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A Qualitative Inquiry on Synchronous Virtual Exchange Interactions in an Interdisciplinary ESP Context

*Enquête qualitative des interactions issues d'une télécollaboration
interdisciplinaire dans un contexte d'anglais de spécialité*

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Introduction

- 1 English for Specific Purposes (or ESP) “is the study of a specific configuration of the English language that is used by a group of specialists for that group’s particular purposes (whatever their language origins, whatever their degree of expertise)” (Gledhill & Kübler, 2016). The “purposes” of each targeted group (such as medicine, biology, law, engineering, etc.) depend on current obligations (what they need to be able to accomplish today) and projected professional contexts (what they might be required to accomplish in the future). Teachers and researchers thus seek to identify features of specialised language that would be potentially helpful to students, which are then integrated into the syllabus. These features are steeped in “recognizable communicative event[s, that are] characterized by a set of communicative purposes(s) identified and mutually understood by members of the professional or academic community in which it regularly occurs” (Bhatia, 1993, p. 13); in other words, genre.
- 2 Analysing genre (see also Swales, 1990) requires specific inputs from the targeted discipline or to use Lave and Wenger’s (1991) coined term, “communities of practice”, that students are expected to join in the future. Teaching English to students of law would, for instance, require the teacher/researcher to identify “distinguishable genres depending upon the communicative purposes they tend to fulfil” (Bhatia, 1987, p. 227).

Some of the genres the author (1987) identifies are cases and judgements in written form or lawyer-client consultation in spoken form.

- 3 If viewed from a social theory of learning context (see Lave & Wenger, 1991), targeted “genres” must be practised meaningfully in setups or communities imbued in real-world contexts. While internships or summer jobs may provide rich learning milieus, in-class hours are too often dedicated to theoretical and/or linguistic teaching. Using computer-mediated communication tools that offer possibilities of two-dimensional (or 2D) videoconferencing (such as *Teams*, *Zoom* or *Skype*), pedagogical projects between geographically distanced learners of diverse disciplines could be arranged.
- 4 Furthermore, with growing advancements in technology, the use of three-dimensional (or 3D) environments could also contribute to creating a life-like interactive experience. Virtual reality (VR) is a realistic and immersive computer simulation of a 3D environment, created using interactive software and hardware, and experienced or controlled by movement of the body (Oxford English Dictionary, 2023). Using a helmet with an in-built screen and/or gloves fitted with sensors allows the user to interact with images in a seemingly physical manner as with the real world, resulting in “a sensorial experience” (Galés & Gallon, 2020, p. 113). The potential of VR has been known for decades, commencing in the 1970s where it was used for flight simulation and military training (Dreimane, 2020) and applied effectively thereafter to fields such as healthcare (Ma et al., 2014), medicine (de Faria et al., 2016) and industry (Lawson et al., 2016). Increasingly, VR is transforming digital social worlds by making them virtual places for gathering (Orel, 2020) in custom-built environments to showcase ideas and discuss work (Rubin, 2019).
- 5 Educators from different countries have already experimented with VR technology, applying it to different educational sectors (see Wong & Notari, 2018). As for language education, its most noteworthy contribution is likely to be in its potential to create the opportunity for language learners to interact with other users using similar platforms and practise a host of languages in authentic, life-like digital spaces. However, opportunities for such authentic interactions are few, as the option of using VR in language classrooms (or outside the classroom) remains prohibitively expensive for the vast majority of language practitioners.
- 6 The findings presented in this paper are based on a larger on-going project that seeks to question the added value of VR in an interdisciplinary virtual exchange. Owing to its exploratory and very limited dataset, this study will consider interactions of only two groups of students so as to explore the study of virtual exchange interactions in an ESP context. As such, two questions will be raised and answered:
 - 7 RQ 1. What topics do the interactions in 2D and 3D respectively address?
 - 8 RQ 2. What features do students use in 2D and in 3D to make meaning?
- 9 The first section of this paper will focus on the theoretical framework, which should allow the reader to be familiarized with basic concepts that will be used in this paper. The second section will outline the pedagogical and research methodology put in place in order to answer the aforementioned questions. Results will be offered in the third section, followed by a brief discussion and conclusion.

1. Theoretical framework

- 10 A short background on the conceptual framework that will be used in this paper has been provided in this first section, (1.1.) immersive language education through VR and (1.2.) models of virtual exchanges in language education, followed by a literature review on the few studies that take VR and VE into consideration in an ESP context (1.3.).

1.1. Immersive Language Learning through VR

- 11 First-time users of VR (3D) headsets are often blown away by the “wow” factor that the technology tends to procure. While there might be some merit to this as it does “provide[s] a framework and context for the content to be remembered” (Craddock, 2018, p. 8), other factors should also be taken into consideration.
- 12 A recent paper published in 2020 (Ciekanski et al., 2020) identified three affordances¹ of VR for language learning context, which when combined, could potentially elevate a learner’s level of engagement. The affordances identified were (1) interactivity, (2) immersion and (3) a feeling of presence. Human/machine interactivity provides an illusion of reality (Fuchs, 2017) since there is constant back-and-forth between the computer and the user, creating an illusion that is reinforced by the haptic device.
- 13 The second affordance identified is immersion that lies at the very heart of VR technology. Miller and Bugariu (2016, p.2) distinguish between three levels of immersion (low, moderate and high) and contend that social skills could be taught through immersion in a virtual world. Low immersion is characterised by the presence of device(s) in the physical world (e.g., use of a joystick or a mouse to control the virtual environment) and accommodates only one sensory modality (e.g., auditory, visual, motor/proprioceptive²). Moderate immersion accommodates one to two sensory modalities with few signals indicating the presence of device(s) in the physical world (e.g., the sounds a computer makes). High immersion provides very few signals indicating the presence of device(s) in the physical world (e.g., VR headset with full-body motion capture) and accommodates more than two sensory modalities. According to this classification, videoconferencing tools (2D technology) would qualify as low immersive tools, whereas VR with a headset (3D technology), would be high immersive in nature.
- 14 Finally, Bouvier (2009) considers that a feeling of presence (the third affordance) may appear if the experience is “deemed credible by the user” (2009, p. 12). As mentioned before, a combination of these three affordances would potentially produce an elevated level of engagement in learners, producing what Csikszentmihalyi calls “an autotelic experience” (p. 67). In other words, “when the experience is autotelic, the person is paying attention to the activity for its own sake” (Csikszentmihalyi, 2008, p. 67).
- 15 The past decade has seen a spiking interest in studies on VR for the purposes of language education. A noteworthy collection of papers in a special issue of the journal *ReCALL* (Wigham et al., 2018) focused on interactions for language learning in and around virtual worlds. Other studies that compare effects felt in 2D and 3D tend to lean towards those felt in 3D. For instance, Moustafa and Steed (2018) published a study of small group interactions in a group of 17 adults with an average age of 30.4 years over a

period of 4 weeks. They discovered that the different emotional states encountered in face-to-face real-life interactions (such as love, hate and fear) could also be encountered in VR. They also found that there were far more interactions in VR rather than with videoconferencing tools such as *Skype*. More recently, Kaplan-Rakowski and Gruber's 2023 experimental study also found that, compared to videoconferencing tools such as *Zoom*, foreign language anxiety scores were significantly lower in VR.

1.2. Models of Virtual Exchanges in Language Education

- 16 The term telecollaboration used by Warschauer (1995) and by Belz (2002) or the newly anointed term 'virtual exchange or VE'³ (O'Dowd, 2021a) is a commonly researched theme in computer-assisted language learning (CALL) and especially computer-mediated communication (CMC) circles. O'Dowd (2021b, p.209) defines virtual exchange (VE) as "an umbrella term used to refer to the different ways in which groups of learners are engaged in online intercultural interaction and collaboration with partners from other cultural contexts or geographical locations as an integrated part of course work and under the guidance of educators and/or expert facilitators".
- 17 O'Dowd's literature review identifies four models of VE in second language education: e-tandem, telecollaboration⁴, transnational virtual exchange and critical approaches to telecollaboration. "E-tandem" and "telecollaborative" models take a bilingual-bicultural approach, wherein tasks typically include conversation, error correction, and/or a discussion around cultural themes. Both models aid in fostering what one might call "general" language skills, with intercultural objectives brought to the fore in varying degrees of prominence. Well-established telecollaborative models such as bicultural and bilingual *Cultura* have formed the basis of many exchanges and have been adapted to different languages and contexts (see Helm, 2015). On the other hand, the "critical approaches to telecollaboration" and "transnational virtual exchange" models adopt a more lingua franca approach. The former includes mediator-led discussions on social and political issues, whereas the fairly new transnational VE model argues for an integration of the principles of global citizenship education within the framework of earlier versions of VEs. It focuses on global themes⁵ providing learners with hands-on experience at completing collaborative tasks, instead of simply encouraging them to make explicit cultural comparisons.

1.3. VR and VE in an English for Specific Purposes (ESP) Context

- 18 While virtual reality and virtual exchanges are relatively new research topics, they have been garnering much interest in language teaching and learning circles. Educators and researchers alike are interested in experimenting and documenting VR use and putting VE projects in place. Nevertheless, few studies have documented the integration of VR for the learning and teaching of English for Specific Purposes (ESP) and fewer still have combined VR with VE.
- 19 Currently, focus on ESP studies published on and around VR seems to be on discovery and exploration (of the VR environment) and on vocabulary and lexical acquisition. For instance, Hutchison (2018) used VR apps along with Google Cardboard Viewers (headsets) to explore science and literacy concepts in her classes and found VR technology to be suitable for encouraging students to discover, respond and write

questions during an exploration of plant and animal habitats. In other more linguistically inclined studies, emphasis was on the use of VR to retain ESP vocabulary (Madini & Alshaikhi, 2017) through the watching of 360-degree videos related to basic skills in counselling for cases such as depression, addiction, suicide, etc. In yet another study, Mohsen (2016) compared the watching of a video on conducting knee surgery on *YouTube* with a simulation of the knee surgery using VR. Results found that players significantly outperformed viewers on comprehension and vocabulary recognition tests. As for VEs, case studies⁶ published on ESP contexts (see Helm & Beaven, 2020) mostly deal with the *designing* of VEs and not the effects or outcomes.

- 20 A striking exception is a very recently published study (Chen & Sevilla-Pavón, 2023) that explores how meaning is negotiated in a highly immersive (VR) VE environment. Findings suggest that a three-dimensional environment could provide powerful immersion for VE communication when different “embodied semiotic resources” (Chen & Sevilla-Pavón, 2023, p. 118) are at play.

2. Methods

2.1. Participants and Pedagogical Scenario

- 21 A pilot interdisciplinary and immersive VE project for English for Specific Purposes (ESP) was arranged from September to December 2021 between legal English students from the Université de Lorraine (France) and business English students from the Universitat de València (Spain). This pilot was called i-Laser-2022 (Immersive Legal Advising for Social Entrepreneurs). Spanish student partners were expected to create a start-up bearing in mind goals of social entrepreneurship while French student partners would provide legal advice to their Spanish counterparts. With their international partners, each group was required to create a promotional video (digital story) for their start-up.
- 22 On the whole, forty students participated in the project: 26 females and 14 males aged between 17 and 24 years. Each student self-assessed their English language skills using the Common European Framework of Reference for Language (CEFR) descriptors. More than half the student population (n=24) positioned themselves at a level B2, 6 students at a level B1 and 10 students at the advanced C1-C2 levels of language competencies. Since English was the *lingua franca*, having basic communicative language skills was deemed a pre-requisite for this virtual exchange.
- 23 Eight groups of international partners were randomly formed (4-6 students in each group), although locally, students were allowed to choose their partners (pairs or triads). Students were expected to work autonomously within their groups and set their own timetables as long as basic guidelines and deadlines were respected. To ensure communication and encourage collaboration, students were expected to conduct at least three synchronous meetings with their international partners and record each one. At least one of these three meetings was expected to take place using VR headsets on the immersive platform *Spatial*⁷. The three meetings were projected to take place from September to December 2021 using *Spatial*'s 2D and 3D modes of communication, although participants were also allowed to choose other videoconferencing tools. The prescribed objective of each meeting was provided to the students at the beginning of the project (see Table 1). Intended interaction (column 3)

refers to what the students were expected to talk about in their teams during the meetings.

Table 1. Prescribed Objectives and Intended Interaction of the Three Synchronous Meetings

Meeting	Prescribed objective	Intended interaction
#1	“Getting to know one another”	Students ask each other questions with a view of getting to know their partners.
#2	“Getting down to business”	Spanish partners explain their in-progress business plans, French partners ask questions and consult in legal matters concerning the business plan.
#3	“Presenting artefacts”	Each team presents work completed on the final digital story to their international partners and bring it to fruition.

- 24 It should be noted that informed consent was obtained at the outset of the study and participants were aware that the interactions and materials they created during the VE would be used for research purposes.

2.2. Research Design and Sample Size

- 25 The overall project was designed to be the first cycle of design-based research (DBR) that is generally characterised by continuous cycles of design, enactment, analysis, and redesign for the development of practical design principles, patterns or grounded theorizing (Scott et al., 2020). In-field data were principally collected over the course of the semester: (1) recordings of the synchronous meetings; (2) group reports (France); (3) individual reflective essays (Spain) drafted after the meetings and (4) final digital multimodal productions.
- 26 Owing to a lack of available, comprehensible, and useable data, and in the spirit of qualitative inquiry, data stemming from only two groups (Group 1 and Group 7) was considered in detail for the present paper. As Patton (1990, p. 169) affirms, “Qualitative inquiry typically focuses in depth on relatively small samples, even single cases ($n = 1$), selected *purposefully*”. In other words, “*quantitative sampling* concerns itself with *representativeness*, and *qualitative sampling* with *information-richness*” (Kuzel, 1992, p. 33). The sample data examined for this study are few and, as will be appreciated in the following sections, unbalanced in nature. It should thus be noted that this study does not seek to generalize but rather, to identify the features of synchronous interactions within the sample size selected for the purposes of this paper.
- 27 Group demographics of the selected sample have been provided in Table 2 below. As can be noted in the first five columns of Table 2, Group 1 (GR1) was composed of 6 students (3 female and 3 male) and Group 7 (GR7) of 5 students (4 female and 1 male). Most of the students positioned themselves at the level B2 of the CEFR, with the sole exception of one student (SP4). Each student was provided with a “code” (column 6) so as to ensure anonymity in accordance with the research protocol.

- 28 Column 7 of Table 2 reports on the timeframe of the meetings that took place between international student partners. Students had been informed that providing recordings of their meetings was neither necessary nor would they be graded. This, combined with other possible idiosyncratic factors, seems to be why fewer recordings were received than initially expected. One might observe that while GR1 conducted their first meeting in September, following meetings took place one after another towards the end of the project in November. On the other hand, GR7's recorded meetings seem to be relatively spaced out (October and November) and data suggests that a first meeting had taken place before the one recorded in October, which had not been recorded.

Table 2. Demographics of the Sample Population and Dataset

1	2	3	4	5	6	7
	ESP specialisation	Number of students	Gender	CEFR Language Level (self-assessed)	Student Codes	Timeframe of meetings
GR 1	Law (FR)	3	F = 3	B2 B2 B2	FR1 FR2 FR3	M1 Sept (2D) M2 Nov (2D) M3 Nov (3D)
	Business (SP)	3	M = 3	B2 B2 B2	SP1 SP2 SP3	
GR 7	Law (FR)	3	F=3	B2 B2 B2	FR4 FR5 FR6	M1 Oct (3D) M2 Nov (2D)
	Business (SP)	2	F=1 M=1	B1 B2	SP4 SP5	
n=2		11	F=7; M=4			5 meetings

- 29 In a nutshell, five synchronous meetings were recorded and provided to the researchers, which were then (1) transcribed with the help of Otter.ai and (2) completed with screenshots of actions wherever necessary. The choice of a mostly textual transcript is debatable notwithstanding the presence of multimodal data. In reality, data revealed that although students used 3D modes of communication, very few semiotic resources were actually exploited by the students (see section 4.2 of this paper). Textual transcripts with screenshots of actions thus sufficed.
- 30 Furthermore, while the number of turns taken could offer evidence as to the discursive practices (and therefore, group dynamics) put in place by each group, it could not provide a holistic picture of the main topics in question. After careful consideration,

the unit of analysis selected for the study of multimodal data for the present study was the discursive sequence as recommended by Palomeque and Pujolà (2018). The researchers explain that a discursive sequence “is made up of all the turns that intervened in a communication strategy such as the trigger of a communication strategy and the reaction” (Palomeque, 2016 in Palomeque and Pujolà, 2018, p. 185). Concrete examples of discursive sequences from the present research data have been provided in Appendix A and Appendix B.

- 31 Once the discursive sequences had been identified, each one was coded using NVivo computer software⁸ into mutually exclusive categories, i.e., one single code was awarded per discursive sequence.

3. Findings and Discussion

3.1. General Features of the Synchronous Interactions and Topics Addressed

- 32 Table 3 below paints an overall picture of the virtual exchange interactions that were examined for the study. GR1 recorded and provided three meetings (two using 2D spaces and one meeting using Spatial’s VR mode) while GR7 recorded two meetings (one in 2D and one in 3D). A total number of 950 turns were recorded while 251 discursive sequences emanating from the interactions were systematically coded.

Table 3. Data from 2D and 3D Interactions during the Virtual Exchange

	Meeting	2d/3d	Timeframe	No. of turns taken	No. of discursive sequences
GR1	#1	2D	1,339 sec	n=181	n=41
GR1	#2	2D	1,097 sec	n=186	n=40
GR1	#3	3D	786 sec	n=137	n=40
GR7	#1	3D	1,010 sec	n=177	n=56
GR7	#2	2D	2,214 sec	n=269	n=74
Total	5 meetings	3=>2D 2=>3D	6,246 sec	n=950	n=251

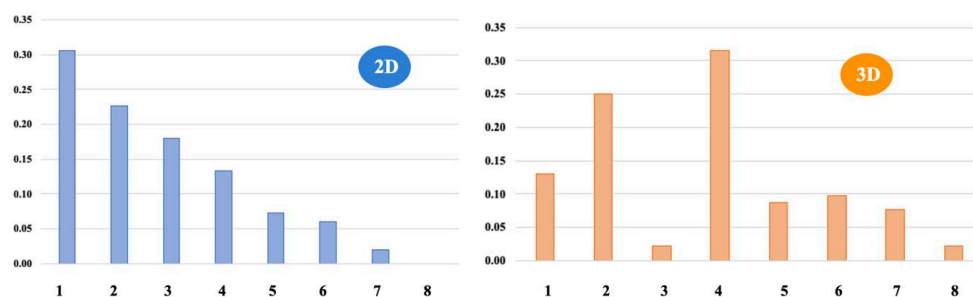
- 33 Owing to the unbalanced dataset, it would not be suitable to compare the occurrences (frequency) of these topics in 2D and 3D modes of interaction. Relative frequency values of the sample data have thus been presented in Table 4 below. The two categories that top the list are ESP themes followed by discussions around organisational aspects.

Table 4. Data from 2D and 3D Interactions during the Virtual Exchange

Thematic Categories	Frequency 2D	Relative frequency 2D	Frequency 3D	Relative frequency 3D
1. ESP themes	46	0.31	12	0.13
2. Organisational aspects	34	0.23	23	0.25
3. Getting to know one another	27	0.18	2	0.02
4. Digital storytelling	20	0.13	29	0.32
5. Use of affordances of technological tools (incl. Spatial)	11	0.07	8	0.09
6. Technical issues	9	0.06	9	0.10
7. Social niceties	3	0.02	7	0.08
8. Impressions on VE and Spatial	0	0.00	2	0.02
Total	150	1.00	92	1.00

- 34 Figure 1 below offers a side-by-side visual representation of the relative frequency of the various themes explored by the two groups of students. A more detailed distribution of the themes with relevant examples can be found in the appendices of this paper (Appendix A and Appendix B).

Figure 1. Relative Frequency of Topics Addressed by the Sample Population in 2D and 3D



- 35 In general, the following topics were explored by the groups during the interactions: (1) themes revolving around ESP aspects, (2) organisational aspects, (3) icebreakers, (4) digital storytelling, (5) use of technological tools, (6) different technical issues, (7) social niceties and (8) student impressions on VE and the tool Spatial. Multiple legal English themes or concepts taught explicitly to the students were mentioned by the population of the study during talks on the creation of the company: contract, patent, place of registered office, responsibility (or liability); and other business-related themes such as (product) supplier and business plan. Table 5 demonstrates that most of the topics

addressed issues on legal matters (48 occurrences in total, or 82.8% of the interactions) rather than business matters (10 occurrences in total, 17.2% of the interactions). These figures are in line with the task which required legal English students to confer with their business “clients” on legal matters.

Table 5. ESP Topics Addressed by the Sample Population

ESP topics	Occurrences 2D	Occurrences 3D	Total
Business English	9	1	10
Legal English	37	11	48


- 36 Two possible explanations might be offered as to why there are significantly more occurrences of ESP topics in 2D rather than 3D:
1. Ease of use: Students felt more comfortable using a 2D platform, especially post-pandemic;
 2. Accessibility: Using a 3D platform requires access to the VR material, available in the lab, as opposed to a video conferencing tool that students could connect to from their homes.

3.2. Description of a 2D and 3D Interaction (GR1)

- 37 Meaning making or negotiating for meaning has been extensively studied in applied linguistics (see Varonis & Gass, 1985) and second language acquisition (see Norris, 2019; Wigham & Satar, 2021). For the purposes of this paper, descriptions of one 2D and one 3D interaction (Group 1) have been offered to better understand the mechanics that went into them, as well as features used by the student-users to make meaning.
- 38 As mentioned before, Group 1 (GR1) comprised of 3 female students (FR1, FR2, FR3) from France and 3 male students (SP1, SP2, SP3) from Spain. Both interactions in 2D and 3D were conducted in November, towards the end of the virtual exchange. Students were allowed to conduct their 2D meetings using any tool or platform that they were interested in, as long as the interaction was recorded. Students thus chose to conduct their meeting using *WhatsApp* on their telephones which was deemed the preferred videoconferencing tool. As can be observed in Table 6 below, one telephone was used for the meeting while a second telephone was used to record the interactions. The laptop in front of the students was blanked out as the telephone was placed on it. While this tactic allows us to note a few gestures and reactions on the blank screen, the quality of recorded images leaves much to one’s imagination. A second laptop on the right-hand side has been switched on, allowing us to observe on-screen activity which is not very clear.
- 39 The following extract takes place about 7 minutes into the 18-minute-long interaction. The nine turns can be divided up into three discursive sequences: Turns 1-2; 3-5; 6-9. All three sequences follow a question-and-answer format. In turns 1-2, Spanish partners enquire about the “legal” research being done by their French counterparts for the project and the French partners respond by saying that they are working on patents. In turns 3-5, SP3 appeals for assistance (“What? The pater?”), to which FR2 responds in simple English and SP3 affirms by saying that it “sounds great”. In turn 6, it is a French student who enquires as to whether their Spanish partners would require a





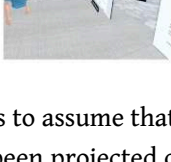
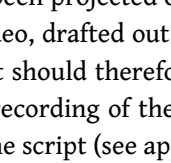
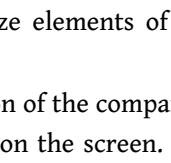
patent and after a confirmation check by SP2, SP3 declares that “it’s a smart thing to do because we’re coming up with a new product”.

Table 6. Example of an Interaction in 2D

	Transcript	Image in 2D
1	SP2 (6'51") So what what things are you guys now researching on or doing for the legal parts? Things maybe also interesting for us to know, what it's like	
2	FR3 (7'11") We did some research, some research about the patents. I don't know if you if you know it?	
3	SP3 (7'22") What? The pater ?	
4	FR3 (7'23") The patent is uh in law, the patent is the, if you ask for a patent, then your products can be, can be sell only by you and it protects from the competition of other companies	
5	SP3 (7'42") Patents, ah patents yeah okay, sounds great	
6	FR3 (7'44") So do you want one?	
7	SP2 (7'47") If we want one?	
8	SP3 (7'50") Yeah, I think maybe it's if it's not too much work for you guys, it's a smart thing to do because we're coming up with a new product. Nobody else has done something like this before so it's smart to get a patent on it or something.	
9	FR2 (8'07") Okay	

- 40 The following extract (Table 7) is an example of an interaction that takes place on the 3D platform Spatial with VR headsets. Like with the previous extract, the 7 turns of the extract can be divided into three discursive sequences: Turns 1-2; 3-4; -5-7. Unlike the previous extract, the information exchanged does not stem from direct questioning, but is offered voluntarily in the form of short monologues, followed by the listening party giving their approval. The focus of this extract is on the parts of the digital storytelling script that is going to be read out in the promotional video. The two short monologues focus on the setting up of a company (turn 3) and a limited liability company (turn 5).
- 41 There are no requests for clarification or repetition. Semiotic resources during this interaction include a yellow post-it that reads “hello :-)” in the background and fleeting images of a bottle of champagne. Two word-processing documents are constantly in view. Close attention to the semiotic resources used during the interaction (see column 2, images in 3D) reveal that students are constantly interacting with the word-processing documents (scrolling) as they communicate with their partners. This seems to suggest that students are reading out from their documents as they speak to their partners in short monologues.

Table 7. Example of an Interaction in 3D

Transcript	Images in 3D
1 FR3 (5'48") You want us to resume our parts of the script?	
2 SP1 (5'53") Yeah ok	
3 FR2 (5'57") For my part I speak about the ad- advantages and inconvenience pros and cons to to create a society in Great Britain because of the Brexit for example of fiscal- fiscal abilities and yes I- my part is about international society, ok?	
4 SP1 (6'23") Okay	
5 FR1 (6'24") My part is about to know what kind of company is best suit for your project. So I present what it's a limited company to protect your best interest and also to have a fiscality advantage- advantages and also I explain what it takes to create a company what are the formalities, the cost and how much time it takes	
6 SP1 (6'59") Okay sounds interesting	
7 SP2 (7'01") Sounds nice	

- 42 Observing this interaction might lead us to assume that students were reading out from the script of the digital story that had been projected on the screen. The “script” was a necessary part of their promotional video, drafted out by all the teams before creating the digital story (promotional video). It should therefore be considered as what would actually be read out aloud during the recording of the video. Turns 3 and 5 were thus compared with the projected parts of the script (see appendix C). Both examples show a tendency of the speakers to summarize elements of the storytelling script in plain English.
- 43 Figure 2 provides a visual representation of the comparison between the various words spoken in turn 5 and words projected on the screen. Three differences may be noted between the spoken and written words: (1) “type of company” becomes “kind of company”; (2) “It is better to choose a limited risk company because the debts will not affect the shareholders, only the company” becomes “I present what it’s a limited company to protect your best interest; and (3) the last paragraph of the script becomes “what are the formalities, the cost and how much time it takes”.

Figure 2. Visual Representation of Comparison Between Spoken Words and Projected (Written) Words

Script (Written)

FR3 (Voiceover) : If the company is located in the UK, what is the first thing to consider when setting up the company?

FR1 : The first thing to do is to choose the type of company. In the UK there are two types of companies, limited risk and unlimited risk. In our case, since the sunphone is a new product, the risks are high for the partners. It is better to choose a limited risk company because the debts will not affect the shareholders, only the company.

FR3 (Voiceover) : What are the steps to set up a limited liability company?

FR1 : Once the type of company has been chosen, there are a few administrative steps to be taken for the company to be legally recognised. The most important thing to do is to legally register the company with Company House. The name of the company, its address in the UK, are part of the details to be communicated. Once such information has been submitted, Company House must approve the creation of the company. (Diapositive)

FR3 (Voiceover) : How quickly can we expect to set up the company?

FR1 : The registration process is simple. If you choose a Limited Company status, it can be done online and is effective within 24 hours. The time taken to set up a company in England is 13 days, compared with an average of 32 days in Europe. All that remains is to wait for the final validation and the company is launched!

Transcript (Spoken)

FR1 Well, my part is about, to know, what kind of company is best suit for your project. So, I present what it's a limited company, to protect your best interest and also to have a fiscality advantage-advantages and also I explain what it's takes to create a company, what are the formalities, the cost and how much time it takes

- 44 This final example suggests that, in order to be better understood, the legal English students would summarize, use synonyms wherever necessary and explain key legal concepts in plain English to their Spanish counterparts. Having access to a text that had already been drafted out by them seems to have been useful. Moreover, since the students had themselves steered their research, they were better equipped to talk about their “parts”.
- 45 Language errors and gallicisation accompany the short monologues as would probably also take place in any other form of conversation which required learners to improvise and provide spontaneous answers. Finally, a notable feature illustrated through this example is the student FR1’s attempt at posturing. We can note the structures “best suit for your project” and “to protect your best interest”, which seem to demonstrate the student’s attempt at stepping into a lawyer’s shoes and giving legal counsel.

Conclusion

- 46 Lawyer-client consultation has already been identified as a genre (see Bhatia, 1987) that merits careful consideration. Simulating a lawyer-client consultation between students sharing the same first language may provide language practice but such practice lacks authenticity since there is no real need for them to use the second/foreign language. A multidisciplinary virtual exchange, where students interact with each other via videoconferencing and VR worlds has, in that respect, much to offer.
- 47 Given the exploratory nature of the study and limited, usable dataset, two questions were asked at the outset of the paper based on (1) the topics addressed during interactions in 2D and 3D and (2) the various features used by the students in both modes to make meaning.
- 48 The conversational topics chosen by the students were mostly related to the task at hand: Icebreakers to start conversations, asking questions and answering questions related to the task at hand. Curiously, most of the ESP topics broached during the exchanges were legal in nature. As for the 3D interactions, very few semiotic features

were utilized. The main resources that came in handy were the word-processing documents that had been shared and placed in full view in the 3D virtual room.

- 49 If we compare the two examples of 2D and 3D interactions showcased in this paper, we note that both examples show an attempt by legal English students at simplifying core legal constructs in plain English for their counterparts of business English. The 2D interaction is characterised by shorter structures, more directly posed questions and spontaneous answering of questions. On the other hand, the 3D interaction is characterised by relatively longer sentences in the form of short monologues with a seeming lack of real interaction. There is an attempt at summarizing on the part of the speakers, which seems to be prompted by access to pre-written texts. Moreover, there are fewer attempts at cutting in during interactions in 3D. This might be explained by the still-evolving technology that interferes with the smoothness of the conversation, a feature that seems to be sufficiently advanced with 2D videoconferencing tools that allow for almost seamless interactions.
- 50 Despite the limited sample size of the data, the aforementioned examples helped recognize learner needs that had not yet been identified by the researchers. For instance, it was found that synchronous interactions, albeit virtual, created spontaneous moments of interaction that had been unforeseen by the learners, forcing them to communicate in English *lingua franca* if they wished to understand and be understood by their Spanish counterparts. This cajoled learners out of their comfort zones, i.e., classrooms, where the teacher and the students generally share a common (first) language or the teacher provides essential scaffolding when communication is a challenge. It was also found that students had a hard time posing questions to their counterparts in spite of their self-attested B2 level of the language. The limited dataset explored for this paper has not allowed for an in-depth analysis of this issue and begs further study.
- 51 Finally, designing a situated task that is both appealing and useful from a professional standpoint may be challenging and time-consuming for the teacher/designer, as it was in this context. Nevertheless, it was this very feature that seems to have engaged learners, by affording the opportunity to be immersed in an almost life-like professional situation, making it, we hope, worth their while.

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APPENDIXES

Appendix A. Themes Evoked in 2D Interactions with Examples

A detailed distribution of the themes explored in 2D interactions have been provided below. The number of references noted in the corpus has been provided in column 4 and an example of the coded theme has been placed in column 5.

Themes	GR1	GR7	No. of references	An example of a discursive sequence
ESP themes	X	X	46	FR6: So, one information to add is that the patent is issued by the National Institute of Industrial Property in France, NIMP and it will give you the right to have a monopoly on the exploitation the exploitation of your invention SP4: Ah okay, okay
Organisational aspects	X	X	34	SP2 Have you already read the two documents that SP3 sent you? FR2: A little, yes
Getting to know one another	X	X	27	FR1: And do you do you have holidays? SP1: Holiday?

				SP2: Holiday, no no (laughter) unfortunately not FR2: Bon, okay.
Digital storytelling	X	X	20	FR3: Did you have some ideas for the digital story? Of things to, or pictures or video, things FR2 : acting? (laughter) SP1: you can just make your parts of the legal aspects of the company and then later we can maybe look with all of us where we can put it in our little video because we do a scene at the beach and then we talk about the product and maybe we can also talk about few legal aspects FR3: okay
Use of affordances of technological tools (incl. Spatial)	X	X	11	FR4: Where is it? SP5: It's not on your screen maybe? FR4: Yes, because we don't see it
Technical issues	X	X	9	SP1: Hello hello can you hear me? FR1: Yes hi FR2: Yes SP1: Perfect I couldn't hear you first but now I can hear you too, so
Social niceties	X	--	3	FR1: Okay, well, it was nice to meet you. SP1: Yeah, first meeting, nice to meet you

Appendix B. Themes Evoked in 3D Interactions with Examples

A detailed distribution of the themes explored in 3D interactions have been provided below. The number of references noted in the corpus has been provided in column 4 and an example of the coded theme has been placed in column 5.

Theme	GRI	GRT	N° of references	Textual transcript	3D image
Dialogic storytelling	X	X	21	An example of a textual disadvantage response: FR2 G24: Do you think the UK has attracted our script? Is it in the script? SP: no. Do you see it? ST1 J13: Yeah, yeah. SP2 J05: Yeah.	
Contextualization	X	X	22	FR2 G26: We will stand and make sure the and we're not in 190: there. ST1 G40: Perfect.	
Task design	X	X	12	FR2 G27: No, it's not a problem because, if you know, you can add your products in Britain. SP4 G28: Okay, okay.	
Tactical focus	X	X	8	FR2 G29: Okay, so SP5 is not here, right? SP4 G32: Ah SP5, they can't see you, I don't know why, can you see you SP5? FR2 G33: He/she's not there (pointing).	
Use of multi-media: Spatial	X	X	6	FR1 B71: You'll see it in the video of you, I mean, England? FR2 B72: and... (pointing to the map). FR1 G73: (pointing to the map).	
Spatial context	X	X	7	SP1 M26: If you're not in Victoria, you're not here. FR2 J14: Oh yes, with Google. FR1 J17: And what are the reasons to France or the UK, in terms of the business? SP1 J24: And you should come to the beginning to study that.	
Impression on Spatial	X	X	2	FR1 J35: You need to have this virtual meeting. SP2 J36: You'll see this is also experience. SP1 J40: Yes, yes, you already. FR2 J35: Oh, yes.	
Comparing across cultures	X	X	2	SP1 G20: Can you see what we're doing? FR1 G29: You're going to France, right? FR1 G29: You're going to France, right?	

Appendix C. Comparison of Textual Transcript with Storytelling Script

Transcript (What was spoken)	Script on the screen (What would be read out)
<p>Turn 3 FR2 (5'57") For my part I speak about the advantages and inconvenience pros and cons to create a society in Great Britain because of the Brexit for example of fiscal abilities and yes I- my part is is about international society, ok?</p>	<p><i>Voiceover: What location would be favourable for the company? Where should the company's headquarters be in order to benefit from the advantages of geographical location?</i></p> <p>FR2: The UK is an advantageous place to set up a business in various areas. England is one a country where taxation is the most favourable to entrepreneurs. The corporate tax rate is much lower in England than in France. What's more, there are simplified procedures for setting up a business thanks to an administration that adopts a streamlined system of administration, taxation and law. The supply of venture capital is much more developed in England than in France. There are more business angles and seed funds to help entrepreneurs finance their projects. Investors seem to be interested only in high-tech companies.</p> <p><i>Voiceover: And what about creative freedom in the UK?</i></p>

	<p><i>Will this environment be conducive to development?</i></p> <p>FR2: There is a great environment for company creation; England's various entrepreneurial strengths.</p> <p>UK is the second most innovative country after the US due to the quality of its research infrastructure. If you want to get started in this sector, it is one of the best places to establish your base.</p> <p>According to Transparency International, the UK is one of the most transparent countries in the world. This means that the UK offers a stable political environment, ideal for doing business.</p> <p>Voiceover: <i>Do we need to take into account the context of Brexit?</i></p> <p>FR2: The UK is a country of liberalism and competitiveness and there is a free interpretation of EU laws in the UK.</p> <p>In order to trade, the British must respect European standards, particularly in terms of social, environmental, and financial transparency. In concrete terms, this rule aims to avoid social, environmental or fiscal "dumping" and to preserve the basis for healthy competition.</p> <p>Voiceover: <i>How will it evolve?</i></p> <p>FR2: By April 2022, the two sides must develop new "trade agreements" to govern trade; However, a slowdown in overall activity may occur due to a lack of consumer confidence. In the longer term, Brexit could have consequences for the financial structure and taxation of companies.</p>
<p>Turn 5</p> <p>FR1 (6'24")</p> <p>My part is about to know what kind of company is best suit for your project. So I present what it's a limited company to protect your best interest and also to have a fiscality advantage- advantages and also I explain what it takes to create a company what are the formalities, the cost and how much time it takes</p>	<p>Voiceover: <i>If the company is located in the UK, what is the first thing to consider when setting up the company?</i></p> <p>FR1: The first thing to do is to choose the type of company. In the UK there are two types of companies, limited risk and unlimited risk. In our case, since the sunphone is a new product, the risks are high for the partners. It is better to choose a limited risk company because the debts will not affect the shareholders, only the company.</p> <p>Voiceover: <i>What are the steps to set up a limited liability company?</i></p> <p>FR1: Once the type of company has been chosen, there are a few administrative steps to be taken for the company to be legally recognised. The most important thing to do is to legally register the company with Company House. The name of the company, its address in the UK, are part of the</p>

	<p>details to be communicated.</p> <p>Voiceover: <i>How quickly can we expect to set up the company?</i></p> <p>FR1: The registration process is simple. If you choose a limited company status, it can be done online and is effective within 24 hours. The time taken to set up a company in England is 13 days, compared with an average of 32 days in Europe. All that remains is to wait for the final validation and the company is launched!</p>
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NOTES

1. An affordance is a relationship between the properties of an object and the capacities of the agent (user) that determine how the object could possibly be used (see Ciekanski et al., 2020).
2. Proprioception in physiology refers to “the unconscious perception of movement and spatial orientation arising from stimuli within the body itself, as well as by the semicircular canals of the inner ear”- Dictionary.com (<https://www.dictionary.com/browse/proprioception#>).
3. For the debate, see Colpaert (2020) for his editorial position paper with a response from O’Dowd (2021b).
4. It should be noted that O’Dowd considers telecollaboration to be a form (or model) of virtual exchange, whereas research on “telecollaboration” predates the notion of virtual exchange.
5. Look at Deacon & Miles (2022) for a case study on global mindedness or Sims (2022) for a case study on critical thinking and cultural intelligence.
6. See Case studies on Language for specific purposes contexts with tourism (Háhn & Radke, 2020), performing arts (Gorman, Kanninen, & Syrjä, 2020), and business (Koris & Vuylsteke, 2020) in Helm and Beavon (Eds.) (2020).
7. <https://www.spatial.io>
8. <https://lumivero.com/products/nvivo/>

ABSTRACTS

This paper seeks to underline the features of synchronous virtual exchange interactions that took place in English during an interdisciplinary transnational virtual exchange arranged between French and Spanish students in 2021. During their ten-week collaboration, twenty-two law students from the Université de Lorraine (France) and nineteen business English students from the Universitat de València (Spain) used their legal and business expertise in jointly creating a promotional video for a fictionally created start-up. A limited sample size of empirical qualitative data drawn from the transcripts of five synchronous exchanges were analysed at two levels for this study. The first level of analysis was thematic and revealed the different ESP (and other conversational) themes in both the 2D and 3D modes of interaction. The second level of analysis identified discursive sequences as the principal unit of analysis. This revealed that while a 3D environment can facilitate interaction by providing the tools learners need to summarize a

text orally and explain key ESP concepts in simple English, learners need to rely on their own language skills when it comes to interacting in 2D environments.

Cet article vise à souligner les caractéristiques des interactions d'une télécollaboration synchrone qui ont eu lieu en anglais lors d'un échange virtuel transnational interdisciplinaire organisé entre des étudiants français et espagnols en 2021. Au cours de leur collaboration de dix semaines, vingt-deux étudiants en droit de l'Université de Lorraine (France) et dix-neuf étudiants en anglais des affaires de l'Universitat de València (Espagne) ont utilisé leur expertise juridique et commerciale afin de créer une vidéo promotionnelle pour une start-up fictive. Un échantillon des données qualitatives tirées des transcriptions de cinq interactions synchrones a été analysé à deux niveaux. Le premier niveau d'analyse était thématique et a révélé les différents thèmes ESP (et autres thèmes conversationnels) dans les modes d'interaction 2D et 3D. Le deuxième niveau d'analyse a identifié les séquences discursives comme l'unité principale d'analyse, qui suggère qu'un environnement 3D pourrait faciliter l'interaction en fournissant les outils dont les apprenants ont besoin pour résumer un texte oralement et pour expliquer les concepts clés de l'anglais de spécialité dans un anglais simple. En revanche, les apprenants doivent compter sur leurs propres compétences linguistiques lorsqu'il s'agit d'interagir dans des environnements 2D.

INDEX

Keywords: English as lingua franca, English for specific purposes (ESP), legal English, virtual exchange, virtual reality

Mots-clés: anglais de spécialité, anglais juridique, anglais lingua franca, réalité virtuelle, télécollaboration

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