Book Review

Smart CALL: Personalization, Contextualization, & Socialization, by **Jozef Colpaert & Glenn Stockwell**. Castledown, 2022, xii+322 pp.

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1 Book introduction

In computer science, "smart" refers to the ability to connect and exchange information between multiple devices (Silverio-Fernández et al. 2018). Smart CALL (Computer-Assisted Language Learning) signifies the enhancement of language education through diversified human-computer interaction modes (Bax 2003) and device empowerment. Drawing from a human-centered perspective, Colpaert and Stockwell edited "Smart CALL: Personalization, Contextualization & Socialization" across three dimensions: pedagogy, cultural context, and interpersonal relationships. This book comprises 13 chapters illustrating how scholars from various countries utilize diverse tools to enhance language education and provide constructive recommendations for the future development of CALL.

With constant advancements in artificial intelligence (AI) technology, CALL has gradually transitioned to smart CALL, integrating more sophisticated and diverse human-computer interaction in language learning. Smart devices and software provide learners with richer and more comprehensible input while also offering platforms for language output, thereby facilitating the completion of the language learning loop (Gao et al. 2022; Long 1983). Such interactive processes enhance the learning experience, thereby facilitating success in language acquisition (Wang et al. 2024). In Chapter 1, the editors provide an overview of "smart", the keyword of this book, through the lens of language education in ecological and psychological dimensions. They summarised three characteristics of the smart learning environment: personalization, contextualization, and socialization. The editors also further illustrated that smartness is a transversal aspect of the development and innovation process in the CALL field. The ensuing chapters highlight different dimensions of Smart CALL, with Chapters 2, 11, 12, and 13 focusing on contextualization, Chapters 3, 7, 8, and 10 on socialization, and Chapters 4, 5, 6, and 9 on personalization.

Chapter 2 seeks to assess the efficacy of the Affordance-Actualization Theory in the CALL environment. Nobue Tanaka-Ellis introduced FutureLearn, MOOC (massive open online course), and Handbook materials to build a flipped classroom at a Japanese university, where students studied and used these materials via tablets. Data was collected by recording student performance of classroom activities via video camera. The result showed that the same device could create technology-centric and L2-centric affordances from different perceptions.

Extending this investigation into the realm of computer-mediated communication (CMC), Chapter 3 discusses Ward Peeters' study involving 188 Japanese university students at Kanda University. These students who participated in the effective learning module (taught in English) were divided into three Google Classrooms according to their majors. Within these virtual classrooms, students freely interacted with their peers by leaving messages and engaging in text-based discussions. The researchers utilized visual interaction heat maps to analyze the frequency, timing, and content of these student interactions. Finally, they found that online interactions and collaboration dynamics changed over time. These dynamic illustrations allow educators and researchers to map processes such as socialization and help educators improve the design of educational CMC spaces to support student interactions. It also demonstrated the socialization of Smart CALL, with technology and the learning environment offering meaningful interaction between language learners.

In Chapter 4, Howard Hao-Jan Chen et al. explored the potential of intelligent personal assistants (IPA) for foreign language learners. Twenty-nine year 9 students (14 males and 15 females) from Chinese Taiwan participated in the experiment. The teacher arranged for the IPA to interact with the students in the classroom, with different interactive activities each week during the five-week experiment. The teacher observed and recorded the students' performance. In contrast, the students completed a questionnaire on their attitudes towards the IPA. The data shows that students enjoy interacting with IPA and that there is less tension and stress in the classroom. IPA also maps out the characteristics of Smart CALL in several dimensions, such as adapting to the learner's interests and needs (personalization), creating an authentic and safe environment for communication in the target language, and promoting motivation through human-computer interaction by increasing input and output (contextualization and socialization).

Building on the findings related to intelligent personal assistants, Chapter 5 shifts the focus to AI. Li and Bin Zou explored university students' attitudes at an English Medium Instruction (EMI) university in China towards using AI evaluation programs (e.g., EAP Talk, Liulishuo, Liulishuo IELTs, Duolingo, and Yasige) for speaking practice. The results of the questionnaire (N = 101) indicated that the majority of students recognized and appreciated the benefits of AI-assisted language learning, particularly its ability to provide timely feedback and facilitate practice

anytime and anywhere. This capability significantly enhances various aspects of speaking skills and increases students' willingness to practice English using AI-based software independently. Consequently, AI demonstrates substantial potential in improving the speaking performance of Chinese English as a Foreign Language (EFL) learners. Additionally, AI's ability to tailor practice to each individual student offers greater freedom, resources, and opportunities for self-expression in English, thereby reinforcing the personalized nature of Smart CALL.

Echoing the previous two chapters, Hiroyuki Obari et al. in Chapter 6 demonstrated that AI voice assistants could help students improve their performance by enhancing the social and personalization of language learning through three case studies, including pre- and post-tests and a comparative analysis of the control and experimental groups' performance. The AI speaker provided comprehensive English input to the students during the seminar, followed by interaction between the students and the AI speaker. The researcher further observed that the AI speaker facilitated a less stressful language environment, leading to increased student interaction and a higher volume of spoken language output. This reflects the socialization of Smart CALL, corroborating the findings presented in Chapter 4.

Chapter 7 focuses on the socialization of Smart CALL; fifteen learners of Spanish from the University of Iceland and 24 pre-service teachers from the University of Barcelona have jointly set up a telecollaborative learning project where these teachers teach Spanish via WhatsApp, building three kinds of classroom interactive activities including linguistic, sociocultural and conversational. The experiment aimed to explore social presence (SP) in this remote collaborative smart environment through mobile phone software. The data analysis demonstrated teacher-student and student-student text interactions, photo-video exchanges, gifs, and emoji sharing, and teacher-student afterclass reflection demonstrate the different perspectives of the WhatsApp as a medium for social presence, whether in terms of affective, interactive or cohesive. The clever use of WhatsApp to create different classroom activities for the task successfully demonstrated multidimensional SP. The results of the SP analysis in the WhatsApp interaction also revealed the importance of effective categories in remote collaboration projects for developing group cohesion and social relationships and in technology-enhanced language learning and teaching.

Continuing the exploration of technology-enhanced language learning, Chen et al. in Chapter 8, conducted a topic-based bibliometric analysis of literature on socialization in language learning from 2007 to 2020 to identify (1) publication trends, including annual distribution patterns, leading journals, major subject categories, and geographical categories of contributions; (2) prevalent research topics; and (3) social media tools of research interest. Their analysis of 143 relevant articles from the WoS (Web of Science) database revealed that (1) there was an ongoing research interest regarding socialization in language learning; (2) the most popular research

topics were interactive, collaborative writing and podcasting; (3) the major social media technologies for language learning (e.g., podcasting, wiki, blogs, audiobooks, online games, digital storytelling) shifted over the years. The findings theoretically guided future research to combine social media tools with AI techniques such as deep learning and learning analytics. Pedagogically, teachers are encouraged to monitor individual learners' progress and provide tailored guidance to optimize the affordances of social media use in language education.

The potential of technology-assisted writing was well analyzed in the following three chapters. In Chapter 9, Lee explored how university EFL students in South Korea utilized MT (machine translation) to aid their foreign language writing and revision. The study adopted a mixed-method approach, combining quantitative analysis of students' writing scores and screen recordings of their writing processes with qualitative insights from semi-structured interviews. It was found that (1) the participants' writing scores were significantly improved when they used MT; (2) most participants used MT to compare their texts with MT outputs, and they translated from Korean to English at the sentence level; (3) the participants strategically and critically adopted MT outputs by sometimes rejecting MT suggestions. The study also revealed a divergence in the perceptions of MT among students with different English proficiencies. While more proficient students viewed MT as a complementary smart tool, low-level students found it challenging to use MT. Based on these results, Lee suggested that teachers provide guidance and support, particularly for low-level students, to maximize the benefits of MT.

In a similar vein, Akoto and Li (Chapter 10) focused on seven university students in an Elementary French course and examined how they collaboratively composed MW (multimodal writing) via Google Docs and the quality of their MW products. Qualitative analysis of students' MW products, Google Docs records, and screen recordings showed that (1) students adeptly integrated multiple semiotic resources, including texts, images, and hyperlinks in their writing; (2) students typically spent the most time conducting Internet search and they discussed content, language use, and task management in the writing process; (3) students' MW products were of different qualities due to their varying levels of engagement. Further investigations can be conducted to explore learners' perceptions of collaborative MW and quantify their gains in writing skills.

Shifting to the aspect of multi-resource integrated "smart" writing, Li in Chapter 11 examined the effectiveness of using multimodal OERs (open educational resources) and online collaboration platforms in improving students' source-based expository writing skills through two research projects. In Project 1, Li's team provided students with contextualized writing instructions and curriculum content using multimodal OERs. In Project 2, the researcher divided students into groups of two to three and instructed each group to engage in collaborative reading and writing activities using OneNote. Through analysis of writing test scores and

interview data, Li identified that both interventions developed students' academic writing skills and enhanced their engagement in the writing process. The findings suggested the benefits of a contextualized and collaborative learning environment, offering insights into how OERs and collaborative technologies can be combined to create an authentic and engaging environment for academic writing instruction.

In addition to the focus on writing, attention is also directed towards the development of listening skills. Cárdenas-Claros and Dassonvalle in Chapter 12 proposed a framework for task design in computer-based L2 listening environments. The qualitative study, conducted among 68 high school EFL learners in Chile, collected students' perceptions of computer-based listening task design characteristics. Data from an entry questionnaire and three focus group protocols revealed students' perspectives on input task characteristics, task structure, and task support. Analysis showed participants' preferences for 2-to-3-min listening tasks containing everyday language, their expectations for different types of exercises, and their need for teachers' guidance together with textual, visual, and technological support. The findings are expected to enhance the effectiveness of computer-based L2 listening activities.

Finally, in Chapter 13, König et al. introduced a smart language learning system named F-Lingo, designed to enhance contextualized and personalized domain-specific vocabulary acquisition in MOOCs. The researchers first explained how F-Lingo used contextualization techniques such as data mining tools to provide vocabulary learning resources that are specific to the MOOC course content. The personalization aspect of F-Lingo was demonstrated by how the system tailored vocabulary testing and vocabulary activities to individual learners. Finally, the researchers evaluated users' interaction with F-Lingo and analyzed their behaviors. Longitudinal studies are needed to explore the long-term effects of F-Lingo on vocabulary gains.

2 Critical evaluation

Overall, the book brings together research on smart tools that assist different facets of L2 learning and teaching, including speaking (Chapters 4, 5), writing (Chapters 9, 10, 11), listening (Chapter 12), vocabulary (Chapter 13) and interprets the smartness of these applications in terms of personalization, contextualization, and socialization, which aligns with the central themes of this book. The included studies were conducted in different countries, involving participants using a range of smart applications (IPAs, Google classrooms, AI speech evaluation programs, MT, multimodal OERs and MOOCs) to complete various tasks, suggesting the broad applicability of Smart CALL tools.

Among these tools, many Chinese-developed applications (EAP Talk, Liulishuo, Yasige, iFlytek) have proven to be practical tools within the CALL framework. In the context of language education in China, teachers can fully harness the potential of

such smart tools to conduct a variety of engaging classroom activities. This approach not only helps to enhance students' willingness to communicate in a foreign language, increase their enjoyment in the learning process, and stimulate their motivation to learn, but also enables the provision of real-time feedback, thereby promoting the improvement of their language skills comprehensively (Wang and Zou 2023). Moreover, these tools can serve as scaffolding for students, facilitating more effective use of various digital resources and thereby promoting autonomous learning (Shi et al. 2024).

For CALL researchers, these tools serve as excellent experimental instruments. They not only alleviate teachers' workload by automating grade tracking but also provide precise data support and scientific evidence for optimizing technology-enhanced teaching strategies (Wang and Zou 2023; Zou and Wang 2024). This enables educators to implement Smart CALL more effectively and improve teaching outcomes. For human-computer interaction (HCI) scholars, these tools present valuable study subjects. In this book, only Chapter 7 explores the impact of the communication application WhatsApp on social presence. To further advance the development of language tools, it is essential to delve into other significant HCI factors in language teaching, such as cognitive presence, emotional presence, cognitive load, affordances, and immersion. Accordingly, developers can create software and devices better suited for language teaching and learning, promoting an ecological Smart CALL environment.

While the book offers insights into implementing technologies to create personalized, contextualized, and socialized learning environments, most chapters lack theoretical underpinnings. Future studies are expected to examine how educational theories, such as the Interaction Hypothesis and the sociocultural learning theories, can be applied in Smart CALL studies. Additionally, the investigation into the use of AI in Smart CALL is relatively limited. Only Chapter 5 introduced an AI-assisted speaking evaluation program. With the advancements in AI and generative AI (GenAI) over the past few years (Bond et al. 2024; Son et al. 2023; Xiao et al. 2023), future studies can focus on CALL applications equipped with various cutting-edge GenAI technologies, such as conversational agents with avatars, voice-lip synchronization and emotion recognition, to provide more diverse recommendations and evidence for language learning research and pedagogical practices.

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