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Editorial: Interactions for language learning in and around virtual worlds

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"…the new forms of interaction made possible by virtual worlds remain, to a significant degree, unexplored." (Peterson, 2011: 78)

"…immersion and interaction are necessary conditions of worldhood. Without them, virtual worlds would not be worlds at all." (Zabel, 2014: 417)

Since the mid-nineties, the pedagogical opportunities offered by three-dimensional virtual worlds (VWs) have generated a considerable amount of interest and dialogue among educators and educational researchers across a variety of disciplines. The potential of VWs for language learning and teaching did not go unnoticed by the CALL community: language educators and researchers began to explore and to study these environments and their unique set of features for foreign language (FL) learning (Schweinhorst, 2004; Sykes, 2005; Peterson, 2006; Henderson, Huang, Grant & Henderson, 2009; Zheng, Wagner, Young & Brewer, 2009; Jauregi & Canto, 2012; Milton, Jonsen, Hirst & Lindenburn, 2012, Zheng & Newgarten, 2012). In parallel, several European Union (EU) transnational funded projects

[1] All Guest Editors contributed equally to this special issue.

also emerged for the exploration of the affordances of VWs for language learning and acquisition, such as the NIFLAR, TILA and ARCHI21 projects and for the creation of teaching and learning materials (e.g. the AVALON, TALETE and CAMELOT projects). In 2010, the Euroversity Network was established with EU funding to bring together international scholars and researchers working with VWs in education for the sharing of best practice and with a clear focus on VWs for language learning. The EuroCALL-CALICO joint Virtual Worlds Special Interest Group was also founded around this time.

In a review of VW research in education up to 2008, Hew and Cheung (2010) found that initial studies had been descriptive and VWs had largely been used as communication spaces, experiential spaces and/or for simulation of space. The main topics of this initial research were the participants' affective domain, their learning outcomes or their social interaction (p. 46). Later research, reviewed by Kim, Lee and Thomas (2012), indicated that studies on the use of VWs as simulation of space and communication places had increased more than those on VWs as experiential spaces. Indeed, more experimental research was being carried out, and an increasing number of studies started to focus on the use of VWs as spaces for communication, suggesting that users are naturally exposed to the target language through those environments and showing that research on education in VWs was becoming more mature (p. 15).

Over time, the interest of educational researchers in VWs has increasingly moved more towards finding an apt pedagogy for VWs. This is clearly noticeable in a review of educational research methods in desktop virtual world environments by Beck and Perkins (2014), who note that recent studies seem to have focused more on theory building research and advocate for more empirical research, leading to research studies on how the environment can be successfully used for learning. Their voice is echoed in contributions by leading researchers in the field of language teaching and learning in VWs, who see the need for establishing valid research approaches for these new environments and stand as testimony to a shift in the focus of research in VWs (Panichi & Deutschmann, 2012; Sadler, 2012; Zheng & Newgarden, 2012; Blin, Fowley & Nocchi, 2013; Wigham & Chanier, 2013). These spaces are now recognised as complex environments that need to be better understood if researchers want to tap into their educational potential, and this requires a drastic change of approach. The trend is quite clear: researchers in VWs are now showing an interest in looking at these environments through a different lens, which is able to incorporate the complexity of learning in VWs (Boelstorff, 2015; Gregory, Lee, Dalgarno & Tynan, 2016).

This issue focuses on social virtual worlds that we define as 3D, synchronous, immersive, persistent, graphical environments with generative capabilities in which participants are co-present through their avatars and interact with each other and the world's contents.[2] The aim of the special issue is to systematically build on research in the field over the last 10 years and to provide a focus on what we consider to be the most salient and research-intensive aspect of language learning and teaching in VWs: *interaction*. The collection of papers in this special issue firstly documents how the mediation offered by social virtual worlds provides a rich landscape that supports different types of interaction and, secondly, showcases different approaches and methodologies to study these. As the different

[2] From the early years of virtual world usage, the terminology adopted to label these virtual environments has varied. The term Virtual Worlds is one of the most commonly used and generally recognised by the industry, the public, the media and many researchers. For a discussion of the terminology, see Sadler 2012, Wigham 2012, Panichi 2015 and Nocchi, 2017.

contributions illustrate, interaction in VWs for language learning and teaching is considered a multifaceted concept that includes, but is not limited to:

- multimodal social interactions between participants via verbal and non-verbal modes (such as gestures, movement, proxemics) which are mediated by the virtual world environment and its communication channels;
- avatar interactions with the virtual environment which allow for the learner not only to interact through the environment but also to become part of that environment and interact with its spatial elements;
- interactions with linguistic and cultural content mediated by the target language, the other participants as well as the learning design and the virtual world environment and its tools.

These interactions are seen as a process, mediated by the multi-layered environment, and different interaction types need to be considered in relation to each other in order to provide a complete view of the social and interactional dimensions of language learning in social VWs. In the landscape in which language learner interaction takes place, the papers also underline how users are connected by verbal and visual interdependence in both individual and collaborative learning activities.

This special issue also aims to provide a timely state-of-the art discussion of how interaction can be captured, rendered and interpreted methodologically. We believe that to fully appreciate the potential of social VWs for language education we also require new ways of seeing and reading interactional data. Last but not least, in reviewing the field, in light of our own experiences as educators and researchers in VWs over the last 10 years, and of the papers presented in this issue (as well as the numerous original papers that we took into consideration when putting together this issue), we are convinced that the educational and research challenges that arise in such complex environments provide us with insights and understandings that may extend our current conceptualisations of interaction in face-to-face instruction as well (Sadler & Dooly, 2013; Dooly & Sadler, 2016).

Peggy Hartwick contributes the first paper to the special issue and provides an overview of research in interaction in physical (real world) learning spaces and in three-dimensional virtual learning environments (3DVLEs). "Investigating research approaches: Classroom-based interaction studies in physical and virtual contexts" guides the readers through key concepts and terminology related to the classroom context, interaction, classroom research approaches, and the implications of all of these for research design in VWs. Perhaps her most important enhancement to the discussion of this research area is the introduction of the following category in the study of interaction in SLA research: interactions between learners and the virtual spaces they inhabit and the tools they interact with. She also provides a very useful *datavelliance* observation matrix used in her own research that is designed to allow researchers to capture a number of details related to: learner interactional behaviour (including interactions with space or tools and how these connect to movement and gestures) teacher practice, other features of space, location in space, and task and activities. The foundation provided by this contribution also allows for a deeper understanding of the other articles that follow in this issue.

The spatial dimension of VWs is also central to **Cristina Palomeque** and **Joan-Tomàs Pujolà**'s contribution to this special issue: "Managing multimodal data in virtual world research for language learning." Adopting a social semiotic approach to studying communication, the authors offer a multi-layered transcription method created to account for the multimodal nature of interactions in VWs and to describe how different

communication modes or channels are used in combination to create meaning in-world. The proposed methodology allows the authors to structure data stemming from a college-level English for Tourism Purposes course during which sessions in Second Life were offered to volunteers who wished to work on their oral fluency. Of particular interest is the authors' attention to different analysis scales in their proposed methodology. Thus, macro-level information concerning the pedagogical sequence contextualises participants' interactions in the visual and verbal modes, as well as their interactions with the environment's interface at the micro level. After presenting the transcription method, Palomeque and Pujolà offer a discussion of the data management challenges that arise when working with multimodal interaction data. Although this discussion is illustrated with data stemming from a social virtual world, it will no doubt resonate with CALL researchers working with multimodal data collected in other environments.

In "Innovative assessment of aviation English in a virtual world: Windows into cognitive and metacognitive strategies," **MoonYoung Park** explores how the VW Second Life can play a role in training military air traffic control officers in South Korea by building a recreation of an existing helicopter air base, including a functional air traffic control tower and remote controlled helicopters. His research investigates two primary questions: What types of cognitive and metacognitive strategies are used by the participants in the virtual training environment? and How might those strategies be connected to subject performance in the simulated air traffic control tasks? Recording authentic interaction between helicopter pilots and air traffic controllers from the air base in question, and then importing those sound files into the VW, gave the participants access to a high level of authenticity while also requiring them to attend to the "live" virtual interaction with the virtual helicopters they were controlling.

Kasumi Yamazaki's paper discusses acquisition of the target language, Japanese, in a virtual world environment. Her focus is on the development of communication skills where interaction through simulation tasks plays a key role in increasing awareness in learners of their learning and performance in the target language. The instructional approach used by Yamazaki is referred to as Computer Assisted Learning of Communication (CALC) where the focus is on learning through communication and the development of target language communication strategies. The results of her research indicate, in particular, that carefully designed language instruction which makes use of the immersive, situated, and experiential dimension of VWs leads to outcomes in target language acquisition. Specifically, in "Computer-Assisted Learning of Communication (CALC): A case study of Japanese learning in a 3D virtual world," Yamazaki discusses the acquisition of incidentally encountered vocabulary on the one hand, and of communicative competence, on the other, through the use of, in particular, persuasive talk, awareness of audience, and collaborative communication. This paper is an example of empirical research into language acquisition and communicative competence development through immersion carried out in a virtual world.

Following on the heels of numerous studies carried out in the field of Computer Mediated Communication (CMC) on the effect of anonymity on Foreign Language Anxiety (FLA), **Sabela Melchor-Couto**'s "Virtual world anonymity and foreign language interaction" takes us one step further. CMC research has shown how the anonymity afforded by the technical medium can contribute to a lowering of the affective filter and have an effect on the users' interactional dynamics and on their learning. However, apart from a few studies showing that FLA levels are lower when oral interaction in the foreign language is established via VWs, research on the link between anonymity and FLA in VWs is still scarce. Thus, Melchor-

Couto's study, conducted in Second Life with undergraduate students of Spanish as a Foreign Language, provides us with a much needed insight into the relationship between virtual world anonymity, FLA, personality profiles, and self-efficacy beliefs. With the aim of analysing whether Foreign Language virtual world interaction is beneficial for learners that present a specific personality profile, Melchor-Couto explores various facets of affective interaction in the virtual world, ranging from how the anonymity afforded by the virtual world environment interacts with the language learner's personality profile to how the perception of anonymity interacts with the learner's FLA profile and self-efficacy beliefs. The research study sheds further light on a field of VW research that is still underrepresented.

The collection of papers in this special issue underlines multiple types of interactions that occur in a social virtual world between social actors, participants and their avatars, avatars and their environment, and between participants and the linguistic and cultural content afforded by the learning design. Hartwick's paper foregrounds the importance of investigating the role played by the virtual space in future research on language learning in VWs. This virtual space provides learners with multimodal and multilayered possibilities of interaction that are going to require specific tools for its analysis (Palomeque & Pujolà). Further, learners' interactions via their avatars and with the environment itself affect the learners' learning experience and each learner's foreign language anxiety levels and self-efficacy, in unexpected ways (Melchor-Couto). On a different level, through the use of carefully designed simulation experiences, virtual world landscapes also lend themselves to the observation and assessment of learning and interactional linguistic competence required in specific fields of FL instruction. Interacting with and through the virtual environment can promote incidental FL learning (Yamazaki) and provide teachers and learners with authentic opportunities to design and perform tasks that promote strategic as well as linguistic competence (Park). In highlighting a range of different pedagogical and methodological approaches, this special issue aspires to document how social virtual worlds provide a rich and effective environment to support different types of interaction for language teaching and learning. We hope it will stimulate further research in the field of language learning and social virtual worlds.

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The joint EuroCALL-CALICO Virtual Worlds and Serious Games Special Interest Group (SIG) was established in 2009 by Graham Davies, Randall Sadler and Thom Thibeault. It has met regularly every year since. The SIG organises workshops and facilitates information sharing between teachers and researchers interested in both social and gaming virtual worlds. For further information about the SIG's activities: http://www.eurocall-languages.org/sigs/eurocall-calico-joint-virtual-worlds-and-serious-games-sig-homepage
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Ciara R. Wigham is Senior Lecturer in English and Applied Linguistics at Université Clermont Auvergne, France and a member of the *Laboratoire de Recherche sur le Langage* research unit. Ciara's research interests focus on multimodality in online language learning-teaching contexts. Her PhD investigated the interplay between verbal and nonverbal interaction to support verbal participation and production in a foreign language (https://tel.archives-ouvertes.fr/tel-00762382). This was analysed from a socio-semiotic perspective of multimodality within the context of a Content and Language Integrated Learning course held in the synthetic world Second Life. Her current research investigates multimodal pedagogical communication in videoconferencing environments.

Luisa Panichi is Lecturer of English as a Foreign Language at the University of Pisa, Italy and has been involved in the use of virtual worlds in language education since 2007. Luisa was the coordinator for development under the EU funded AVALON and Euroversity Network

projects which brought together international experts in the field of virtual world education and research. Luisa has published in the field of CALL, Language Awareness and Learner Advising. Her PhD (2015) examined Learner Participation in virtual world language learning (https://hydra.hull.ac.uk/resources/hull:11583). Luisa is currently training to become a professional counsellor in Transactional Analysis in the field of education and is increasingly interested in Educational Linguistics.

Susanna Nocchi is Lecturer in Italian at the Dublin Institute of Technology, Ireland, where she teaches Italian language and culture and Italian history and literature. She is the current co-chair of the EuroCALL Virtual Worlds and Serious Games Special Interest Group and the President of the Irish Association for Applied Linguistics. Susanna Nocchi's research interests focus on Computer Assisted Language Learning, particularly on Virtual Worlds and their potential for the teaching and learning of foreign languages. Her PhD thesis, investigating the affordances of virtual worlds for language learning, can be downloaded at http://doras.dcu.ie/21620/. Susanna Nocchi's more current research interest revolves around the role and development of Digital Literacies in education and in foreign language learning.

Randall Sadler is an Associate Professor of Linguistics at the University of Illinois at Urbana-Champaign, where he teaches courses on telecollaboration and language learning, virtual worlds and language learning and the teaching of L2 reading and writing. He is also the Director of the Illinois Teaching English as a Second Language and ESL Programs. His main research area is on the role of technology in language learning, with a particular focus on how CMC and Virtual Worlds may be used to enhance that process. He has published in these areas in journals including the *Journal of English for Academic Purposes*, *CALICO Journal*, *ReCALL*, *Language Learning & Technology, Computers & Education, ELT,* and in numerous edited volumes. His latest book, *Virtual Worlds, Telecollaboration, and Language Learning: From Theory to Practice* is published by Peter Lang. He is also the co-owner of the EduNation Islands, which are located in the Virtual World of Second Life, where he may often be found in the guise of his avatar Randall Renoir.