



AI-Driven Approaches to Teaching Business German for Specific Purposes

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Abstract

Artificial Intelligence (AI) offers transformative possibilities for enhancing language learning, acting as a virtual student, expert, and creative companion [1]. This study explores AI-driven approaches to teaching Business German within Languages for Specific Purposes (LSP), immersing learners in specialized language. AI technologies provide personalized learning experiences, offering real-time feedback, continuous practice, and customized learning paths. As Sullivan et al. [2] emphasize, AI presents clear opportunities to improve student outcomes and increase accessibility, enabling flexible, self-paced language engagement. Son, Ruzic, and Philpott [3] provide a comprehensive review of AI technologies in language education. They highlight the growing role of AI in second and foreign language instruction and advocate for more deliberate and effective implementation to maximize its pedagogical impact.

The study applies the SAMR model [4] to analyze the integration of AI-driven tools in Business German instruction, highlighting their impact on teaching methodologies at different levels—Substitution, Augmentation, Modification, and Redefinition. Additionally, the study investigates how AI can enhance essential business competencies, such as negotiation, professional communication, and intercultural skills, by adjusting the complexity of learning scenarios to meet learners' needs. The potential for AI to revolutionize LSP instruction is substantial, with particular relevance in Business German, where intercultural communication, negotiation, and specialized vocabulary are critical for professional success. This study employs a framework-based analysis of AI tools within the SAMR model to evaluate their pedagogical implications in Business German instruction.

Keywords: *Artificial Intelligence (AI), Languages for Specific Purposes (LSP), Business German, Framework-Based Analysis*

1. Introduction

Professional interactions, negotiations, and intercultural communication in German business settings present significant challenges for learners. To address these complexities, teaching methods must go beyond traditional classroom instruction, preparing students for the practical demands of real-world business environments.

In recent years, Artificial Intelligence (AI) has emerged as a transformative force in education, revolutionizing language teaching and learning. Generative AI, based on Large Language Models (LLMs), has paved its way into Language Learning in the Higher Education context.

According to Skrabut [1], AI can take on the roles of a virtual student, expert, and creative collaborator. AI's ability to create immersive, adaptive, and personalized learning environments holds great promise for addressing the specific challenges of teaching business German. LLMs can offer engaging and effective learning experiences that align with professional needs. However, as Kohnke et al. [5] highlight, the integration of AI into education also brings challenges, including the phenomenon of "technostress." Educators may experience psychological strain from not fully understanding the technology, leading to anxiety and other stress-related issues.

The motivation for this study stems from the need to improve the teaching of German for Specific Purposes within the Master's program in Languages and Business Relations at the University of Aveiro. This course equips students with the linguistic and cultural competencies necessary for professional settings, with a strong emphasis on cross-cultural business communication. The use of AI-driven tools and teaching strategies in Business German instruction personalizes learning and aligns with the needs of business communication.



2. Literature Review

2.1 AI in Language Learning

The integration of AI into language learning has gained increasing attention in recent years, with a growing body of research exploring its potential to improve educational outcomes. As highlighted by Sullivan et al. [2], AI offers significant potential to improve student outcomes and expand accessibility, facilitating flexible, self-directed language learning. AI applications in language instruction span a variety of technologies, including natural language processing (NLP), machine learning, adaptive learning platforms, and AI-driven chatbots. These tools can significantly augment traditional language learning by offering real-time feedback, personalized learning experiences, and opportunities for continuous practice.

Kohnke et al. [6] underscore the value of AI-powered chatbots, which provide learners with consistent linguistic input and daily conversation practice. The availability of these chatbots 24/7 allows students to interact with the language at their convenience, encouraging continuous learning and interest ([7], [8]). The ability of chatbots to simulate authentic conversational exchanges provides learners with valuable opportunities to practice in realistic contexts, potentially accelerating the language acquisition process.

Son, Ruzic, and Philpott [3] offer a comprehensive review of AI technologies in language education, highlighting key trends in the use of NLP, data-driven learning systems, and automated writing evaluation tools. They emphasize the growing integration of AI into second and foreign language instruction, while also calling for a more effective and thoughtful implementation of these technologies to maximize their pedagogical benefits.

However, the integration of AI into language learning is not without challenges. Ethical concerns surrounding data privacy, algorithmic transparency, and the potential reinforcement of biases within AI-driven systems have been raised by scholars such as Bax [9]. These concerns must be addressed to ensure that AI tools contribute to equitable and inclusive educational experiences.

Aoun [10] advocates for a balanced approach to AI in education, arguing that while AI can greatly enhance the learning process, it must be coupled with the development of human cognitive skills such as creativity, critical thinking, and flexibility. He calls this model "*humanics*" (p. 53) emphasizing the need for learners to cultivate uniquely human qualities alongside technological and data literacy.

2.2 AI in Languages for Specific Purposes (LSP)

The application of AI in LSP instruction is an emerging and promising field of research. AI-driven technologies offer significant potential for improving the teaching and learning of specialized languages, by facilitating more immersive, adaptive, and personalized learning experiences.

In the context of LSP, AI can enhance the relevance and authenticity of language instruction by generating realistic simulations of business interactions, providing learners with opportunities to practice professional communication skills in settings that closely mirror real-world scenarios. Furthermore, adaptive learning systems powered by AI can assess learners' progress in real-time and deliver personalized feedback, ensuring that instruction is customized to the specific needs and goals of each student.

According to Grib et al. [11], there is no "one-size-fits-all" approach of conventional curricula that addresses different learning styles, cultural contexts, and educational backgrounds of diverse learners. The potential for AI to revolutionize LSP instruction is immense, with particular relevance in Business German, where intercultural communication, negotiation, and specialized vocabulary are critical to professional success. By integrating AI into Business German curricula, educators can better prepare learners for the challenges they will face in German-speaking business environments, enhancing both their language proficiency and their confidence regarding professional contexts.

3. Technology Adoption through the SAMR Model

The integration of technology into education has become a critical element in modern teaching strategies. Among the various frameworks for technology adoption in classrooms, the SAMR model, developed by Puentedura [4], stands out for its ability to guide educators in



understanding and implementing technology at different levels. The acronym SAMR stands for Substitution, Augmentation, Modification, and Redefinition. These four stages represent a continuum of technological integration, beginning with simple substitution and moving towards transformative uses of technology that fundamentally alter the learning process. “The model encourages teachers to move up from lower to higher levels of teaching with technology, which (...) leads to higher (i.e., enhanced) levels of teaching and learning (p. 434) [12]. According to Boateng et al. [13], the SAMR model can be regarded as “a catalytic method in the transformation of educational technology, providing a guide for transformative learning experiences for both students and teachers” (p. 44). The first phase, called “Enhancement,” includes Substitution and Augmentation. In this category, technology is used to improve existing tasks without fundamentally changing the structure of the learning activity. The second category, “Transformation,” includes Modification and Redefinition, where technology leads to significant changes in the learning task, enabling new types of engagement and collaborative learning that would not be possible without the technology.

This study employs a framework-based approach to categorize AI-driven tools relevant to Business German instruction within the SAMR model. It maps selected tools to SAMR stages based on their functionalities and pedagogical applications. While the SAMR model provides a valuable framework for understanding the stages of technology integration in education, its original conception predates the advent of AI, making particularly Substitution less relevant in the context of AI implementation. In the traditional Substitution phase, technology is used to replace existing tools or methods with no significant changes to the learning task itself [4]. However, in the case of AI, this phase is less applicable because AI technologies often go beyond mere substitution. Rather than simply replacing existing tools, AI has the capacity to improve and transform the learning process in ways that traditional technologies could not.

4. Application of the SAMR Model in Business German Classes: A Focus on Greenwashing and AI-Driven Approaches

The integration of AI into the teaching of Business German for specific purposes offers a fertile ground for applying the SAMR model. By exploring how the stages of the SAMR model can be utilized to teach the concept of Greenwashing—a critical issue in contemporary business ethics—this section will illustrate the potential for AI-driven tools to enhance and redefine language learning experiences in Business German classes.

At the Augmentation level of the SAMR model, AI tools do more than simply replace traditional methods; they add functional improvements that enhance the learning experience. *Brisk Teaching*, an AI Assistant for Teachers, streamlines lesson planning for Business German courses by automating the creation of instructional content, organizing vocabulary lists, and suggesting discussion topics. While it replaces the manual task of lesson planning, the tool also enriches the process by generating customized, structured lesson plans aligned with specific learning objectives. For instance, when educators input a topic like “Greenwashing in Business German,” *Brisk Teaching* creates a comprehensive plan that includes relevant vocabulary related to corporate sustainability, along with interactive activities such as case studies, debates, and role-playing tasks.

Einstieg (10 Minuten)

- Brainstorming: "Was verstehen Sie unter nachhaltiger Unternehmensführung?"
- Kurze Diskussion über Beispiele von Unternehmen, die sich als umweltfreundlich präsentieren
- Einführung des Begriffs "Greenwashing"

Hauptteil (30 Minuten)

Phase 1: Theoretische Grundlagen (15 Minuten)

- Definition von Greenwashing: "Die Praxis, Produkte oder Dienstleistungen als umweltfreundlicher darzustellen als sie tatsächlich sind"
- Vorstellung der häufigsten Greenwashing-Strategien:
 1. Irreführende Etikettierung
 2. Vage Umweltaussagen
 3. Versteckte Kompromisse
 4. Falsche Zertifizierungen

Fig. 1. Sample of a *BriskTeaching* Lesson Plan on Greenwashing



Mapify, a digital mind mapping tool, provides an interactive platform for organizing and visualizing complex concepts. It allows learners to create visual representations of knowledge by connecting ideas and key terms in a structured way. In the context of teaching Business German, particularly on topics like Greenwashing, *Mapify* proves to be an effective tool in the Augmentation stage.



Fig. 2. SAMR Augmentation Stage using *Mapify*

For example, students might map terms like *Nachhaltigkeit* (en. *sustainability*), *grüne Etiketten* (en. *green labels*), and *falsche Werbung* (en. *false advertising*), illustrating their relationships within the broader topic.

The tool's visual nature helps students retain information more effectively by organizing it in a clear and accessible way, supporting both linguistic and conceptual learning. Furthermore, *Mapify's* flexibility makes it possible for students to access their mind maps from various devices, providing accessibility beyond the classroom.

At the Augmentation stage, AI significantly improves the learning experience by providing personalized feedback, customized resources, and additional opportunities for exploration, especially when addressing complex topics like Greenwashing. In this phase, a chatbot can deepen students' understanding of Greenwashing by simulating a conversation between a consumer and a company representative. For example, a student could interact with the chatbot, which acts as a company spokesperson promoting a product. The chatbot might present claims like "Our product is 100% eco-friendly" and then invite the student to ask questions or share their thoughts about the product's environmental impact. Based on the student's input, the chatbot would offer immediate feedback, highlighting vague or misleading statements (such as "eco-friendly" without specific details) and providing guidance on how to identify common greenwashing tactics.

Chatbot (Unternehmensvertreter): Willkommen bei PureEco Wasser! Wir setzen uns für Nachhaltigkeit ein – unser Wasser ist 100 % umweltfreundlich und stammt aus nachhaltigen Quellen. Wie kann ich Ihnen helfen?

Student: Was macht Ihr Wasser umweltfreundlich?

Chatbot: Gute Frage! Unser Wasser stammt aus reinen Naturquellen, und wir verwenden grüne Verpackungen, um die Umweltbelastung zu reduzieren.

Student: Was bedeutet „grüne Verpackungen“? Sind sie biologisch abbaubar oder aus recyceltem Material?

Chatbot: Unsere Flaschen sind zu 100 % recycelbar, was zur Kreislaufwirtschaft beiträgt!

Student: Aber bestehen sie tatsächlich aus recyceltem Plastik oder nur aus neuem Plastik, das recycelt werden kann?

Chatbot: Derzeit bestehen unsere Flaschen aus neuem PET-Kunststoff, sind aber vollständig recycelbar! Möchten Sie mehr über unsere Nachhaltigkeitsziele erfahren?

Student: Das klingt nach Greenwashing. Sie behaupten, nachhaltig zu sein, aber Ihr Produkt basiert immer noch auf Einwegplastik. (...)

Fig. 3. Example of a Chatbot Dialogue on Greenwashing



The Modification stage marks a shift from enhancing tasks to fundamentally changing how tasks are designed and implemented. In the context of Business German instruction, AI can transform collaborative activities and creative tasks surrounding Greenwashing by facilitating a more interactive and complex learning process. At this level, students move beyond individual language exercises and collaborate with both AI tools and peers.

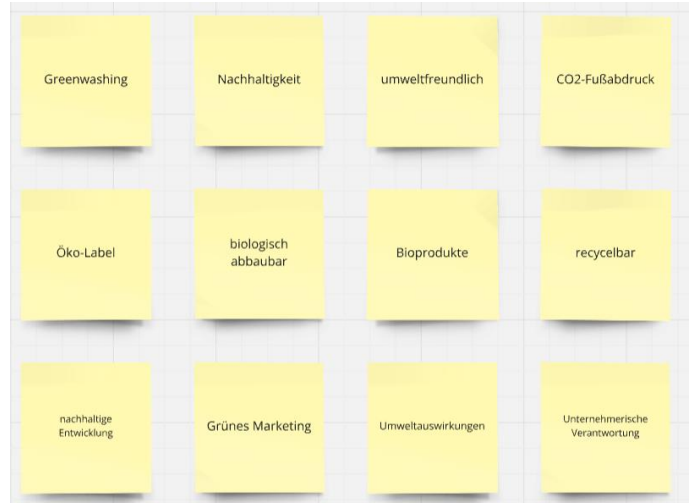


Fig. 4. Realtime Collaboration with Miro AI

Miro AI (Fig. 4) is a dynamic platform that promotes collaboration and creativity through activities such as brain-writing. This process enables students to generate ideas independently and then share and expand on them, strengthening the collaborative nature of learning. Linking this to the Modification stage, we can see how Miro goes beyond simply enhancing tasks and transforms the way they are approached. In this stage, the integration of AI tools and collaborative features shifts the focus from individual work to a more interactive, complex process where students engage with both their peers and AI resources.

In Business German instruction, particularly when exploring complex concepts like Greenwashing, AI tools can facilitate deeper discussions and analyses, enriching the learning experience. Real-time collaboration plays a key role in this process by encouraging students to contribute to the generation and refinement of ideas, while also benefiting from the insights of their peers.

At the Redefinition stage of the SAMR model, AI moves beyond simple enhancement to fundamentally transform the learning experience, providing new forms of engagement and knowledge construction. CoSpaces Edu exemplifies this transformation by reshaping Business German instruction into an interactive, immersive experience.

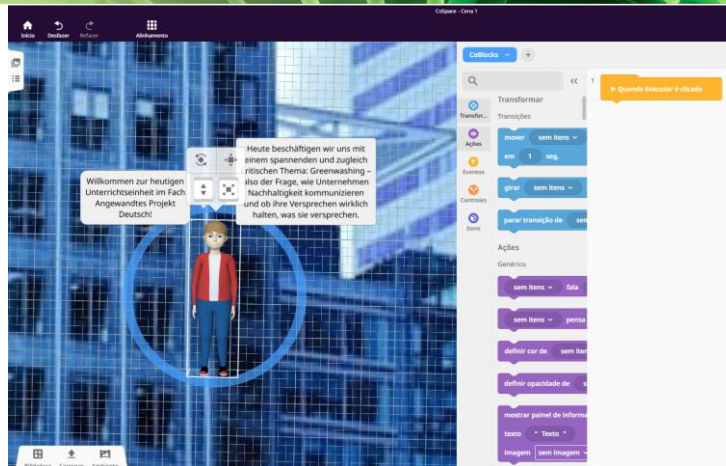


Fig. 5. Augmented Reality with CoSpace Edu

Utilizing Virtual Reality (VR) and Augmented Reality (AR), CoSpaces Edu immerses students in a simulated business environment where they actively participate in professional tasks such as communication, negotiation, and decision-making.

CoSpaces Edu also promotes collaborative learning by enabling students to create shared digital environments, where they can apply language skills in dynamic, project-based contexts. By incorporating AI tools for analysis and research, students can actively investigate, model, and propose solutions to real-world challenges. This shift from passive to active learning deepens their understanding of the topic while equipping students with valuable skills in critical thinking, analytical reasoning, and strategic decision-making.

4. Conclusion

The integration of AI into Business German instruction, guided by the SAMR model, offers a valuable approach to language learning by enhancing the teaching of topics relevant to the business context. Through the Augmentation and Modification stages, AI tools improve traditional teaching methods, allowing for a deeper student engagement, collaborative learning, and more effective skill development in professional settings. At the Augmentation level, AI tools like *Brisk Teaching* and *Mapify* improve learning efficiency and comprehension. *Brisk Teaching* automates lesson planning, aligning content with specific learning goals, while generating activities that encourage critical thinking and discussion. *Mapify* helps students visually organize complex concepts, making them easier to understand and recall. Additionally, AI chatbots simulate authentic business interactions, providing real-time feedback and supporting students in critically analyzing scenarios.

In the Modification phase, AI tools shift the learning process from individual tasks to more interactive and collaborative activities. Platforms like *Miro AI* enable real-time collaboration, where students generate ideas, and analyze business topics. This collaborative approach enhances comprehension, encourages peer-to-peer learning, and supports a dynamic learning environment. By integrating AI in this stage, students are encouraged to apply their language skills in group settings, improving both their understanding of business concepts and their communication abilities.

The Redefinition stage offers new opportunities for language instruction, with AI-driven simulations that immerse students in authentic business scenarios. Virtual role-playing exercises allow students to practice negotiation, and develop communication strategies. The integration of AI into Business German instruction not only improves language proficiency but also supports the development of critical thinking, and professional communication skills, which are essential for success in today's dynamic workplace.

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