



HAL
open science

Virtually Real Stimulations in English for Professional Purposes (EPP): Promising Leads for Language and Soft Skills Training

Virginie Privas-Bréauté, Maud Ciekanski, Nicolas Molle, Carmenne Kalyaniwala, Kossi Seto Yibokou

► To cite this version:

Virginie Privas-Bréauté, Maud Ciekanski, Nicolas Molle, Carmenne Kalyaniwala, Kossi Seto Yibokou. Virtually Real Stimulations in English for Professional Purposes (EPP): Promising Leads for Language and Soft Skills Training. Eurocall 2021: CALL & Professionalisation, Aug 2021, Paris, France. hal-03715028

HAL Id: hal-03715028

<https://hal.univ-lorraine.fr/hal-03715028>

Submitted on 6 Jul 2022

HAL is a multi-disciplinary open access archive for the deposit and dissemination of scientific research documents, whether they are published or not. The documents may come from teaching and research institutions in France or abroad, or from public or private research centers.

L'archive ouverte pluridisciplinaire **HAL**, est destinée au dépôt et à la diffusion de documents scientifiques de niveau recherche, publiés ou non, émanant des établissements d'enseignement et de recherche français ou étrangers, des laboratoires publics ou privés.

**Virtually Real Stimulations in English for Professional Purposes (EPP):
Promising Leads for Language and Soft Skills Training**

Virginie Privas-Bréauté

Maud Ciekanski

Nicolas Molle

Carmenne Kalyaniwala

Kossi Seto Yibokou

ATILF (UMR 7118)

CNRS/Université de Lorraine

Introduction

In the last decade, Virtual Reality (VR) has been increasingly studied and used for educational purposes (Mellet-d'Huart & Michel, 2006; Gobin-Mignot & Wolff, 2019). Whilst this technology is highly adapted for technical skills training such as flying an aircraft or performing surgery, simulations through VR with language learners seem less relevant at first sight. However, previous work has highlighted numerous potentials, especially for the development of language skills which requires a rich contextualisation to ensure the necessary input and intake processes for aural/oral skills acquisition (Pekarek Doehler & Berger, 2018). First, the human/machine interactivity allows to give the illusion of reality via sensory-motor elements (Fuchs, 2017). Then, VR provides immersion, which refers to the stimuli produced by the VR device and their perceived degree of faith to reality. Finally, VR triggers a feeling of presence which is very specific (Steuer, 1992; Slater et al., 1995; Bouvier, 2009). For Sheridan (1992), virtual presence refers to the feeling of being physically present in a synthetic environment. These three affordances combined, if they are not hindered by latency and sensory-motor inconsistencies, are a strong catalyst for learning by developing a total commitment from the user (Ciekanski et al., 2020), physically, emotionally, and cognitively, since the learner is totally engaged in the accomplishment of a task. Therefore, the benefits for learning are major: the sensory information input places the learner in an authentic situation which, instead of being a simple observer of his/her learning, will then become the actor of it, without having to resort to his/her imagination. VR also makes it possible to test the reality of a situation without taking

any risks, thus building confidence (Borona et al., 2018). At last, the recording and reversibility of actions are training elements because they allow both feedback and the possibility of (re)testing other strategies under the same conditions.

However, unlike specific resources designed for the development of technical vocational skills, there are few VR resources aimed at professions with a significant language component (eg. tourism trade, real estate trade, rights trade...). We were therefore interested in free mainstream resources that provide a sufficiently rich vocational context for students with specific language objectives. In such situations, specialized discourses are of utmost importance. Our understanding of the expression “specialized discourses” relies upon the definition by Moirand & Tréguer-Felten as discourses constrained by an enunciation situation, which can be related to a professional social place¹ and which imply the transmission or exchange of theoretical or practical, declarative or procedural, or even experiential information or knowledge, between enunciators or interactants who have a socio-professional status or a defined social position, and whose message has a precise pragmatic aim².

We have sought to identify professional social places virtualized by VR applications, the results of which are presented as a taxonomy for teachers in English Professional Purposes (EPP). As mainstream VR applications are mostly designed for leisure purposes, we will discuss their integration into formal learning through the predominant role of educational scenarios that some applications require if they are used in a language teaching/learning context. We will show the value of VR in supporting situated learning specific to professional situations, as well as their potential for soft skills development. The results open the floor for questions that discuss whether VR applications are indeed a complementary resource among other authentic resources used in the classroom and whether they lead to a renewal of language learning practices.

1. Specificities of VR settings for EPP

VR may allow students to better immerse themselves in a professional situation by requiring their full attention, with the 360° view facilitated by the wearing of a VR headset (Berti, 2019) as described below.

¹ Our emphasis. This so-called “professional social place” is meaningful in a context of VR since Immersive Virtual Environments (IVEs) can simulate such places.

² “Les discours spécialisés sont des discours contraints par une situation d’énonciation, que l’on peut rapporter à un lieu social professionnel, et qui supposent la transmission ou l’échange d’informations ou de connaissances théoriques ou pratiques, déclaratives ou procédurales, voire expérientielles, entre énonciateurs ou des interactants qui ont un statut socio-professionnel ou une position sociale définie et dont le message a une visée pragmatique précise” (Moirand & Tréguer-Felten, 2007 : 12)

1.1. Multimodal professional situated language learning

Beyond the exposure to the language, the communicative situation and the type of discourse influence the “learning opportunities” that learners can seize. Professional situations can constitute in themselves an enabling environment for the development of skills, particularly language skills. If Lave and Wenger (1991) emphasise the importance of guidance from peers or experts for learning to take place in a situation, Rogoff (1990) shows that situated learning is based on three particular learning modalities: observation, participation and imitation (we will illustrate these learning modalities later on using the example of tourism students in Tables 2 and 3).

Moreover, Larsen-Freeman & Cameron (2008) and Tomasello (2003) highlight the fundamental role of cognitive, metacognitive, and social strategies at work in language immersion: focusing attention, understanding the communicative intention of speakers, mobilising formal categories of language, detecting language structures, imitating, identifying novelty, using the support of other interactants (Larsen-Freeman & Cameron, 2008: 118).

VR affordances can support the learner's attention because they sustain the development of language professional skills in a very relevant way as explained in Ciekanski et al. (2020) by means of interactivity, immersion and the sense of presence provoked by the VR device. VR resources allow learners to use a variety of modes to explore the virtual space: textual, verbal, visual, iconic, graphic, to which are added the haptic and spatial modes which contribute to the feeling of presence. Communication is thus highly multimodal since it mobilises between five and seven different modes depending on the resource. Multimodality favours perceptual-motor activities and contributes to the understanding of the explored place, by placing learners at the centre of their experience. As Norris (2020: 17) reminds us of, the different modes and modalities are interrelated in the users' perception of them (“chains of modes and modalities”) and act in support of linguistic and language intakes. Multimodality would participate in users' attention according to different combinations specific to individual strategies and according to communication situations during which learners can modify their “modal density” (Norris, 2004), by favouring certain modes and modalities at a given moment of their simulation.

The multimodality of VR settings can particularly enhance the complex aural comprehension process, which is highly cognitive, but also very volatile and based on immediate reactivity. Aural skills depend on a semantic representation which is very context-dependent and rely on the use of different memory capacities. Those skills also require a significant amount of extra-language knowledge (ideological, cultural, and encyclopaedic). The contextualization of the

learner in the professional setting *via* hedonomic affordances may then sustain the use of appropriated strategies, in particular socio-affective strategies such as self-reinforcement, cooperation, and so on. Thus, the contextualization that VR environments promote facilitates memory, stimulates gestural and body activity, and arouses emotions. Soft skills thus may enable a better use of cognitive and metacognitive strategies and favour the control of the affective dimension accompanying all learning.

1.2 Being engaged in a highly sensory and emotional experience

The bodily experience that users have refers to the stimuli produced by the VR device and their perceived degree of fidelity to reality. This produces an embodied experience which associates images and feelings with the more objective elements that are the information to which one is exposed. Recent work in neuroscience shows the interrelation between cognition, emotion, and behavior, with the concepts of emotional thinking and embodiment (Immordino-Yang, 2016). Although these three elements influence one another, emotion remains the main element as a mediator of cognition and behavior. Furthermore, for embodied cognition theories, the knowledge to be acquired is related to the learner's physical experiences. Cognition would be anchored in the experiences of individuals and their appropriation of the environment in which they are situated. There is thus a very strong link between the body, perception, and action (Chaker et al., 2021; Gadille & Impedovo, 2020).

2. Taxonomy of the VR apps and their use in EPP

2.1 Context of the study

Many applications found with Oculus (the device we have used in the context of this present study) refer to numerous categories (such as entertainment or games for example) sorted out depending on their genres: educational, documentary and history, simulation, exploration, art and creativity, adventure, action, puzzle, shooter, social, casual, travel. Our choice of an app. for an English/language course is always guided along two criteria: the application must a.be free of charge, and b. offer authentic communication situations that we can use for professionalizing purposes in humanities and social sciences. The professionalizing courses we provide at the University of Lorraine and in which we have introduced VR settings are, for instance, History, Geography, Tourism, Real estate and Heritage law, Art history, Business and management.

2.2 Genres

Numerous applications have been used to facilitate training in both language and communication competences and soft skills. We identified more than 25 resources 12 of which are presented in Table 1, classified along the genres defined by Oculus.

Documentary and history	Simulation	Art and creativity	Exploration
1943 Berlin Blitz	Mission: ISS	The Night Café: a VR Tribute to Van Gogh	Smithsonian journeys: Venice
Nefertari: Journey to Eternity	Flying Aces: Navy Pilot Simulator	The Omnigallery	Coco VR
Anne Frank house VR	Domus VR	Dreams of Dali	The People's House

Table 1: Genre typology for virtual resources

Genres are not mutually exclusive. For instance, *Blitz*, in which you board on a plane during the Blitz in 1943, has a documentary and historical objective but can also be classified as an exploration tool.

2.3. Development of language, communication, and soft skills

Table 2 presents the apps that any teacher can use with students in tourism classified along the skills we think they develop before course design. They are given as examples for how they can be used in EPP.

Applications	Language/ communication skills developed	Soft skills developed
Nefertari: Journey to Eternity <i>This app. enables users to visit Queen Nefertari's tomb and listen to explanations in English about its history.</i>	Listening skills	Management of emotions: astonishment, anxiety, empathy. <i>As soon as students are equipped with VR helmets, they are overwhelmed with emotions (be they positive or negative,</i>

		<i>cf. Privas-Bréauté, 2021) that they must manage if they want to live through the experience.</i>
Smithsonian journeys: <i>Venice This app. takes you on a guided tour of Venice on a boat with a guide that speaks to you directly.</i>	Listening (particularly through the use of very specific vocabulary) and observation of the guide and his professional gesture (pointing to the buildings for instance)	Management of emotions: astonishment, anxiety, empathy. Time and space management. <i>It is difficult for VR users to keep up with time and space when wearing a helmet. It is thus crucial for them to manage time and space not to lose track of reality.</i>
The Omnigallery <i>This app is designed to show visitors around an art gallery and click on the masterpieces (paintings, sculptures etc) with their joystick to get written information about them.</i>	Listening, reading and interacting with the objects	Management of emotions: astonishment, anxiety, empathy.

Table 2: Applications as regards language and soft skills development before course design.

All these applications are mainly used individually. Yet, since communication involves having people to interact with, as language teachers, it is important for our team to use these apps differently to imply verbal and non-verbal interactions. In such contexts, users can adopt three kinds of postures: spectators, actors, and spect-actors. It is crucial for us that they adopt all these postures and not only one among them. Furthermore, our goal being professionalizing students, we choose apps that permit to reach this purpose. Indeed, there are very few apps that can both enable students to learn the language and use it in a professional context. So, we choose free

and accessible entertaining resources that involve social practices, and we often incorporate an educational scenario, a course design that helps us reach the objectives: professionalize our students and teach/learn English at the same time. Some apps can be considered as model-resources, others as resources that need to be enriched (in this case, we resort to multimodality and scaffolding) and a last category can be seen as resources to produce. Table 3 presents the development of skills through the same apps after course design, therefore after being enriched.

Applications	Language/ communication skills	Soft skills
Nefertari: Journey to eternity	Example of a course design: If we ask our students to make research on the monuments visited, on the paintings on the tomb and then suggest a guided tour of the environment, they also develop speaking.	If they carry out their research in group: they can develop collaboration, leadership, decision making skills.
Smithsonian journeys: Venice	This application can be used without any course design since it develops more than just listening skills (see above), but teachers can enrich it depending on their educational objectives.	In this case, the soft skills developed will depend on the tasks required.
The Omnigallery	We may ask students to choose paintings and masterpieces and present them to the others as a guided tour, in this case, the app also develops speaking skills.	Critical thinking (depending on what the students already know they will choose what to say and how they will say - for instance the speaker adopts a very intelligible tone so as to be well

		understood by everyone). It may also develop organization and decision making- skills when choosing the objects to talk about.
--	--	--------------------------------------------------------------------------------------------------------------------------------

Table 3: Applications as regards language and soft skills development after course design.

These possible course designs enable to enrich the resources and train the students in language/communication and soft skills that would serve them in their future jobs. As a matter of fact, we think that it is crucial for language teachers to train students to developing language skills as well as soft skills. In an even more competitive world, employers are particularly sensitive to the capacity of recruits to empathize, lead, take initiatives, collaborate and so on. Therefore, VR apps provide us with quasi real-life situations in which students/ users can imitate a discourse that might then be reproduced.

3. Discussion

Our research team has been working on IVE and VR in language training contexts since 2018 and since 2019 we have been looking to integrate the use of VR in the professional paths of LANSOD students in English (law in particular). The interest in terms of research and training is to reflect on the nature of the simulations linked to professions in humanities and in which oral communication skills in context are central. VR thus makes it possible to literally project oneself into the communication situation to be mastered, whether it is a real estate visit or a guided tour as in the example we have developed. It is in this perspective that we have made an inventory of the existing resources on Sansar.

The proposed resources are very heterogeneous in their nature, especially in terms of what the user can do (passive user/consumer or active user/actor). Based on what the resource allows the user to do, we have selected a progression articulating the three postures mentioned above: the spectator posture (step 1), the spect-actor posture (step 2) and the actor posture (step 3), as shown in the table.

The effects that are targeted with the apps as seen in the example with students in tourism mainly revolve around:

- understanding the guided tour as a social practice to be experienced (as both a tourist and a guide)

- highlighting the important elements of the guide's discourse: mentioning the names of monuments in both languages, at what moment, how to attract attention, the role of anecdotes and the link with them
- getting a better understanding of the eco-drive learning elements

So, not only does VR allow to create a context in which to act but it also develops an embodiment associating emotions and cognition, essential to a tourist guide as developed here. Virtual reality, once it has been refashioned, repurposed, and managed by users, VR becomes a catalyst for language learning and even more. The users can act in and on the environment since they can collaborate and interact with the space to transform it. So, they develop soft skills.

3.1 Limitations

Our study has shed light on the potentials of VR (triggered by its contextualizing power) as well as its limitations. For instance, the scenarios provided for by the creators of the apps are often poor because they are based on a linear unfolding. So, we need to enrich them and incorporate tasks and problem-solving activities to help students reach professionalizing goals in English.

3.2 Our recommendations

Considering what we observed, our recommendations for language teachers aiming at using VR in their courses are as follows:

- repurposing the apps to require more agency from the learner/ user and encourage interaction
- implementing a strong educational scenario depending on what and why we want to use the apps (this is task-dependent, therefore enriching the types of tasks is crucial)
- Using their creativity and relying on their students' creativity

Conclusion

To conclude, Virtual Reality is seen as an asset in language learning: learners are placed in realistic communication situations and have the chance to live extraordinary adventures. As a simulated experience, VR increases learners' cognitive, emotional, and physical engagements. Despite the limitations to the use of VR in education (Chateau et al., 2019), VR is a promising

device to develop and practice linguistic, cultural, socio-linguistic, pragmatic, and soft skills, so it appears as a good simulation device to add to the teacher's toolbox.

Our present study has also put to the fore the emergence of new competences in language learning/teaching (not developed here) that we can conceptualize as interactive listening and interactive reading (e.g. Amaze), which sheds light to the ongoing developments of VR used in educational contexts and the need to develop other apps for educational purposes.

References

- Berti, M. (2019). 'You can almost feel like you are in the place presented': Implementing Virtual Reality in the Language Classroom. EUROCALL/CALICO Virtual Worlds and Serious Games SIG
- Borona, S., E. Tambouris & K. Tarabanis. (2018). The use of 3D multi-user virtual environments in computer-assisted second language learning: a systematic literature review. *International Journal of Learning Technology*, 13(3), 249-274.
- Bouvier, P. (2009). *La présence en réalité virtuelle, une approche centrée sur l'utilisateur*. Thèse de doctorat, Université Paris-Est.
- Chaker, R., M. Binay, M. Gallot, & N. Hoyek. (2021). User Experience of a 3D Interactive Human Anatomy Learning Tool. *Educational Technology and Society*, 24(2), 136-150.
- Chateau, A., M. Ciekanski, N. Molle, J. Paris & V. Privas-Bréauté. (2019). Adding virtual reality to the university self-access language centre: brave new world or passing fad? *European Journal of Language policy*, special issue "Virtual exchanges". URL: <https://online.liverpooluniversitypress.co.uk/doi/10.3828/ejlp.2019.15>.
- Chen, J. C. & S Kent. (2019). Task engagement, learner motivation and avatar identity of struggling English language learners in the 3D virtual world. *System* 88 (Advanced online publication). <https://doi.org/10.1016/j.system.2019.102168>.
- Ciekanski, M., C. Kalyaniwala, N. Molle & V. Privas-Bréauté. (2021). Real and perceived affordances of Immersive Virtual Environments in a language teacher-training context: effects on the design of learning tasks. *Revista Docência e Ciberultura*, vol. 4 n°3, pp. 83-111.
- Damasio, Antonio. (1994). *Descartes' error: emotion, reason and the human brain*. New York: Avon Books.
- Deutschmann, M. & L Panichi, L. (2013). Towards models for designing language learning in virtual worlds. *International Journal of Virtual and Personal Learning Environments*, 4(2), 65-84.

- Fuchs, P. (2017). *Virtual reality headsets: a theoretical and pragmatic approach*. Boca Raton, FL: CRC Press, Taylor & Francis.
- Fuchs, P. & G. Moreau (2003). *Le traité de la réalité virtuelle* (tome 1, 2e éd.). École des Mines de Paris: Les Presses.
- Gadille, M. & M. Impedovo. (2020). The Embodiment Dimension while Learning and Teaching in a Virtual World. *Journal of Systemics, Cybernetics and Informatics: JSCI*, 18 (2), 1-8. fhal-02863172f
- Gobin Mignot, E. & B Wolff. (2019). *Former avec la réalité virtuelle. Comment les techniques immersives bouleversent l'apprentissage*. Malakoff : Dunod.
- Immordino-Yang, M.-H. (2016). *Emotions, Learning and the Brain. Exploring the Educational Implications of Affective Neuroscience*, NY: WW Norton & Company.
- Larsen-Freeman, D. & L. Cameron. (2008). *Complex Systems and Applied Linguistics*. CUP.
- Lave, J. & P Wenger. (1991). *Situated Learning: Legitimate peripheral participation*. CUP.
- Lloyd, A., S. Rogerson & G. Stead. (2017). Imagining the potential for using virtual reality technologies in language learning. In Carrier, M., R. M. Damerow & K. M Bailey (eds.), *Digital language learning teaching*, New York: Routledge.
- Mellet-d'huart, D. & G. Michel (2006). Réalité virtuelle et apprentissage. In Grandbastien, M. & Labat, J.-M. (eds.). *Les environnements Informatiques pour l'Apprentissage Humain*. Éditeur Hermes, Collection « Traité IC2 Information Commande Communication »
- Moirand & Tréguer-Felten. (2007).
- Molle, N., V. Privas-Bréauté & M. Ciekanski. (2020). La réalité virtuelle comme vecteur d'immersion pour apprendre les langues. *Etudes en Didactique des Langues*, 34 « Transmission et vecteurs », 69-80.
- Norris, S. (2004). Multimodal discourse analysis: a conceptual framework. In Levine, P. & Scollon, R. (ed.). *Discourse and technology: multimodal discourse analysis*. Washington, DC : Georgetown University Press, 101-115.
- Norris, S. (2020). *Multimodal Theory and Methodology. For the Analysis of (Inter)action and Identity*. Routledge Focus.
- Pekarek Doehler, S. & E. Berger. (2018). L2 Interactional Competence as Increased Ability for Context-sensitive Conduct: A Longitudinal Study of Story-openings, *Applied Linguistics*, 39(4), 555–578, <https://doi.org/10.1093/applin/amw021>
- Peterson, M. (2010). Learner participation patterns and strategy use in Second Life: an exploratory case study. *ReCALL*, 22 (3), 273-292.

- Peterson, M. (2012). EFL learner collaborative interaction in Second Life. *ReCALL*, 24(1), 20-39.
- Peterson, M. (2017). New Developments in CALL. In Thomas, M., Sykes J.M., Reinders, H. & Peterson, M. (eds.), *Digital language learning and teaching: critical and primary sources*, 4, London: Bloomsbury.
- Peterson, M., Q. Wang & M. Sadat Mirzaei. (2019). The use of network-based virtual worlds in second language education: a research review. In Kruk, M. (ed.), *Assessing the effectiveness of virtual technologies in foreign and second language instruction*, Hershey, PA: IGI Global, 2-24.
- Peterson, M. (ed.). (2017). Digital language learning and teaching: critical and primary sources. *New developments in computer assisted language learning*, 4, London: Bloomsbury.
- Privas-Bréauté, V. (2021). Intégrer la réalité virtuelle dans les formations d'enseignants en langues : Dispositif innovant immersif inscrit dans un paradigme enactif. *The Langscape Journal*, 3, 103-116.
- Rogoff, B. (1990). *Apprenticeship in Thinking. Cognitive Development in Social Context*. OUP.
- Roy, M. (2017). *La réalité virtuelle pour l'apprentissage des langues*, Berne: Peter Lang.
- Schmidt, R. (2010). Attention, Awareness and individual differences in language learning. In Chan, W.M., S. Chi, K.N. Cin, J. Istanto, M. Nagami, J.W. Sew, T. Suthiwan & I. Walker (dirs.), *Proceedings of CLaSIC2010*, National University of Singapore, Centre for Language Studies, 721-737.
- Sheridan, T.B (1992). Musing on Telepresence and Virtual Presence, *Presence Teleoperators & Virtual Environments*, 1 (1), 120-126
- Slater, M., M. Usoh & A. Steed. (1995). Taking steps: the influence of a walking technique on presence in virtual reality. *ACM Transactions on Computer-Human Interaction*, 2(3), 201-219.
- Steuer, J. (1992). Defining virtual reality: dimensions determining telepresence. *Journal of Communication*, 42 (4), 73-93.
- Tomasello, M. (2003). *Constructing a Language: A Usage-Based Theory of Language Acquisition*. HUP.