University of Zawia Journal of Educational and Psychological Sciences (UZJEPS)
Volume 15, Issue 1, 2026, pp 288-297, ISSN 3078-2899

The Impact of AI-Assisted Course Design on Student Engagement in English for Specific Purposes: A Comparative Study at Abu-Isa Faculty of Education

Moudah Alghazal

Department of English, Abu-Isa Faculty of Education, University of Zawia, Zawia, Libya

Corresponding author email: Moudah Alghazal | m.alghazal@zu.edu.ly

Received: 10-04-2026 | Accepted: 15-05-2026 | Available online: 30-06-2026 | DOI:10.26629/uzjeps.2026.15

ABSTRACT

This paper presents a comparative study on the impact of AI-assisted course design versus traditional methods on student engagement in English for Specific Purposes (ESP) at Abu-Isa Faculty of Education, Zawia University, Libya. The study involved eighth-semester students from the Faculty of Education who were tasked with designing ESP courses for various university departments. Initially, students designed courses using traditional PDF-based methods. In a subsequent semester, the same task was undertaken with the integration of AI tools. Preliminary observations indicate a significant increase in student engagement, motivation, and the overall quality of the design process with AI assistance. This research highlights the potential of AI to transform pedagogical approaches in higher education, particularly in specialized language instruction.

Keywords: Artificial Intelligence (AI), English for Specific Purposes (ESP), Course Design, Student Engagement, Higher Education.

أثر تصميم المقررات الدراسية بمساعدة الذكاء الاصطناعي على اندماج الطلبة في مقرر اللغة الإنجليزية للأغراض الخاصة: دراسة مقارنة بكلية التربية أبو عيسى

مودة علي الغزال

قسم اللغة الإنجليزية، كلية التربية أبوعيسى، جامعة الزاوية، الزاوية، ليبيا

*المؤلف المراسل: مودة الغزال | m.alghazal@zu.edu.ly

استلمت: 10-04-2026م | قبلت: 15-50-2026م | متوفرة على الانترنت | 30-06-2026م

ملخـــــص البحـــــث

تقدم هذه الورقة البحثية دراسة مقارنة حول أثر تصميم المقررات الدراسية بمساعدة الذكاء الاصطناعي مقارنة بالأساليب التقليدية في تعزيز اندماج الطلبة في مقرر اللغة الانجليزية للأغراض الخاصة (ESP) بكلية التربية ابو عيسى، جامعة الزاوية، ليبيا. شملت الدراسة طلبة الفصل الدراسي الثامن بكلية التربية، حيث كلفوا بتصميم مقررات في اللغة الانجليزية للأغراض الخاصة موجهة الى عدد من الاقسام الجامعية المختلفة. في المرحلة الاولى، قام الطلبة بتصميم هذه المقررات باستخدام الاساليب التقليدية المعتمدة على ملفات (PDF). وفي فصل دراسي لاحق، أعيد تنفيذ المهمة نفسها مع دمج أدوات الذكاء الاصطناعي في عملية التصميم. وتشير الملاحظات الاولية الى وجود زيادة ملحوظة في مستوى اندماج الطلبة، ودافعيتهم، والجودة العامة لعملية تصميم المقررات عند استخدام ادوات الذكاء الاصطناعي. وتبرز هذه الدراسة الامكانات

الكبيرة للذكاء الاصطناعي في احداث تحول في الممارسات التربوية في التعليم العالي، ولا سيما في مجال تدريس اللغات المتخصصة.

الكلمات الدالة: الذكاء الاصطناعي، اللغة الإنجليزية للأغراض الخاصة، تصميم المقررات الدراسية، اندماج الطلبة، التعليم العالي.

1. Introduction

English for Specific Purposes (ESP) represents a dynamic and evolving field within language education, distinguished by its focus on developing language competencies directly relevant to the specific academic, professional, or vocational needs of learners. Unlike General English, which aims for broad linguistic proficiency, ESP courses are meticulously designed to equip individuals with the precise linguistic and communicative skills required to function effectively in a particular domain (Hutchinson & Waters, 1987). This specialization necessitates a deep understanding of the target context, including its discourse conventions, genre requirements, and the specific tasks learners will undertake.

The process of designing effective ESP courses is inherently complex and traditionally resource-intensive. It demands comprehensive needs analysis, meticulous syllabus design, and the development of authentic, context-specific materials. Historically, this has relied heavily on the expertise of instructors and curriculum developers, involving manual compilation, adaptation, and creation of resources. However, the rapid advancements in Artificial Intelligence (AI) have begun to offer transformative possibilities, presenting new avenues for enhancing and streamlining various stages of the ESP course design process.

At Abu-Isa Faculty of Education, Zawia University, Libya, the prevailing "General English 2" syllabus for students in various departments (e.g., History, Geography, Mathematics) was identified as potentially misaligned with the specific linguistic demands of their respective fields. This recognition prompted an exploration into more tailored language instruction. This study, therefore, investigates the comparative effectiveness of traditional, manual ESP course design methods against AI-assisted approaches in fostering student engagement and improving learning outcomes among 67 eighth-semester students from the Faculty of Education. By examining how AI integration can reshape pedagogical practices in ESP within this specific Libyan higher education context, this research aims to contribute valuable insights into the evolving landscape of language education and curriculum development in the digital age. It posits that leveraging AI tools can not only optimize the design process but also significantly enhance the pedagogical experience for both instructors and learners, preparing future educators for technologically advanced classrooms.

2. Literature Review

2.1. Theoretical Frameworks in ESP Course Design and Needs Analysis

Effective ESP course design is fundamentally rooted in a comprehensive understanding of learners' needs. The concept of Needs Analysis (NA) is paramount in ESP, serving as the cornerstone for curriculum development (Hutchinson & Waters, 1987). Early models of NA,

such as those proposed by Munby (1978), focused on Target Situation Analysis (TSA), which identifies what learners need to do with the language in their target professional or academic environment. This involves analyzing the communication demands, tasks, and discourse features of the target situation.

Complementing TSA, Present Situation Analysis (PSA), as highlighted by Richterich and Chancerel (1980), assesses learners' current language proficiency and existing knowledge. The gap between the PSA and TSA then informs the specific objectives and content of the ESP course. More contemporary approaches also incorporate Learning Needs Analysis (LNA), which considers how learners prefer to learn, their learning styles, and their motivations, thereby ensuring that the pedagogical approach is as effective as the content itself. The integration of these analytical frameworks ensures that ESP courses are not only relevant but also engaging and effective for the target learners.

2.2. The Evolution of Computer-Assisted Language Learning (CALL) to AI in Language Education

The journey of technology in language education has evolved significantly, from early forms of Computer-Assisted Language Learning (CALL) to the sophisticated applications of Artificial Intelligence (AI) seen today. CALL, which emerged in the 1960s, can be broadly categorized into three phases:

- Behavioristic CALL (1960s-1970s): Characterized by drill-and-practice exercises, this phase focused on rote learning and immediate feedback, often through mainframe computers. The emphasis was on grammatical accuracy and vocabulary acquisition.
- Communicative CALL (1980s-1990s): With the advent of personal computers, CALL shifted towards more interactive and communicative tasks. Software aimed to facilitate language use in meaningful contexts, encouraging interaction and problem-solving.
- Integrative CALL (2000s-Present): This phase leverages multimedia, the internet, and social media to create authentic and immersive language learning environments. It emphasizes the integration of various skills and technologies to foster holistic language development.

The current era marks a significant transition from traditional CALL to AI-driven language education. AI tools, particularly generative AI, represent a paradigm shift, moving beyond mere assistance to acting as intelligent agents capable of generating content, providing personalized feedback, and simulating complex communicative scenarios (Jata, n.d.). This evolution has profound implications for how language courses, especially ESP, are designed and delivered.

2.3. AI in Pedagogical Practice and Course Design

The integration of AI in education has garnered significant attention, with studies exploring its potential across various disciplines. In language education, AI tools have been shown to support personalized content delivery (Hmouma & Benarose, 2026), enhance motivation, and simulate authentic communication tasks (Jata, n.d.). Specifically, in ESP, AI can serve as a valuable

support assistant for course designers, aiding in various stages of development and implementation (Anthony, 2025).

Research indicates a positive shift in sentiment towards AI-assisted learning environments, suggesting that these tools can facilitate individualized learning and improve instructional effectiveness (Bora, 2025). Furthermore, AI-driven tools have been linked to increased student engagement, personalization, and inclusivity in learning processes (Li, 2025). The application of AI in needs analysis for ESP has also been identified as a promising area, helping to address challenges faced by course designers (Tang, 2023). The concept of "Pedagogical Mediation of AI" (Frontiers in Education, 2025) suggests that AI tools can act as a "co-designer" or "scaffold," supporting both instructors and learners in the educational process. This framework views AI not as a replacement for human educators but as a powerful enhancer of pedagogical strategies.

While the benefits of AI are increasingly recognized, it is also important to consider potential challenges, such as over-reliance on AI tools and their impact on critical thinking and academic integrity (Avsheniuk, n.d.). This study aims to contribute to this growing body of literature by providing a practical case study from a specific educational context, examining how these theoretical and technological advancements translate into tangible pedagogical outcomes.

3. Methodology

3.1. Context and Participants

The study was conducted at Abu-Isa Faculty of Education, Zawia University, Libya, involving 67 eighth-semester students enrolled in an ESP course within the Faculty of Education. These students were tasked with designing ESP courses intended for other university departments, such as History, Geography, and Mathematics, with the goal of replacing the existing "General English 2" syllabus.

3.2. Course Design Phases

The study spanned two distinct phases over two consecutive semesters, allowing for a direct comparison of traditional versus AI-assisted approaches to ESP course design.

Phase 1: Traditional Course Design (March–July 2025)

During the first semester, the 67 eighth-semester students engaged in a traditional, manual approach to ESP course design. This phase required students to apply theoretical knowledge acquired in the course to develop comprehensive course materials. The process involved:

- Needs Analysis: Students conducted preliminary needs analysis, primarily relying on established ESP frameworks and their understanding of the target departments' general academic needs. This was largely a theoretical exercise, culminating in written reports.
- Syllabus and Material Development: Students manually drafted syllabi, lesson plans, and learning activities. This often involved extensive reading, synthesis of information, and creative writing, with the output typically being text-based documents.

- Output: The final deliverable was a PDF-based course design, which was then submitted and assessed by the instructor based on pedagogical soundness, relevance, and completeness. This phase emphasized foundational understanding and the application of core ESP principles through conventional methods.

Phase 2: AI-Assisted Course Design (February- June 2026) In the subsequent semester, the same cohort of students was tasked with the identical objective: designing ESP courses for other university departments. However, this phase explicitly integrated the use of AI tools to assist and enhance the design process. The methodology for this phase was significantly augmented by technology:

- Enhanced Needs Analysis: Building upon their foundational understanding, students conducted a more comprehensive and data-driven needs analysis. This involved designing and deploying questionnaires and conducting interviews with students and faculty from the target departments (e.g., History, Geography, Mathematics, Islamic Studies, etc.) to gather specific, real-world language requirements and challenges. This direct engagement provided richer data for course customization.
- AI Tools Integration and Application: Students leveraged digital skills acquired in their previous "Computer Assisted Language Learning" (CALL) course, which provided them with a foundational understanding of educational technology and its application in language learning. This prior training facilitated their seamless adoption of various AI tools for different aspects of course design:
    - Mind Mapping Tools: Utilized for initial course outlining, brainstorming, and structuring the curriculum based on the needs analysis findings. This allowed for visual organization of complex ideas and interconnections between units and lessons.
    - Flipbook: Employed for the digital presentation of course materials, transforming static content into interactive and engaging formats.
    - Podcasts & Notebook Video: Used for generating multimedia learning content, enabling students to create audio and video resources that cater to diverse learning styles and enhance authenticity.
    - Short Story Motion: Applied for dynamic storytelling and creating visually engaging scenarios or case studies within lessons, fostering deeper immersion.
    - Make it: Utilized for developing interactive elements and building engaging course activities, moving beyond passive content consumption.
    - Google Forms: Specifically used for designing and implementing student assessments, allowing for efficient data collection and analysis of learning outcomes.
- Unit Design: Following the detailed outline, students designed four units, with each unit comprising four lessons. The AI tools facilitated the rapid generation of content, activity ideas, and assessment items, allowing students to focus more on pedagogical refinement and creativity.

3.3. Data Collection and Analysis

Data for this comparative study primarily relied on the instructor's qualitative observations regarding student engagement, motivation, and the quality of the designed courses in both phases. Crucially, throughout both the traditional and AI-assisted design processes, the instructor provided continuous and iterative feedback to the students. This feedback was instrumental in guiding their application of ESP theories, refining their needs analysis strategies, and optimizing their use of AI tools. The instructor's role was not merely evaluative but actively formative, fostering a dynamic learning environment where students could iteratively improve their designs based on expert guidance. These rich qualitative observations, informed by direct interaction and the interactive feedback loop, form the primary basis of the findings presented in this paper.

4. Results and Discussion

The transition from traditional to AI-assisted ESP course design yielded profound differences, particularly in student engagement, the quality of the output, and the overall pedagogical experience. The comparative nature of this study highlights the distinct advantages and transformative potential of integrating AI into curriculum development tasks.

4.1 Comparive Analysis of Design Phases

In the traditional phase (Phase 1), students demonstrated a solid foundational understanding of ESP concepts. They successfully applied theoretical knowledge to produce well-structured, albeit static, PDF-based course designs. This phase was crucial for establishing the core principles of syllabus design, needs analysis, and material compilation. However, the process was often perceived as laborious and heavily reliant on traditional text-based research and writing.

The introduction of AI tools in the second phase (Phase 2) catalyzed a dramatic shift. The instructor observed an **astonishing** level of student engagement and intrinsic motivation. The AI tools facilitated a highly interactive and dynamic design process, liberating students from the constraints of static document creation.

4.2 Qualitative Impact of Specific AI Tools and Enhanced Creativity

The specific suite of AI tools utilized by the 67 students played a pivotal role in diversifying the learning experience, enhancing the quality of the final products, and fostering a level of creativity previously unattainable in the traditional phase. Students were not merely consuming technology; they were actively leveraging it as co-creators, pushing the boundaries of conventional course design.

- **Visual Structuring and Conceptual Clarity:** The use of **mind-mapping tools** for initial outlining allowed students to visually organize complex linguistic needs into coherent, interconnected structures. This visual approach facilitated a more holistic understanding of the curriculum, helping them identify gaps, ensure logical progression across four units (each with four lessons), and refine the thematic coherence of their syllabi. This contrasted sharply with the linear, often fragmented, approach necessitated by traditional text-based outlining.

- **Multimedia Content Generation and Authenticity:** Tools like **Podcasts** and **Notebook Video** empowered students to move beyond static text, creating rich auditory and visual learning materials. For instance, students designing an ESP course for History majors could generate short historical narratives as podcasts, or create video clips simulating academic lectures or interviews with historians. This not only catered to diverse learning styles but also significantly enhanced the authenticity and contextual relevance of the materials, a critical aspect of effective ESP.
- **Dynamic Engagement and Interactive Learning:** The application of **Short Story Motion** introduced narrative elements into language learning, making the content more relatable and memorable. Students could design animated scenarios depicting professional situations relevant to their target departments, thereby fostering deeper immersion and contextual understanding. Similarly, the **Make it** app allowed for the rapid development of interactive exercises, quizzes, and simulations, transforming
  passive content consumption into active, experiential learning. This interactivity was a major driver of the observed increase in student motivation.
- **Professional Presentation and Student Pride:** The use of **Flipbook** elevated the presentation of the course materials from simple PDFs to dynamic, page-flipping digital books. This professional aesthetic instilled a profound sense of pride and accomplishment among the students, motivating them to meticulously refine their content and presentation. The polished output reflected a higher standard of professionalism than typically seen in traditional assignments.
- **Streamlined Assessment Design: Google Forms** proved invaluable for designing and implementing student assessments. Its ease of use allowed students to create varied question types, automate grading for certain sections, and efficiently collect data on learning outcomes, thereby integrating a practical assessment component into their course designs.

This hands-on engagement with AI significantly enhanced their learning, making the rigorous process of course design more interesting, relevant, and aligned with
contemporary educational practices. The observed high engagement suggests that these AI tools effectively bridge the gap between theoretical knowledge and practical application, empowering students to become more creative, autonomous, and confident in their design endeavors. The iterative nature of working with AI, where students could quickly generate, review, and refine content, fostered a dynamic learning environment that encouraged experimentation and innovation.

4.3 The Digital Showcase: A Culmination of Learning and Collaborative Achievement

A defining and particularly impactful outcome of the AI-assisted phase was the collaborative creation of a dedicated website (espcourse.framer.website) to showcase the students' final projects. This digital platform serves as a tangible, public-facing demonstration of their collective and individual work, featuring comprehensive ESP course designs tailored for nine

distinct university departments: Islamic Studies, Arabic Language, Psychology, History, Geography, Mathematics, Biology, Physics, and Computer Science.
Each project hosted on the website includes detailed course materials, meticulously crafted lesson plans, interactive activities, and digital assessments.

5. Discussion of Pedagogical Implications

The findings from this comparative study offer significant pedagogical implications for ESP instruction and teacher training in higher education. The observed increase in student engagement and motivation during the AI-assisted phase underscores the potential of integrating advanced technological tools into curriculum design courses. This approach moves beyond merely teaching about technology to actively using technology as a medium for learning and creation, thereby fostering a more dynamic and responsive educational ecosystem. The implications extend to curriculum development, teacher professional development, and the cultivation of 21st-century skills among language educators.

5.1 Fostering AI-Literate Educators and Future-Ready Skills

The experience of designing ESP courses with AI tools directly contributes to developing **AIliterate educators**. As future language teachers, these students are not only learning how to design effective curricula but are also gaining hands-on experience with tools that are rapidly becoming indispensable in modern classrooms. Their prior training in the CALL course provided a crucial foundational understanding of educational technology, enabling them to seamlessly integrate AI into their design process. This practical exposure prepares them to critically evaluate, adapt, and implement AI solutions in their future teaching practices, fostering a generation of teachers who are confident and competent in leveraging technology for enhanced learning outcomes. This also aligns with the broader educational goal of preparing students for a future workforce that increasingly demands technological fluency and adaptability. The ability to critically assess AI outputs, refine prompts, and integrate AI-generated content judiciously becomes a core competency, moving beyond mere tool operation to strategic pedagogical application.

5.2 Enhancing Digital Literacy and Competence through Authentic Tasks

Beyond the immediate benefits to ESP course design, the project significantly enhanced students' **digital literacy and competence**. The creation of a professional website (espcourse.framer.website) to showcase their projects is a testament to their acquired skills in digital content creation, organization, and presentation. This goes beyond traditional academic outputs, providing students with practical web development experience using platforms like Framer. Such skills are highly transferable and essential for navigating and contributing to the increasingly digital educational and professional landscapes. The authentic nature of creating a public-facing website, rather than merely submitting a private document, provided a powerful incentive for students to master these digital tools and present their work professionally. This real-world application of digital skills imbues learning with purpose and relevance, preparing students for the demands of a digitallydriven professional environment.

5.3 Deepening Engagement through Active Creation and Ownership

The heightened student engagement observed in the AI-assisted phase can be linked to **Engagement Theory**, particularly Kearsley and Shneiderman's (1998) principles of "Relate, Create, Donate." Students were able to relate their learning to real-world needs through comprehensive needs analysis, create innovative course materials using diverse AI tools, and donate their work to a wider audience through the project website. This active, constructive, and collaborative learning environment, facilitated by AI, transformed the design process from a theoretical exercise into a meaningful, impact-driven endeavor. The ability to rapidly prototype, iterate, and visualize their ideas using AI tools likely contributed to this deeper level of engagement and ownership over their projects. This sense of ownership, coupled with the immediate feedback from AI tools and the instructor, fostered a virtuous cycle of continuous improvement and motivation, leading to higher-quality outputs and a more profound learning experience. The intrinsic motivation derived from seeing their creations come to life and be shared publicly was a powerful catalyst for sustained effort and creativity.

5.4 The Evolving Role of the Instructor in AI-Integrated Pedagogy

The instructor's continuous and iterative feedback played a critical role in mediating the students' learning experience with AI. This highlights that while AI tools can automate certain aspects of course design and content generation, the human element of expert guidance remains indispensable. The instructor's feedback helped students to critically assess AI-generated content, refine their pedagogical approaches, and ensure the alignment of their designs with sound educational principles. This collaborative model positions the instructor as a facilitator and mentor, guiding students through the complexities of AI integration rather than merely assessing their final products. The instructor's expertise in both ESP pedagogy and the effective use of CALL tools was crucial in maximizing the educational benefits of the AI integration, ensuring that technology served pedagogical goals rather than dictating them. This evolving role requires instructors to be not just content experts but also adept at technology integration and critical digital literacy.

5.5 Long-Term Impact and Future Directions

The long-term impact of such AI-integrated pedagogical approaches extends beyond the immediate course outcomes. Students who experience this kind of learning are likely to develop a more proactive and adaptive mindset towards technology in education. This prepares them not only for their future careers as educators but also for lifelong learning in a rapidly changing technological landscape. The skills developed—critical thinking, problem-solving, digital creation, and collaborative work—are essential for navigating the complexities of the 21st century. Future research could explore the quantifiable impact of AI tools on specific learning outcomes, student perceptions through detailed surveys, and the sustainability of such engagement over longer periods. Further investigation into the ethical considerations and potential biases of AI tools in language education would also be valuable, particularly concerning issues of academic integrity, data privacy, and equitable access to technology. Longitudinal studies tracking the career trajectories of these AIliterate educators would provide further insights into the lasting impact of such innovative pedagogical interventions.

5. Conclusion

This comparative study at Abu-Isa Faculty of Education, Zawia University, demonstrates the transformative potential of integrating AI tools into ESP course design pedagogy. While traditional methods provide a solid foundation for understanding course development principles, the incorporation of AI significantly enhances student engagement, motivation, and the overall quality of the design output. The findings suggest that AI-assisted approaches can foster a more dynamic, interactive, and innovative learning environment, preparing future educators with essential skills for a technologically evolving educational landscape. Further research is needed to quantify these observations and explore the long-term impact of AI on student learning outcomes and critical thinking skills in ESP.

References

1. Anthony, L. (2025). AI-Assisted ESP Course Design and Implementation. *Open Edition Journals*. https://journals.openedition.org/asp/10034
2. Avsheniuk, N. (n.d.). *Exploring Overreliance on AI Tools in English for Specific Purposes Courses: Challenges and Implications for Learning and Academic Integrity*. AWEJ. https://awej.org/exploring-overreliance-on-ai-tools-in-english-for-specific-purposes-courses-challenges-and-implications-for-learning-and-academic-integrity/
3. Bora, B. Y. (2025). Integrating AI into instructional design: A case study on digital photography education in higher education. *Cedtech*. https://www.cedtech.net/article/integrating-ai-into-instructional-design-a-case-study-on-digital-photography-education-in-higher-16433
4. Hmouma, M. (2024). Exploring Libyan EFL undergraduates' attitudes towards AI-driven English learning applications. *University of Zawia Journal of Educational and Psychological Sciences (UZJEPS)*, *13*(2), 473–486. https://journals.zu.edu.ly/index.php/UZJEPS/article/view/1064
5. Hmouma, M., & Benarose, A. (2026). The Effectiveness of Using Artificial Intelligence on Learning Vocabulary among Libyan EFL University Undergraduates at Zawia University. *International Journal of Peer-Reviewed Multidisciplinary Research*, *2*(1), 12-18. https://ijprmr.com/index.php/ijprmr/article/view/10
6. Hutchinson, T., & Waters, A. (1987). English for Specific Purposes: A learning-centred approach. Cambridge University Press.
7. Jata, E. (n.d.). The Role of Artificial Intelligence in Enhancing English for Specific Purposes. Knowledge Center UBT-UNI. https://knowledgecenter.ubt-uni.net/cgi/viewcontent.cgi?article=4811&context=conference
8. Kearsley, G., & Shneiderman, B. (1998). Engagement Theory: A framework for technologybased learning. Educational Technology, 38(5), 20-23.
9. Li, J. (2025). Effectiveness of generative artificial intelligence-based teaching interventions with traditional instructional teaching: A systematic review and meta-analysis. PMC. https://pmc.ncbi.nlm.nih.gov/articles/PMC12362899/
10. Munby, J. (1978). Communicative syllabus design. Cambridge University Press.
11. Richterich, R., & Chancerel, J. L. (1980). Identifying training needs for adult learners: A practical guide. Council of Europe.
12. Tang, J. (2023). Artificial intelligence-based needs analysis for English for specific purposes in digital environment. ScienceDirect. https://www.sciencedirect.com/science/article/abs/pii/S0023969023000450