSs, such as AI-based adaptive LMS techniques (Nadimpalli et al., 2023); digital learning management using ChatGPT (Al Faruq et al., 2023); AI and the use of AI within LMS environments more broadly (Aldahwan & Alsaeed, 2020); the role of AI in blended learning (Park & Doo, 2024); the impact of AI on foreign language learning through LMS platforms (Oluwafemi Ayotunde et al., 2023); integration in higher-education LMSs (Manhiça et al., 2022). Across these AI-focused SRs, researchers highlighted the accelerating integration of artificial intelligence into LMS ecosystems to enhance personalization, automate feedback, and support adaptive learning pathways. The evidence shows that AI tools—ranging from recommendation engines and intelligent tutoring systems to generative models such as ChatGPT—can improve learner engagement, streamline instructional processes, and enable data-driven decision-making. At the same time, these reviews underscore persistent challenges, including data privacy concerns, limited algorithmic transparency, and the need for pedagogically grounded AI design. Collectively, the findings position AI-enhanced LMSs as a transformative direction for the future of digital learning environments.

The second group of SRs focused on blended learning in English language education. These include SRs on blended learning in EFL instruction (Koniah et al., 2024), ESP courses (Farmati et al., 2023), ESL contexts (Hasan & Hashim, 2022), EFL environments (Altay & Altay, 2019), higher education settings (Yajie & Jumaat, 2023), Saudi universities (Alenazi, 2023), and Indonesian higher education (Gayatri et al., 2022). Additional SRs examined the effects of blended learning in EFL education (Peng & Raman, 2026), its impact on English proficiency (Yang & Chano, 2025), English learning outcomes (Yang et al., 2025), blended learning strategies for ESL learners (Ramalingam et al., 2022), the role of blended learning in language teacher development (Mendieta Aguilar, 2012), self-regulated learning in blended EFL contexts (Yaman et al., 2025), the community of inquiry framework in blended learning (Tabassum & Mohd Saad, 2024), and the use of metacognitive strategies and multimodal tools in blended learning (Monika & Devi, 2022). Further reviews explored the effects of blended learning on critical thinking (Haftador et al., 2023), pronunciation accuracy, oral communicative competence, vocabulary performance, and English writing skills (Ting et al., 2025; Qi et al., 2024; Zhangli et al., 2024; Chuane et al., 2022).

Collectively, these SRs report that blended learning enhances English language proficiency across multiple skills, including vocabulary, writing, speaking, pronunciation, and overall communicative competence. The findings show that blended models increase learner engagement, provide richer exposure to authentic materials, and support individualized pacing. They also highlight generally positive perceptions among students and teachers, although challenges persist in areas such as technological readiness, instructional design quality, and balancing online and face-to-face workloads. Overall, the evidence strongly supports blended learning as an effective and flexible approach for EFL instruction in higher education.

The third group of SRs examined the success factors influencing the effective utilization of LMSs. These included reviews on student engagement in blended learning (De Bruijn-Smolters & Prinsen, 2024), self-regulation strategies in blended environments (Eggers et al., 2021), critical success factors in blended learning (Min & Yu, 2023), retrospective analyses of blended and hybrid learning (Bozkurt, 2022), effective approaches to blended learning (McCarthy & Palmer, 2023), the effectiveness of online and blended language learning (Zhou & Zhang, 2022), blended learning in pharmacy education (Balakrishnan et al., 2021), research trends and future gaps in blended learning (Angawi & Tasir, 2024), and the advantages and disadvantages of blended learning (Celestino & Noronha, 2021). Across these SRs, several determinants of positive learning outcomes in blended and LMS-supported environments were consistently identified. These include high-quality instructional design, strong learner self-regulation, meaningful interaction patterns, timely and constructive feedback, and effective alignment between online and face-to-face components. The reviews also emphasize the mediating roles of motivation, platform usability, and institutional support in shaping learner success. Collectively, these SRs conclude that blended learning is most effective

when pedagogical, technological, and organizational elements are intentionally integrated, and when learners are supported in developing autonomy and digital competence.

Although numerous SRs have examined blended learning, LMS adoption, and English language instruction, none of the existing SRs provided a unified synthesis of how LMS platforms were used pedagogically to teach specific English language skills within a consistent instructional and institutional context. Current SRs on blended learning in EFL focus primarily on learning outcomes and student perceptions, but only few focus on vocabulary, pronunciation and oral skills and analyze the *instructional procedures, task design, or skill-specific teaching strategies* implemented within LMS environments. Similarly, SRs on LMS effectiveness and success factors discuss infrastructure, usability, and engagement at a general level, yet they do not connect these factors to the concrete processes of teaching reading, writing, vocabulary, grammar, or other language skills. As a result, the field lacks an SR that integrates LMS infrastructure, instructional design, and skill-based pedagogy to explain how LMS-supported blended learning was actually implemented in practice.

To address this gap in the literature, the present study aimed to conduct a systematic review (SR) of the author's research on the use of various Online Learning Management Systems (LMSs) in teaching a wide range of English language skills between 2001 and 2021. The author's body of work comprises 44 studies conducted within a shared educational context—primarily the College of Languages and Translation (COLT) at King Saud University; one study involving Ph.D. students at the College of Home Economics (CHE) in Riyadh (now part of Princess Nourah University); one collaborative study between Umm Al-Qura University and COLT students; one collaborative study involving Saudi, Russian, and Ukrainian students, and students in the public schools in the two Moodle studies. With the exception of the CHE study, the participants in all studies were freshman students.

This SR fills the gap by providing a comprehensive synthesis of the skills taught, platforms utilized, instructional tasks, pedagogical procedures, challenges encountered, and success factors identified in LMS-based blended learning. No previous SR has examined this particular combination of elements or documented the instructional processes across a coherent, longitudinal set of studies authored by the same researcher.

This SR is significant because it synthesizes a coherent body of research conducted within the same educational context, offering a uniquely integrated perspective on how LMS-based blended learning has been used to teach English language skills. Unlike existing SRs that focus either on general LMS adoption or on broad EFL outcomes, this SR brings together three critical dimensions, skill-based pedagogy, LMS infrastructure, and success factors, to explain how blended learning actually works in practice. By analyzing instructional procedures, task design, platform features, and contextual constraints across multiple studies authored by the same researcher, this SR provides a level of methodological and pedagogical consistency that is rarely found in the literature. This makes it possible to identify patterns, principles, and practical insights that can guide teachers, curriculum designers, and institutions seeking to implement effective LMS-supported English language instruction. This SR also contributes to the field by documenting the infrastructural and organizational conditions that enable or hinder successful blended learning, offering evidence-based recommendations for improving LMS integration in EFL programs. In doing so, it fills a gap in the literature where skill-specific teaching processes, LMS design considerations, and contextual success factors have not previously been synthesized into a unified framework.

Finally, this SR is significant because it is part of a broader series of SR/MA projects by the author, that has so far cover the following: *teaching English for art education purposes to Ph.D. students (Al-Jarf, 2026a); EFL reading instruction: themes, methods, and pedagogical insights (Al-Jarf, 2026b); diverse educational evaluation domains (Al-Jarf, 2026c); students' errors in English–Arabic and Arabic–English translation (Al-Jarf, 2026d); mobile apps for developing multiple language skills in EFL (Al-Jarf, 2026e); adult reading practices, interests, habits and challenges (Al-Jarf, 2026f); pronunciation instruction and practice in L2 (2005–2025) (Al-Jarf, 2026g); teaching reading in Arabic to grades 1–12: textbooks, skills, and learning outcomes (Al-Jarf, 2026h); specific-skill assessment (Al-Jarf, 2026i); Arabic–English transliteration of personal names and public signages (Al-Jarf, 2026j); children's language acquisition and development in Saudi Arabia (Al-Jarf, 2026k); classroom practices, writing enhancement and creativity among EFL struggling students (Al-Jarf, 2026l); collaborative learning and teaching in digital environments (Al-Jarf, 2026m); effectiveness of mind-mapping on multiple English language skills in the Saudi context (Al-Jarf, 2026n); inadequate staffing and large class sizes in Saudi EFL and translation programs (Al-Jarf, 2026o); innovative word formation and pluralization processes in Arabic (Al-Jarf, 2026p); 2024–2025 studies on AI Arabic translation, linguistics and pedagogy (Al-Jarf, 2026q); three decades of ESP innovation (Al-Jarf, 2026r); and electronic searching studies (2002–2021) (Al-Jarf, 2026).*

2. Methodology

2.1 Study Corpus

The final corpus consists of 44 empirical studies published between 2001 and 2022, all authored by Al-Jarf and all focusing on the use of a variety of LMSs in EFL instruction. The studies were screened and grouped according to their primary focus and methodological contribution to blended and online learning using an Online Learning Management System (LMS) or any component of an LSM such as web-conferencing tools, discussion forums, blogs and any other integrated features. Three major clusters emerged, reflecting the pedagogical, technological, and evaluative dimensions of LMS-based instruction.

Cluster 1: Implementation of Blended Learning in Teaching Language Skills (26 studies)

This cluster includes studies that integrated LMS platforms with textbook-based in-class instruction, demonstrating how blended learning was conducted in teaching a variety of EFL skills. The studies show instructional procedures, online tasks, teacher and student roles, and the impact of LMS-supported activities on learning outcomes. Sub-clusters were formed based on the primary skill focus: *Reading (4 studies), Writing (8 studies), Grammar (3 studies), Vocabulary (2 studies), Art Education (1 study), Multiple Skills (5 studies), Culture (2 studies), Teacher Evaluation (1 study)*. *These studies collectively illustrate how platforms such as Blackboard, WebCT, Moodle, Nicenet, RCampus, and Elluminate were used to design online tasks, enhance skill acquisition, and support collaborative learning.*

Reading

- 1) *Maximizing ESL freshman readers' skill with online instruction (Al-Jarf, 2009d)*
- 2) *Teaching extensive reading to EFL secondary students online (Al-Jarf, 2009e)*
- 3) *Impact of blended learning on EFL college readers (Al-Jarf, 2007e)*
- 4) *Integrating Elluminate in EFL reading instruction (Al-Jarf, 2014b)*

Writing

- 1) *The effect of web-based learning on struggling ESL college writers (Al-Jarf, 2004e)*
- 2) *Online instruction and creative writing by Saudi EFL freshman students (Al-Jarf, 2007g)*
- 3) *The effects of elearning on teaching English as a foreign language to Saudi college students (Al-Jarf, 2006d)*
- 4) *Does technology make a difference in learning (Al-Jarf, 2003a)*
- 5) *Integrating technology in EFL college instruction in Saudi Arabia (Al-Jarf, 2006c)*
- 6) *E-Learning and the future of university education in the kingdom (Al-Jarf, 2003b)*
- 7) *Creating and sharing writing irubrics (Al-Jarf, 2011a)*
- 8) *Is internet-based learning effective in EFL (Al-Jarf, 2008d)*

Grammar

- 1) *The effects of online grammar instruction on low proficiency EFL college students (Al-Jarf, 2005c)*
- 2) *Integrating Elluminate webconferences in EFL grammar instruction (Al-Jarf, 2013b)*
- 3) *How EFL college instructors can create and use grammar iRubrics (Al-Jarf, 2020)*

Vocabulary

- 1) *Teaching vocabulary to EFL college students online (Al-Jarf, 2007i).*
- 2) *Creating and sharing vocabulary iRubrics (Al-Jarf, 2012)*

Art Education

- 1) *Using online instruction in English for art education (Al-Jarf, 2009g)*

Multiple Skills

- 1) *Differential effects of online instruction on a variety of EFL courses (Al-Jarf, 2004b)*
- 2) *Enhancing freshman students' performance with online reading and writing activities (Al-Jarf, 2013a)*

- 3) *Integrating rcampus in college reading and writing for translation students (Al-Jarf, 2010d)*
- 4) *Creating and sharing irubrics using rcampus (Al-Jarf, 2010b)*
- 5) *Issues in online instruction at the college of languages and translation (Al-Jarf, 2004d)*

Culture

- 1) *Impact of online instruction on EFL students' cultural awareness (Al-Jarf, 2006b)*
- 2) *Cross-cultural communication: Saudi, Ukrainian, and Russian Students online (Al-Jarf, 2004a)*

Teacher Evaluation

- 1) *Assessing EFL college instructors' performance with digital rubrics (Al-Jarf, 2015)*

Cluster 2: LMS infrastructure and Use (8 studies)

This cluster includes studies that focus on the technological and institutional dimensions of LMS adoption. They examine platform requirements, faculty use, system readiness, and the transition from traditional to online learning environments. These studies provide insight into the infrastructural conditions necessary for successful LMS implementation in schools and universities.

- 1) *eIntegration Challenges for Rectors and Deans in Higher Education Institutions in Saudi Arabia (Al-Jarf, 2007d)*
- 2) *Use of online instruction by faculty members at Saudi universities (Al-Jarf, 2004f)*
- 3) *Use of sharepoint as a learning management system by KSU faculty (Al-Jarf, 2009f)*
- 4) *Elearning and distance education at Arab universities (Al-Jarf, 2008b).*
- 5) *Requirements for implementing Moodle e-courses in public schools in Saudi Arabia (Al-Jarf, 2008f)*
- 6) *How to use Moodle learning management system (Al-Jarf, 2008c)*
- 7) *Requirements of the transition from traditional learning to elearning (Al-Jarf, 2001b)*
- 8) *Online courses (Al-Jarf, 2001a)*

Cluster 3: Studies focusing on success factors in blended learning (10 studies)

Studies in this cluster investigate the factors influencing the effectiveness of blended and online learning. They analyze interaction patterns, cultural considerations, student perceptions, collaborative learning dynamics, and the comparative effectiveness of different LMS platforms. This cluster provides insight into the pedagogical, social, and technological variables that contribute to successful LMS-supported instruction.

- 1) *Cultural issues in online collaborative learning in EFL (Al-Jarf, 2007b)*
- 2) *Are webct, Moodle and Nicenet equally effective in EFL instruction (Al-Jarf, 2006a)*
- 3) *Using three online course management systems in EFL instruction (Al-Jarf, 2005f)*
- 4) *Effects of online collaborative activities on second language acquisition (Al-Jarf, 2009c)*
- 5) *Interaction analysis in online learning communities: the student leader (Al-Jarf, 2022a)*
- 6) *Connecting the EFL classroom with local and global communities (Al-Jarf, 2009a)*
- 7) *Connecting EFL students and instructors online (Al-Jarf, 2009b)*
- 8) *Connecting students across universities in Saudi Arabia (Al-Jarf, 2005a)*
- 9) *Blended learning in EFL: what college students say (Al-Jarf, 2007a)*
- 10) *EFL faculty online: support and development issues (Al-Jarf, 2008a)*

The corpus employs a wide range of research methodologies, controlled experimental designs, descriptive surveys, qualitative analyses, platform feasibility studies, infrastructure reviews, and training-based investigations, each selected appropriately according to the purpose of the study. While twelve studies used controlled trials that provide strong evidence of causal effects, other studies addressed questions that cannot be examined experimentally, such as surveying university websites, mapping LMS availability, or analyzing institutional policies. The methodological diversity reflects the multifaceted nature of the research program rather than a limitation.

2.2 Post Hoc Researcher's Note

It is important to note that when the author used e-courses and LMS-supported instruction in the early 2000s, there was no internet access on the university campus or in the classrooms. In all of the studies except 1, the students were freshmen. About half of the students owned a personal computer and had internet access at home; as a result, they used the online course from home. For this reason, the use of the e-courses was made optional, and students who lacked devices or home internet access were treated as a natural control group, while those who had access formed the experimental group. Additionally, during this period, the researcher was required to teach multiple sections of the same Level-1 skill courses (Reading 1, Writing 1, Vocabulary 1, Grammar 1, etc.), often five sections per semester. To avoid repetitive delivery and to explore the pedagogical potential of emerging technologies, different LMS platforms were intentionally assigned to different sections—for example, Blackboard for one group, Nicenet for another, and WebCT for a third. These conditions created a unique, practice-based research environment in which LMS experimentation was driven by necessity, creativity, and the desire to enhance learning despite the absence of institutional infrastructure.

2.3 Eligibility (Inclusion & Exclusion) Criteria

A large number of studies authored by Al-Jarf employed diverse digital tools such as mobile applications, social media platforms, blogs, email, YouTube, Periscope, mind-mapping tools, online videos, podcasts, MP3 lessons, and other standalone web-based applications. Although these studies address technology-enhanced EFL instruction, they were excluded because they do not use a Learning Management System (LMS) as the primary instructional environment. Listing all non-LMS studies was avoided, as doing so would expand the bibliography to more than 200 publications and reduce the coherence and focus of the present review. The following categories of studies were excluded:

- **Duplicate studies**, including repeated publications, overlapping versions of the same work, and studies published in multiple venues (e.g., conference papers later published as journal articles). For example: *Interaction analysis in online learning communities: The student leader* (Al-Jarf, 2007f); *teaching reading to EFL Arabic students online* (Al-Jarf, 2019b); *Evaluating EFL teacher performance with iRubrics* (Al-Jarf, 2014a); *cross-cultural communication: Saudi, Ukrainian, and Russian students online* (Al-Jarf, 2011b); *empowering EFL teachers and students with grammar iRubrics* (Al-Jarf, 2011c); *creating and sharing writing iRubrics* (Al-Jarf, 2010c); *Saudi, Ukrainian and Russian students online* (Al-Jarf, 2004c); and *Effects of online learning on struggling ESL college writers* (Al-Jarf, 2002).
- **Studies in which an online course was only one component among multiple technologies**, such as: *Multimodal teaching and learning in the EFL classroom* (Al-Jarf, 2024a; Al-Jarf, 2024b); *Online exams in language, linguistics and translation courses during the pandemic* (Al-Jarf, 2022c); *strategies for effective distance learning in foreign language, linguistics and translation courses* (Al-Jarf, 2022e); and *Assistive technologies in the EFL classroom* (Al-Jarf, 2010a).
- **Studies using non-LMS technologies**, including blogs, chatrooms, text-to-speech tools, online videos, mobile apps, mind-mapping tools, email, SMS, Periscope, YouTube, social media, or standalone conferencing tools (e.g., Zoom, WebEx, Adobe Connect), unless the tool was integrated within an LMS: *Online dialog among EFL college faculty: A comparison of two Saudi and Korean newsgroups* (Al-Jarf, 82007h); *online collaboration in translation instruction among students and instructors* (Al-Jarf, 2008e); *exploring discourse and creativity in Facebook creative writing by non-native speakers* (Al-Jarf, 2018a); *social networks and creative writing in EFL* (Al-Jarf, 2014b); *issues in interactive translation practice on Twitter* (Al-Jarf, 2020).
- **Studies using synchronous live-streaming tools** for lecture delivery, such as *Issues in using Periscope for live academic lectures during the Covid-19 pandemic* (Al-Jarf, 2021b); *using social media live video streaming to broadcast lectures to college students* (Al-Jarf, 2018b).
- **Studies that do not describe actual teaching, learning, or assessment activities**, such as book reviews, newsletters, conceptual papers, opinion pieces, or general discussions of technology.
- **Studies unrelated to English language teaching or learning as:** *Effects of electronic homework-assignments on Arabization skill development in student-translators* (Al-Jarf, 2019a).
- **Studies on infrastructure other than LMSs**, such as: *Smart classrooms and language teaching* (Al-Jarf, 2005b); *Use of CALL in no-tech EFL classrooms* (Al-Jarf, 2005d); *Connecting students across universities in Saudi Arabia* (Al-Jarf, 2005a); *Videoconferencing for segregated university campuses in Saudi Arabia* (Al-Jarf, 2005g); and *Using a small network to teach Internet searching skills to ESP graduate students* (Al-Jarf, 2005e).
- **Case studies** such as *Blind Saudi female college students and assistive technologies* (Al-Jarf, 2021a).
- **Online tasks conducted outside the LMS**, not part of a structured online course, such as: *Online vocabulary tasks for engaging and motivating EFL college students in distance learning* (Al-Jarf, 2022d); *What ESL teachers should know about online writing tasks* (Al-Jarf, 2014d); and *What teachers should know about online grammar tasks* (Al-Jarf, 2017).

2.4 Corpus Characteristics

The final corpus consisted of 44 studies authored by Reima Al Jarf between 2001 and 2022. Because the dataset represents a closed, author-bounded research program, it is both comprehensive and internally coherent, reflecting a sustained scholarly trajectory in blended learning, LMS-based instruction, experimental studies using LMS, LMS infrastructure and use, online collaborative learning and cross-cultural communication, feasibility of different LMS platforms, cases in which online learning fails, and success factors in blended learning. Although the studies address diverse topics, they share a consistent analytical orientation and employ comparable data collection approaches. Across the corpus, data were primarily descriptive and derived from three sources: questionnaire surveys and interviews with students, faculty, and library staff. Together, these methods generated a coherent body of evidence on the integration of LMS in instruction and learning outcomes across Saudi Arabia and international contexts. For synthesis purposes, the 44 studies were grouped into five thematic clusters, each representing a distinct dimension of the research program. Collectively, these clusters offer an integrated overview of the author's contributions to LMS-based research. Overall, the corpus reflects a longitudinal, methodologically consistent body of work that traces the evolution of LMS integration in instruction over time.

2.5 Information Sources

Because this SR examines a closed, author-bounded corpus, the information sources were limited to the complete body of research published by Reima Al-Jarf between 2001 and 2022. All studies were retrieved from platforms that index the author's full scholarly output. No external database search was required, as the aim was not to identify global studies on online instruction and LMSs, but to synthesize all studies related to LMSs within a single, self-contained research program. All records were obtained from publicly accessible academic platforms where the author's publications are archived, including Google Scholar, ResearchGate, Semantic Scholar, Academia.edu, SSRN, ERIC, EBSCO, ProQuest, and institutional repositories. Collectively, these platforms provide full coverage of the author's publications across journals, conference proceedings, reports, and digital repositories. All included and excluded studies were verified manually to ensure accuracy, remove duplicates, and confirm alignment with the eligibility criteria described in Section 2.2.

2.6 Data Extraction and Synthesis

Data extraction was conducted manually using a structured template developed specifically for this author-bounded corpus. For each study, key information was recorded, including publication year, research purpose, methodological approach, participant characteristics, data collection tools, analytical procedures, and major findings. Additional fields captured each study's alignment with one of the three thematic clusters: implementation of blended learning in teaching language skills, LMS infrastructure and use, and success factors in blended learning. All extracted data were cross-checked manually to ensure accuracy and consistency across the corpus.

Given the descriptive nature of the studies and the heterogeneity of their designs, a qualitative synthesis approach was employed. Studies were compared within and across clusters to identify convergent themes, developmental patterns, and conceptual linkages. The synthesis emphasized longitudinal progression, methodological coherence, and the evolution of online instruction in Saudi Arabia over time. Rather than aggregating numerical outcomes, the analysis focused on tracing how the author's research program collectively contributed to understanding the implementation of blended learning in teaching language skills, experimental studies using LMS, online collaborative learning and cross-cultural communication via LMS, LMS infrastructure and use, feasibility of different LMS platforms, cases in which online learning fails, and success factors in blended learning within Saudi and broader Arab higher education contexts. This integrative synthesis provided a comprehensive account of the trajectory and impact of the research program.

2.7 PRISMA Flow Description

Because this SR is based on a closed, author-bounded corpus of 44 studies published by Reima Al Jarf between 2001 and 2022, the PRISMA (Preferred Reporting Items for Systematic reviews and Meta-Analyses) flow reflects a streamlined and fully contained identification and screening process. All publications produced by the author during this period were retrieved from academic platforms and institutional repositories and were manually screened for relevance to blended learning implementation, experimental LMS-based instruction, online collaborative learning and cross-cultural communication, LMS infrastructure and feasibility, cases in which online learning fails, and success factors in blended learning.

During the screening stage, each record was assessed against the predefined eligibility criteria. Studies were excluded if they were duplicates, non-empirical, or if they addressed topics outside the scope of blended learning and LMS—such as studies in which the LMS platform was only a partial component, or studies focusing on other technologies including blogs, podcasts, mobile apps, mind maps, online videos, online tasks, live-streaming and web-conferencing tools, or social media.

Full-text screening confirmed the final set of 44 studies that directly contributed to the 3 domains of the research program. The PRISMA flow therefore documents a linear progression from the initial identification of all publications within the author's research record, through relevance screening and eligibility assessment, to the final inclusion of studies that substantively address implementation of blended learning in teaching language skills, LMS infrastructure and use, experimental studies using LMS, success factors in blended learning, feasibility of different LMSs, online collaborative learning and cross-cultural communication via LMS, when online learning fails, success factors in blended learning. This process ensured that the resulting corpus was comprehensive, coherent, and methodologically aligned with the aims of the review.

3. Results

3.1 Overview

Since the study corpus consists of 44 studies, it is neither practical nor meaningful to summarize each study individually, nor to present them strictly according to their original order within the clusters. Instead, the studies are synthesized in topical groups based on their thematic focus and methodological similarities. Accordingly, the results are organized into categories such as experimental LMS-based instruction, online collaborative learning and cross-cultural communication, LMS infrastructure and use, feasibility of different LMS platforms, cases where online learning failed, and success factors in blended learning, as illustrated in the figure.

3.1.1 Experimental studies using LMS

The following 12 studies implemented blended learning by combining textbook-based in-class instruction with structured online activities delivered through platforms such as Blackboard, Nicenet, and RCampus:

- *Impact of blended learning on EFL college readers (Al-Jarf, 2007e)*
- *The effect of web-based learning on struggling ESL college writers (Al-Jarf, 2004e)*
- *The effects of online grammar instruction on low proficiency EFL college students (Al-Jarf, 2005c)*
- *Teaching vocabulary to EFL college students online (Al-Jarf, 2007i).*
- *Using online instruction in English for art education (Al-Jarf, 2009g)*
- *Impact of online instruction on EFL students' cultural awareness (Al-Jarf, 2006b)*
- *Is internet-based learning effective in EFL (Al-Jarf, 2008d)*
- *The effects of elearning on teaching English as a foreign language to Saudi college students (Al-Jarf, 2006d)*
- *Does technology make a difference in learning (Al-Jarf, 2003a)*
- *Integrating technology in EFL college instruction in Saudi Arabia (Al-Jarf, 2006c)*
- *E-Learning and the future of university education in the kingdom (Al-Jarf, 2003b)*
- *Effects of online collaborative activities on second language acquisition (Al-Jarf, 2009c)*

Across all 12 studies, pretest results consistently showed no significant differences between the experimental and control groups. The experimental groups then received blended instruction in which online components complemented classroom teaching. Depending on the course, students used LMS platforms to summarize texts, identify details, analyze vocabulary in context, classify information, break cultural terms into components, complete online exercises and quizzes, respond to discussion threads, locate information from external websites, post short paragraphs, stories, or poems, and engage in peer interaction and self-correction. Regardless of the specific skill taught, posttest results across all studies demonstrated that students who completed the online activities achieved significantly higher gains than those who relied solely on traditional instruction. These findings provide strong evidence that LMS-supported blended learning enhances performance in reading, writing, grammar, vocabulary, cultural awareness, and general EFL achievement.

3.1.2 Reading & Writing Studies (RCampus)

Two studies investigated the impact of integrating RCampus into freshman-level reading and writing instruction:

- *Enhancing freshman students' performance with online reading and writing activities (Al-Jarf, 2013a)*
- *Integrating RCampus in college reading and writing for translation students (Al-Jarf, 2010d)*

In both studies, pretest results showed no significant differences between the experimental and control groups in their reading and writing abilities. The experimental groups received blended instruction combining textbook-based classroom teaching with weekly online activities delivered through RCampus. These activities required students to search for information, read supplementary materials, respond to discussion questions, and post their own summaries, threads, and comments. Students were also encouraged to interact with peers' posts, creating a collaborative online learning environment.

Posttest comparisons revealed significant improvements in the experimental groups' reading and writing performance. Students demonstrated enhanced comprehension and production of main ideas and supporting details (both explicit and implicit), improved ability to infer word meanings from context, clearer explanations in their own words, more accurate

pronoun-antecedent connections, and stronger summarization and outlining skills. Their written responses showed greater coherence, organization, and depth of analysis. These findings indicate that combining RCampus-based online activities with traditional instruction can substantially improve freshman students' reading comprehension and writing proficiency by providing additional practice, extended exposure to texts, and opportunities for meaningful written interaction.

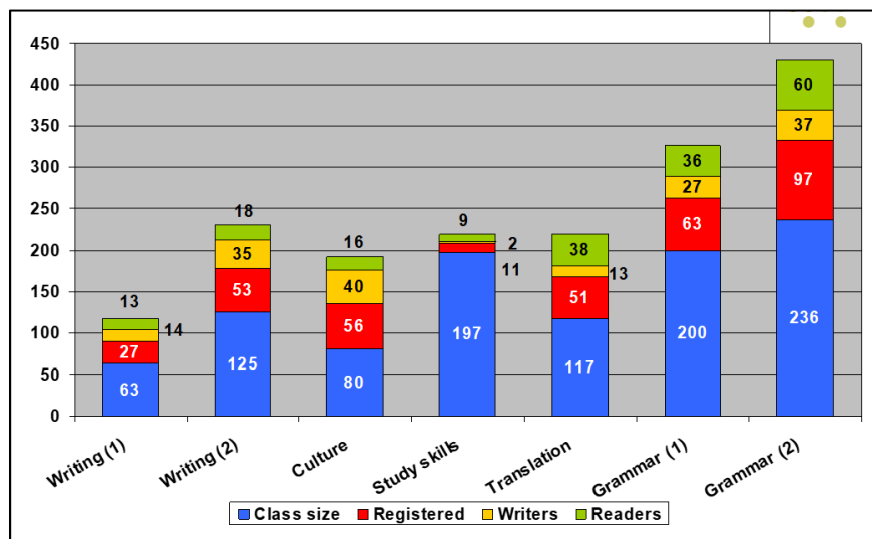
3.1.3 Studies Examining the Differential Effects of Online Instruction on Multiple EFL Skills

Three studies investigated how online instruction influences the development of multiple English language skills across different course types, proficiency levels, and instructional contexts.

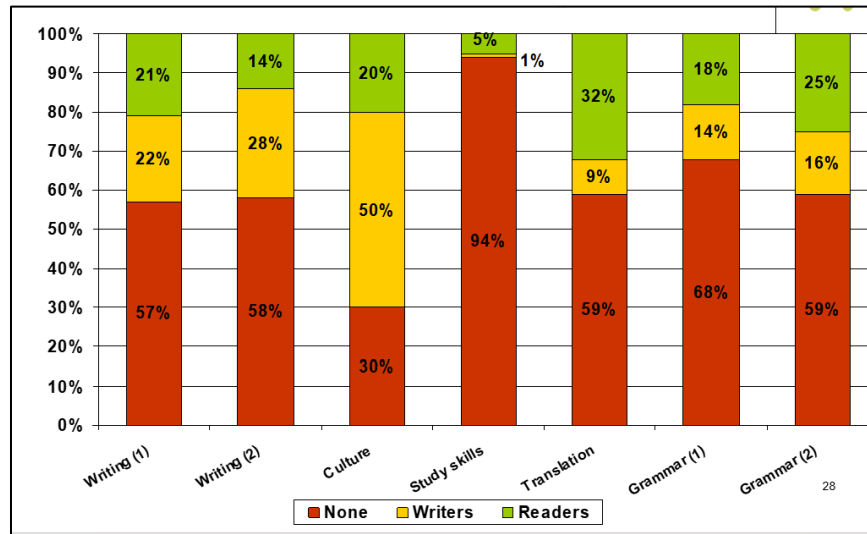
- *Differential effects of online instruction on a variety of EFL courses (Al-Jarf, 2004a)*
- *Online ESL learning: Effects on college levels & course types (Al-Jarf, 2007d)*
- *Issues in Online Instruction at the College of Languages and Translation (Al-Jarf, 2004d)*

These studies collectively examined the impact of blended learning on reading, writing, grammar, vocabulary, culture, study skills, and translation courses, using Blackboard and Nicenet. Across the studies, students were divided into experimental groups receiving blended instruction and control groups receiving textbook-based instruction only. In all three studies, significant gains were found in writing, grammar, vocabulary, culture, and ESP courses, while no significant improvement was observed in study skills or translation courses. Additionally, active participants, who posted on discussion boards, completed online tasks, and engaged with external links, achieved the highest scores; passive participants (browsers) scored lower; and non-participants scored the lowest. The studies also revealed strong positive attitudes toward online learning. Students valued the flexibility of accessing materials from home, the availability of online exercises and quizzes, the opportunity to review content repeatedly, and the supportive, collaborative environment fostered through discussion boards. Despite the absence of internet access on campus during the early 2000s, home-based online instruction can effectively enhance multiple EFL skills, even in low-infrastructure environments. Challenges included limited device ownership, weak connectivity, lack of technical support, and cultural concerns about internet use. Collectively, these studies show that online instruction is most effective when students actively participate, when online tasks are aligned with course objectives, and when instructors provide continuous encouragement, clear guidelines, and meaningful feedback. The findings highlight the potential of LMS-supported learning to enhance multiple language skills simultaneously, even under constrained technological conditions.

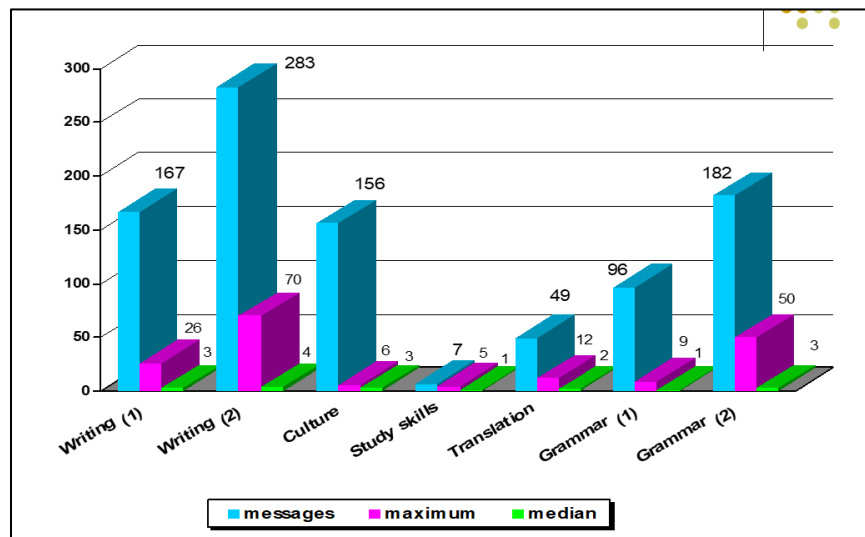
The graphs below give a summary of the total number of students registered, the % of participants and non-participants in the different courses, and the frequencies of posts on the online discussion forums in the different courses.



Graph 1: Students Registered in the Online Courses



Graph 2 : % of Participants & Non-participants in Online Courses



Graph 3: Frequencies of Posts on the Online Discussion Forums in the Different Courses

3.1.4 Studies using iRubrics for assessment

The following studies examined the use of digital rubrics (iRubrics) within LMS-supported environments to enhance assessment practices in EFL instruction:

- *Creating and sharing iRubrics using RCampus (Al-Jarf, 2010b)*
- *How EFL college instructors can create and use grammar iRubrics (Al-Jarf, 2020)*
- *Creating and sharing vocabulary iRubrics (Al-Jarf, 2012)*
- *creating and sharing writing iRubrics (Al-Jarf, 2011a)*
- *Assessing EFL college instructors' performance with digital rubrics (Al-Jarf, 2015)*

Across these studies, iRubrics were used to support formative and summative assessment, provide transparent evaluation criteria, enhance feedback quality, and promote consistency in grading. The findings consistently show that digital rubrics improved students' understanding of task expectations, increased self-monitoring, and facilitated more efficient and reliable assessment practices for instructors. One study further investigated how instructional and assessment practices influence the grammar and writing performance of EFL freshman students enrolled simultaneously in both courses. Three groups were compared: one group taught grammar and writing by the same instructor, and two groups taught by different instructors using the same textbook but different instructional and assessment approaches. Posttest results revealed strong correlations between

grammar and writing scores, with the highest achievement recorded among students taught both courses by the same instructor. The study argues that when a single instructor teaches both courses, clearer and more coherent connections can be made between grammatical competence and writing development. Instructor qualifications, pedagogical systems, professional experience, integration of online instruction, types of error correction and instant feedback, and the use of formative assessment techniques all contributed significantly to improved grammatical knowledge and writing quality among low-ability EFL students.

3.1.5 Studies using Webconferencing tools:

Two studies examined the integration of Elluminate Live web-conferencing sessions into EFL grammar and reading instruction for college translation students:

- *integrating Elluminate webconferences in EFL grammar instruction (Al-Jarf, 2013b)*
- *integrating Elluminate in EFL reading instruction (Al-Jarf, 2014b)*

The two studies investigate the integration of Elluminate Live web-conferencing into EFL grammar and reading instruction for college translation students. In both experiments, the control group received traditional face-to-face practice, while the experimental group participated in synchronous online sessions using Elluminate within Blackboard LMS. The webconferencing sessions provided real-time interaction, guided practice, and immediate feedback. Posttest results showed significant gains for the Elluminate groups in grammar mastery and reading performance, along with positive attitudes toward web-conferencing as a medium for language learning. Together, the studies demonstrate the effectiveness of synchronous online instruction in enhancing students' linguistic performance and engagement compared to conventional classroom practice.

3.1.6 Extensive Reading Studies

teaching extensive reading to EFL secondary students online (Al-Jarf, 2009e)

This study proposes an online model for teaching extensive reading to EFL secondary school students, integrating digital platforms to support independent reading outside the classroom. Students select simplified or authentic children's stories, read them at home, and participate in online discussions, summaries, and peer interactions through blogs, forums, or learning platforms. The instructional approach mirrors traditional extensive reading principles, reading for pleasure, focusing on overall meaning, and gradually increasing text length, while leveraging online tools to enhance motivation, accountability, and collaboration. Students post summaries, comment on peers' stories, and share reflections, while the instructor provides guidance, prompts, and feedback. The online format allows flexible reading, encourages autonomy, and exposes students to a wider range of texts. The model demonstrates how digital environments can effectively support extensive reading programs and promote reading fluency, comprehension, and positive attitudes toward English reading.

3.1.7 Online Collaborative Learning & Cross-Cultural Communication via LMS

- *Cross-cultural communication: Saudi, Ukrainian, and Russian Students online (Al-Jarf, 2004a)*
- *Connecting the EFL classroom with local and global communities (Al-Jarf, 2009a)*
- *Connecting EFL students and instructors online (Al-Jarf, 2009b)*

The three studies present complementary models of online collaborative learning using LMS platforms such as Nicenet and Moodle to enhance EFL students' language skills and cultural awareness. Across these projects, students from different universities—and in some cases different countries—engaged in shared online activities that included discussion threads, external links, assignments, documents, and multimedia resources. The activities were designed to develop writing and communication skills while exposing learners to local and global issues such as social challenges, world events, and community problems. Teachers and students collaboratively selected themes, posted weekly questions, shared links, and responded to peers' contributions, creating an interactive environment that blended linguistic, communicative, and participation goals. The studies demonstrate how online collaboration can connect classrooms within and across countries, promote meaningful interaction, and support skill development when guided by clear instructional goals, structured tasks, and active teacher facilitation.

3.1.8 Explicit, strategy-based online reading instruction

Maximizing ESL Freshman Readers' Skill with Online Instruction (Al-Jarf, 2009b)

This article outlines strategies for teaching reading comprehension to struggling EFL/ESL college readers online. Strategies included helping students understand the chapter structure; predicting content from the title; writing the topic of each paragraph in the margin; underlining the main ideas, numbering the supporting details; circling words that signal chronological order, classification, definition, comparison and contrast, exemplification, **and** process; filling a tree diagram with the title, topics, and subtopics of paragraphs while reading; summarizing the main ideas and supporting details in a chart; recognizing the text type (compare/contrast, classification, illustration, chronology); deriving meanings of words from context clues (definitions, synonyms, antonyms, and morphological analysis); highlighting silent letters, double letters, and hidden sounds in words, and identifying their part of speech; connecting pronouns and determiners with their antecedents; connecting information with

students' background knowledge; circling the question word and key words while skimming; and recognizing sentence types. Sample texts were used to demonstrate how these strategies can be applied. The study emphasizes the importance of explicit strategy instruction supported by online tools to improve reading comprehension.

3.1.9 When Online Learning Fails

Two studies examined cases in which online learning initiatives did not achieve their intended outcomes. These studies highlight the cultural, motivational, technical, and institutional barriers that can hinder the success of LMS-supported instruction, particularly in contexts where online learning is new or unfamiliar.

The first study, *connecting students across universities in Saudi Arabia (Al-Jarf, 2005a)*, reports results of an experiment in which the author and her students at King Saud University (KSU) in Riyadh, Saudi Arabia, shared an online grammar course with a professor and his students at Umm Al-Qura University (UQU) in Makkah, Saudi Arabia, using www.makkahelearning.net. The experiment proved to be a total failure due to a combination of cultural, motivational, technical, and institutional barriers. The primary factor was students' discomfort with cross-university interaction in a gender-segregated educational environment, which made them hesitant to register or participate. The students were shy, apprehensive and hesitant to register, as they were used to learning in a segregated environment" and feared being recognized by male students or instructors. Students also had a negative image of online courses, viewing the internet as a space for entertainment rather than academic work. Many students had limited computer literacy, and "none of the students had prior experience using online courses and 45% could not even use the internet. Motivation was also low because participation was optional and not tied to course grades. The students only work if activities are part of the course mark. Finally, lack of internet access on campus, absence of peer models, and the novelty of online instruction reinforced students' passivity. The author was the only one using online instruction, which made students feel "at odd" compared to their peers .

The second study, *cultural issues in online collaborative learning in EFL (Al-Jarf, 2007b)*, further documented how cultural expectations, communication norms, and social constraints can impede online collaboration. Students' reluctance to interact publicly, fear of judgment, and discomfort with unfamiliar online environments limited their willingness to participate meaningfully in collaborative tasks. Together, these studies demonstrate that online learning can fail when cultural norms, technological readiness, institutional support, and student motivation are not adequately addressed. They underscore the need for preparatory training, structured support, mandatory participation policies, and culturally sensitive design to ensure successful implementation of LMS-based instruction.

3.1.10 Feasibility of Different LMSs

Are WebCT, Moodle and Nicenet equally effective in EFL instruction (Al-Jarf, 2006a)

Using three online course management systems in EFL instruction (Al-Jarf, 2005f)

Nicenet, WebCT and Moodle were used to teach grammar to freshman students at the College of Languages and Translation, King Saud University in Saudi Arabia. Female freshman students were divided into three groups and were randomly assigned to the three online courses (Blackboard, WebCt and Moodle). The same questions, discussion threads, grammar websites, daily grammar lesson, exercises and quizzes were posted in the three online courses. Results revealed that Nicenet was the most popular and actively used platform, with 183 posts in 4 weeks, compared to only 4 posts in Moodle and WebCT. The effective use of Nicenet was attributed to its ease of use, simple language, and supportive social atmosphere. In contrast, Moodle and WebCT faced challenges such as complex forum designs, cultural barriers, limited IT skills, and lack of internet access. The study concluded that while Nicenet was effective due to its user-friendly design and supportive environment, Moodle and WebCT were less successful due to various barriers. The findings highlight the importance of considering technological, linguistic, and cultural factors in the design and implementation of online courses for EFL instruction.

3.1.11 LMS Infrastructure and Use

A series of studies examined the availability, adoption, and institutional readiness for implementing Learning Management Systems (LMSs) in Saudi and Arab educational contexts. These studies investigated the extent to which universities and schools use online courses, the systems adopted, faculty engagement, infrastructural challenges, and the requirements for successful LMS integration.

Use of online instruction by faculty members at Saudi universities (Al-Jarf, 2004f)

Integration Challenges for Rectors and Deans in Higher Education Institutions in Saudi Arabia (Al-Jarf, 2007d)

The two studies found that only 3 universities (23%) in 2004, and 6 universities (43%) in 2007 were offering online courses using WebCT or Blackboard. The amount and type of online courses offered are not proportionate to the number of colleges,

departments and faculty at those universities. The use of WebCT and Blackboard is not cost-effective. Lack of motivation, online teaching skills, training in technology integration, faculty workload, administrative support, inadequate infrastructure and funds contributed to the lack of motivation and inadequate use of online courses. The studies proposed a model for training faculty in online instruction and technology integration. The training should introduce instructors to online delivery systems, creating a course, online course components and how they are used, and training methods. A number of recommendations for the successful adoption, integration and use of online instruction were given.

eLearning and Distance Education at Arab universities (Al-Jarf, 2008b)

The study provides a comprehensive examination of the status of e-learning and distance education in Arab universities, based on a survey of 517 universities, colleges, and institutes across the Arab world. The findings show that only 14.6% of institutions offer online courses supported by LMS platforms, and only 4% provide distance-learning programs, with several countries, such as Libya, Eritrea, Djibouti, and Mauritania, having no online courses at all. While half of Gulf universities and one-third of foreign universities in the region use LMSs, most Islamic and Christian religious institutions do not, despite the suitability of their theoretical courses for online delivery. The study documents the use of systems such as Moodle, Blackboard, and WebCT, yet notes that actual utilization remains minimal relative to the number of courses and faculty members. Limited adoption is attributed to the absence of a strategic vision, inadequate infrastructure, insufficient budgets, weak administrative support, and lack of training. The study concludes with several recommendations, including adopting a unified Arab strategy for expanding e-learning, deploying open-source LMS platforms such as Moodle, training faculty members, developing online course content, providing continuous technical support, and expanding accredited distance-learning programs through virtual and technology-focused universities across the Arab world.

Use of SharePoint as a learning management system by KSU faculty (Al-Jarf, 2009f)

King Saud University (KSU) launched the SharePoint Server in September 2007 and a website was created for each faculty. Since SharePoint is also a Learning Management System (LMS) with tools such as forums, blogs, wikis, a calendar, announcements, RSS feed, surveys, the present study aims to find out the percentage of KSU faculty utilizing those SharePoint LMS tools and the factors affecting their utilization. It was found that the KSU faculty utilized the SharePoint's course tool to upload their course materials, exams, students' projects, Internet websites related to their courses. However, utilization of the SharePoint LMS tools such as wikis, forums or blogs for instructional purposes is almost lacking. No training is provided in the SharePoint LMS tool utilization as they are considered of secondary importance.

How to use Moodle learning management system. first e-learning forum (Al-Jarf, 2008c)

The workshop trained schoolteachers and principals to use Moodle's instructional, administrative, and communication tools and to design complete e-courses with links, activities, multimedia, and assessments. It also introduced essential pedagogical and social principles for effective e-learning, including constructivism, student-centered learning, cooperative learning, and creating a supportive online environment.

Requirements for Implementing Moodle e-Courses in Public Schools in Saudi Arabia (Al-Jarf, 2008f)

*This study defined e-learning, the e-classroom, the e-course, learning management, learning management systems, instructional content management systems, and the Moodle system for managing e-courses. It also reviewed examples of some American schools and school districts that used the Moodle system in education and teacher training. The study identified some of the requirements for implementing Moodle e-courses, which included issuing the Ministry of Education's directive requiring teachers to enroll in training courses on using Moodle, training teacher trainers, determining the training objectives and content, the necessary infrastructure for implementing e-courses, a budget for e-learning, preparing **electronic** instructional content, and levels of implementing e-courses and providing technical support to teachers. The study gave some recommendations.*

Requirements of the transition from traditional learning to elearning (Al-Jarf, 2001b)

This study defined e-learning, e-class, e-course, learning management, learning management systems, educational content management systems, and Moodle e-course management system. It also reviews examples of some US schools and school districts that have used the Moodle LMS in education and teacher training. It also identifies some requirements for activating Moodle e-courses, which included the issuance of the Ministry of Education's directive that teachers should be enrolled in training courses on the use of Moodle, training teachers, defining training objectives and content, preparing the necessary infrastructure to activate the Moodle e-courses, a budget for e-learning, preparing e-educational content, and levels of training, and providing technical support to teachers. The study gives some recommendations.

Online courses (Al-Jarf, 2001a)

This study introduces educators at all levels to e-courses, their components, the courses in which they are used, the software used to design them, the online platforms available for hosting s-courses, how to use e-course, and the importance, advantages, and disadvantages of using online courses.

Collectively, these studies show that LMS implementation in Saudi and Arab educational institutions has historically been constrained by infrastructural limitations, insufficient training, cultural perceptions, and lack of institutional support. They emphasize that successful LMS integration requires coordinated administrative planning, sustained faculty development, adequate technological infrastructure, and clear pedagogical frameworks.

3.1.12 Success Factors In Blended Learning

Three studies examined the pedagogical, technological, and affective factors that contribute to successful blended learning in EFL contexts. The first study, *interaction analysis in online learning communities: the student leader (Al-Jarf, 2022a)*, analyzes the role of student leaders in online courses delivered through Blackboard, WebCT, Moodle, Nicenet, and RCampus as supplements to textbook-based instruction in reading, writing, vocabulary, and grammar. Student leaders consistently showed the highest levels of participation (50–150 posts), initiating threads, sharing creative writing, locating online resources, and fostering a supportive online climate through encouragement and peer interaction. They demonstrated stronger linguistic proficiency, better writing ability, higher technological competence, and greater motivation than their classmates. The study examines their linguistic and technological skills, personality traits, attitudes, online learning experiences, and the instructor's role in shaping an effective online learning environment.

The second study, *blended learning in EFL: What college students say (Al-Jarf, 2007a)*, reported students' comments and responses to the post-treatment questionnaires revealed positive attitudes towards online learning and the course under study. Active students found the online course useful and fun, and considered it a new way of learning English grammar and doing homework. It heightened their motivation and raised their self-esteem. It created a warm-climate between the students and the instructor and among the students themselves. They found the exercises posted in "Link Sharing" useful, due to more practice and instant feedback. The exercises helped clarify difficult points and helped them review for exams. They could use the online course any time and as many times as they needed. It made the class material easier.

The third study, *EFL faculty online: Support and development issues (Al-Jarf, 2008a)*, examined the kind of support that novice EFL instructors needed to successfully adopt online instruction. The findings emphasize the importance of pre-training, technical support, assistance with content design, help with course management, and guidance in time management. The study recommends gradual engagement with LMS tools—such as posting a few announcements, sharing external links, and initiating one discussion thread per week—combined with consistent follow-up, feedback, and encouragement. These practices help instructors overcome feelings of being overwhelmed and stay current with developments in educational technology.

Together, these studies show that successful blended learning depends on a combination of active student participation, positive learner attitudes, and sustained faculty support. Clear instructional design, structured online tasks, responsive feedback, and a supportive social environment are essential for maximizing the benefits of LMS-enhanced instruction.

4. Discussion

The findings of this review reveal a complex interplay between pedagogical practices, technological tools, learner characteristics, and institutional conditions in shaping the effectiveness of online and blended EFL instruction. Although the studies varied widely in platforms, course types, instructional models, and learner populations, clear patterns emerged regarding when online learning enhances performance, when it falters, and which factors consistently support or hinder its success. The purpose of this discussion is to interpret these patterns, connect them to broader theoretical and contextual considerations, and identify the cross-cutting insights that unify the diverse study groups. In doing so, the chapter moves beyond reporting outcomes to explain the mechanisms underlying them and to outline the implications for EFL pedagogy, LMS design, and institutional policy.

4.1 Meta Conclusion

The meta-level synthesis of the 44 studies reveals a coherent, longitudinal, and practice-driven research program that documents how blended learning and LMS-supported instruction have evolved, been implemented, and refined across two decades in Saudi higher education contexts. Despite the diversity of the topics, ranging from experimental EFL instruction, multi-skill integration, extensive reading, and synchronous web-conferencing to LMS feasibility, infrastructure, faculty development, and cases of failure, the studies converge on the following:

Across the experimental studies, results consistently demonstrate that blended learning produces significant gains in student achievement when online tasks are clearly structured, aligned with instructional goals, and supported by active instructor facilitation. Students who engaged in online activities outperformed those who relied solely on textbook-based instruction. This was true across reading, writing, grammar, vocabulary, culture, ESP, and reading + writing courses, indicating that LMS-supported instruction is robust across proficiency levels, course types, and learning environments. Active participants, those who posted threads, interacted with peers, and completed online tasks, achieved higher outcomes than passive ones. The study on student leaders shows that linguistic proficiency, technological competence, and motivational traits interact to shape online learning communities and influence peer participation.

Platform usability, linguistic accessibility, and cultural fit significantly influence participation in the LMS and learning outcomes. Nicenet's simplicity and supportive environment facilitated active engagement, whereas Moodle and WebCT faced linguistic, technical, and cultural challenges. These results emphasize the importance of selecting LMS platforms that match user needs and contextual realities. In addition, Sustainable LMS adoption depends on training, administrative support, workload considerations, and clear institutional policies. Over time, the research program traces a gradual shift from limited LMS availability and low digital literacy to broader adoption, increased faculty training, and more sophisticated uses of online tools.

At the same time, the studies demonstrated clear structural, cultural, and institutional barriers that can undermine online learning. Limited digital literacy, gender-segregated environments, negative perceptions of online courses, inadequate infrastructure, and lack of administrative support contributed to the failure of some online initiatives. These findings underscore that technology alone is insufficient; successful LMS integration requires alignment between pedagogical design, technological readiness, and institutional conditions.

The meta conclusion affirms that the author's research program provides a rich, practice-oriented model for understanding how blended learning succeeds, why it sometimes fails, and what institutional, technological, and pedagogical factors are necessary for effective LMS integration in EFL instruction.

4.2 Meta Interpretation

The meta-level interpretation of the 44 studies reveals that the effectiveness of blended learning and LMS-supported instruction in this corpus is the outcome of a deeper pedagogical and contextual alignment. Across two decades of research, the studies collectively show that experimental students made higher gains on the posttest in all the skills courses. A key interpretive insight is that online learning succeeds when it is integrated into existing instructional systems in ways that respect learners' cultural expectations, technological readiness, and motivational profiles. Student participation is the primary driver of learning gains. The repeated finding that active participants outperform passive browsers suggests that LMS platforms function most effectively as environments for engagement, interaction, and cognitive investment. Studies comparing Nicenet, Moodle, and WebCT provide further interpretive depth. The differences in participation across the three platforms indicate that usability, linguistic accessibility, and cultural fit are central determinants of whether an LMS can support meaningful learning. Nicenet's success reflects the importance of simplicity and social presence, while the challenges associated with Moodle and WebCT highlight the cognitive and linguistic load imposed by more complex systems. This suggests that LMS adoption must be sensitive to local technological ecologies and user profiles rather than driven by global trends.

Contextual constraints shape the trajectory of online learning as much as pedagogical design does. The cross-university unsuccessful experiment demonstrates that cultural norms, gender segregation, and institutional structures can override even well-designed online courses. Similarly, the infrastructure studies show that faculty adoption is limited not by resistance to innovation, but by workload pressures, lack of training, and insufficient administrative support. These findings suggest that LMS integration is a systemic process that requires alignment across multiple layers: learners, instructors, departments, and institutional policies.

A broader interpretive theme across the corpus is the evolution of digital literacy and institutional readiness over time. Early studies document limited access, low awareness, and minimal infrastructure, whereas later studies show more sophisticated uses of LMS tools, synchronous web-conferencing, digital rubrics, and cross-cultural collaboration. This progression reflects technological change, the author's sustained role in shaping faculty development, student engagement, and institutional understanding of online learning.

Taken together, the meta interpretation indicates that the author's research program does more than document the effects of blended learning; it traces the development of online instruction in Saudi and Arab higher education, revealing how pedagogical innovation interacts with cultural norms, institutional structures, and technological ecosystems. The corpus demonstrates that successful LMS integration is a dynamic, context-sensitive process that depends on aligning instructional design, learner

engagement, platform usability, and institutional support. This interpretive lens positions the author's work as a foundational contribution to understanding how blended learning evolves within real educational systems rather than idealized or controlled environments.

4.3 Cross Cutting Insights

A cross-cutting analysis of the 44 studies reveals several insights. (i) Blended learning is most effective when online instruction is not treated as an add-on, but as an integrated extension of classroom pedagogy. Across reading, writing, grammar, vocabulary, culture, ESP, and multi-skill practices, online tasks served to reinforce, deepen, and extend the learning initiated in class. (ii) Learner engagement is the strongest predictor of success. Active participants outperformed passive browsers in every experimental study, across skill types, course levels, and platforms. (iii) The corpus highlights the critical role of usability, accessibility, and cultural fit in determining LMS effectiveness. The stark contrast between Nicenet's success and the limited engagement in Moodle and WebCT underscores that platform design, linguistic simplicity, and social atmosphere significantly influence participation. LMS adoption is therefore not a purely technical decision but one that must account for user readiness, cultural norms, and institutional constraints. (iv) Infrastructure studies show that faculty adoption is shaped by workload, training opportunities, and institutional policies rather than by resistance to innovation. (v) The author's research program documents a clear developmental trajectory in LMS integration over time. Early studies reflect limited access, minimal training, and low awareness, whereas later studies show more sophisticated uses of LMS tools, synchronous web-conferencing, digital rubrics, and cross-cultural collaboration. This progression reflects both technological change and the author's sustained role in shaping faculty development and student engagement. (vi) The corpus demonstrates that successful blended learning requires alignment across pedagogy, technology, learner engagement, and institutional support. LMS-supported instruction enhances achievement, motivation, and autonomy. When misaligned, online learning may fail despite the availability of technological tools.

Together, these cross-cutting insights show that the effectiveness of blended learning in EFL contexts is not determined by technology alone, but by the dynamic interaction of instructional design, learner behavior, platform usability, and institutional readiness. This integrated perspective provides a nuanced understanding of how blended learning evolves within real educational systems and highlights the conditions necessary for sustainable and meaningful LMS integration.

4.4 Implications

The synthesis of the 44 studies carries several important implications for pedagogy, institutional policy, technology design, and the broader development of blended learning in EFL contexts. Collectively, the findings demonstrate that effective LMS-supported instruction depends on instructional design, learner engagement, platform usability, and institutional readiness.

Pedagogically, the studies highlight the need for structured, goal-aligned online tasks that extend and reinforce classroom instruction. The consistent posttest gains across reading, writing, grammar, vocabulary, culture, and ESP courses indicate that blended learning is most effective when online activities are intentionally designed to deepen comprehension, promote practice, and encourage interaction. This suggests that instructors should integrate LMS components into the core of their pedagogy rather than treating them as optional supplements.

For learners, the corpus emphasized the central role of engagement and active participation. In most studies, active participants outperformed passive browsers, which means that online learning environments must foster motivation, autonomy, and meaningful interaction. Instructors may need to incorporate participation-based assessment, structured prompts, and peer-interaction tasks to ensure that students engage with online materials in ways that support learning.

At the technological level, the studies reveal that platform usability and cultural fit are critical determinants of success. The strong performance associated with Nicenet—compared to the limited engagement in Moodle and WebCT—suggests that LMS adoption should prioritize simplicity, linguistic accessibility, and social presence. Institutions should therefore select or customize LMS platforms based on user needs, technological readiness, and cultural context rather than relying on global trends or feature-rich systems that may overwhelm learners.

Institutionally, the findings highlight the importance of training, administrative support, and coherent policy frameworks. Faculty adoption of LMS tools was hindered by workload pressures, limited training, and inadequate infrastructure. These barriers indicate that successful LMS integration requires sustained professional development, clear expectations for online teaching, and investment in technical support. Institutions must recognize that blended learning is a systemic change that cannot be achieved through technology alone.

At the policy level, the studies point to the need for national and institutional strategies that support digital transformation in education. The limited availability of LMS platforms in Arab universities, documented in several studies, suggests that broader structural reforms are needed to ensure equitable access, technological readiness, and long-term sustainability. Policies that

mandate training, allocate budgets for infrastructure, and support digital literacy initiatives can help bridge the gap between technological potential and actual implementation.

Finally, the research program has implications for the future of blended learning in Saudi and Arab higher education. The longitudinal progression observed across the studies, from early experiments with basic platforms to more sophisticated uses of synchronous tools, digital rubrics, and cross-cultural collaboration, indicates that blended learning is evolving into a mature pedagogical model. The findings suggest that future initiatives should build on this trajectory by integrating emerging technologies, expanding faculty development programs, and fostering collaborative online learning communities.

Taken together, these implications emphasize that the success of blended learning depends on coordinated efforts across pedagogical, technological, institutional, and policy domains. The corpus provides a roadmap for designing, implementing, and sustaining effective LMS-supported instruction in EFL contexts, offering evidence-based guidance for educators, administrators, and policymakers seeking to enhance the quality of online and blended learning.

4.5 Positioning This SR Within the Global LMS Research

Within the global research on LMS, this SR occupies a distinctive and underrepresented position. While international SRs typically synthesize studies conducted across multiple institutions, countries, and disciplines, the present SR examines a closed, author-bounded corpus that spans two decades of LMS implementation in EFL instruction. This unique design provides a level of longitudinal coherence, contextual depth, and methodological consistency that is rarely achievable in global LMS reviews, which often aggregate highly heterogeneous datasets.

Globally, LMS research has focused on themes such as technology acceptance, student satisfaction, instructional design models, usability studies, and the effectiveness of blended learning across diverse educational settings. In contrast, this SR synthesizes a research program that is deeply embedded in Saudi and Arab higher education, offering a rare, context-sensitive account of how LMS platforms are adopted, adapted, and negotiated within a specific cultural and institutional ecosystem. This perspective is largely absent from global SR/MA literature, which tends to privilege Western, multi-institutional, or cross-disciplinary datasets.

Moreover, while international SRs often emphasize large-scale quantitative outcomes or broad theoretical models, the present SR contributes a practice-oriented, implementation-focused perspective grounded in detailed instructional procedures, platform-specific environments, and real-world constraints. The corpus documents not only successful LMS implementations but also cases of failure, feasibility challenges, infrastructural limitations, and cultural barriers that global SRs frequently overlook. This makes the current SR especially valuable for understanding LMS adoption in contexts where digital transformation intersects with cultural norms, institutional readiness, and varying levels of digital literacy.

Another feature of this SR is its ability to trace the developmental trajectory of LMS integration over time. Whereas global reviews typically analyze static snapshots of LMS use, this corpus captures the evolution from early experiments with basic platforms (e.g., Nicenet) to more sophisticated uses of Blackboard, WebCT, Moodle, RCampus, synchronous web-conferencing, digital rubrics, and cross-cultural collaboration. This longitudinal perspective provides insights into how LMS adoption matures within a single educational system, shaped by technological change, faculty development, and shifting institutional priorities.

By synthesizing experimental studies, collaborative learning projects, feasibility analyses, infrastructure assessments, and faculty development initiatives, this SR offers a holistic framework that complements and extends global LMS research. It demonstrates that effective LMS integration is not solely a matter of platform features or instructional design, but a dynamic process shaped by the interplay of pedagogy, technology, culture, and institutional policy.

In this way, the present SR contributes a unique and valuable perspective to the global literature: it provides a richly contextualized, longitudinal account of LMS-supported instruction in EFL settings, offering insights that are both locally grounded and globally relevant. It fills a critical gap in international LMS research by highlighting how blended learning evolves within real educational systems rather than idealized or uniformly resourced environments.

4.6 Limitations of This SR

The findings of this systematic review cannot be generalized beyond the specific contexts in which the studies were conducted. First, the results may not extend to universities or countries with different educational systems, technological infrastructures, or institutional policies. Second, the studies focused primarily on freshman students, and therefore, the outcomes may not apply to learners at advanced proficiency levels. Third, the platforms examined—such as Nicenet, Moodle, WebCT, Blackboard, RCampus, and SharePoint—represent a particular technological era, and the findings may not transfer to students using different or more modern LMS environments. Finally, many of the studies were conducted 15–20 years ago, during a period characterized by lower digital literacy, limited exposure to English, and different social norms; today's students, who are more technologically fluent and

socially open, may respond differently to the same instructional models. These contextual and temporal boundaries define the natural limits of generalizability for the current review.

4.7 Future Research Directions

Studies in the current SR were conducted in the early 2000s, and therefore they document early and mid-stage LMS platforms such as Blackboard, WebCT, Nicenet, Moodle, RCampus, and Elluminate. Over the past 15 to 20 years, drastic technological changes have taken place in online learning management systems, especially after the COVID-19 pandemic, when schools and universities made a sudden shift from traditional face-to-face instruction to distance learning using platforms like Zoom, Microsoft Teams, WebEx, and others. Saudi universities have since made considerable improvements in distance-learning infrastructure, internet connectivity, and faculty and student training. Almost all faculty members, schoolteachers, and students of all ages are now familiar and comfortable with distance-learning technologies.

However, with the emergence of artificial intelligence (AI) in recent years, AI-supported learning environments, their integration into blended learning, adaptive learning systems, mobile-first LMS platforms, and immersive technologies remain underexplored in the contexts represented in this SR. Research is therefore needed to examine how these tools can enhance personalization, feedback, collaboration, and learner autonomy. There is also a need to investigate how AI tools—including generative AI, adaptive feedback systems, automated assessment, and AI-supported writing and reading assistants—can be integrated into EFL instruction in pedagogically sound and ethically responsible ways.

In addition, future studies should evaluate the effectiveness of contemporary LMSs and learning platforms widely used in 2026, such as Blackboard Ultra, Google Classroom, Canvas, Microsoft Teams, Classera, TalentLMS, Docebo, Absorb LMS, D2L Brightspace, and mobile-first learning environments, focusing on usability, engagement patterns, multimodal learning, and cross-platform learning behaviors. Future research should also explore key 2026 LMS trends, such as: (i) platforms like Docebo and Absorb that utilize AI to map tailored learning paths; (ii) systems like 360Learning that emphasize social, peer-to-peer knowledge sharing rather than top-down training; (iii) tools such as iSpring LMS and TalentLMS that prioritize built-in authoring tools for fast content creation; and (iv) high mobile accessibility (iOS/Android), now standard in leading platforms like TalentLMS and Litmos.

Moreover, research is needed to explore how today's learners, who are more technologically fluent, socially open, and accustomed to mobile access, social media, and AI, interact with online learning differently from earlier cohorts in the early 2000s, who were new to technology and approached it with some apprehension. These directions will ensure that future investigations reflect current realities rather than the technological and cultural conditions of 15–20 years ago.

5. Recommendations & Conclusion

Based on the synthesis of the 44 studies, this SR offers some recommendations for enhancing the effectiveness of LMS-supported instruction in EFL contexts. Instructors should promote active participation and engagement and should encourage interaction, peer feedback, and collaborative learning. Participation-based assessment, student-led threads, and reflective tasks can help sustain engagement. They should support learners with varying levels of digital literacy by targeted training, orientation modules, and scaffolded online tasks to help low-proficiency or digitally inexperienced students participate more confidently and effectively in LMS environments. Universities and instructors should encourage cross-institutional and cross-cultural online collaboration because it can enhance communication skills, cultural awareness, and learner motivation. Future initiatives should build on successful models while addressing the barriers identified in earlier experiments. They should prioritize usability and cultural fit when selecting LMS platforms. Platforms selected should be simple, linguistically accessible, and culturally appropriate. Institutions should consider user readiness and local norms when adopting LMS systems. They should develop long-term strategies for digital transformation, including budgeting, infrastructure planning, and administrative support. They should expand research on emerging technologies, AI-supported learning tools, adaptive systems, mobile-first LMS platforms, and synchronous collaboration technologies, which offer new opportunities for personalization and engagement. Researchers should explore how these tools can be integrated into blended learning ecosystems. Effective LMS integration requires training in instructional design, online facilitation, assessment strategies, and time management. Institutions should provide structured professional development, technical support, and incentives for faculty engagement in online teaching.

6. Conclusion

This SR provides a comprehensive, longitudinal synthesis of a unique author-bounded corpus documenting two decades of LMS-supported instruction in EFL contexts. The findings reveal that when online learning is pedagogically grounded, well-structured, and supported by active instructor facilitation, it leads to substantial improvements in student achievement,

motivation, and engagement across skill areas and course types. At the same time, the corpus highlights the interplay of technological, cultural, and institutional factors that shape the success or failure of online learning initiatives. Usability, digital literacy, infrastructure, and administrative support are determinants of effective LMS integration. These insights underscore that blended learning is a systemic transformation requiring alignment across pedagogy, technology, learners, and institutions. By synthesizing experimental studies, collaborative learning projects, feasibility analyses, infrastructure assessments, and faculty development initiatives, this SR contributes a richly contextualized understanding of how LMS-supported instruction evolves within real educational systems. It offers a practice-oriented framework that complements global LMS research and provides actionable guidance for educators, administrators, and policymakers seeking to enhance the quality of blended learning in EFL settings. Ultimately, this SR affirms that effective LMS integration is both possible and effective when grounded in thoughtful instructional design, supported by institutional structures, and responsive to the cultural and technological realities of learners. The insights generated herein lay the foundation for future innovation and research, guiding the continued development of blended learning in Saudi and Arab higher education.

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ORCID ID: <https://orcid.org/0000-0002-6255-1305>

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