



IVY – INTERPRETING IN VIRTUAL REALITY

Project Deliverable 3.3

Conceptual Design

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1 Introduction

The IVY project aims to use the innovative features of a 3D virtual environment along with digital audiovisual content to create an educational resource for trainee interpreters and potential clients of interpreters, especially in business and community interpreting settings. This Deliverable outlines the pedagogical rationale and conceptual framework for this work.

The rise of global migration and multilingualism has fuelled the demand for professional business and community interpreters across a broad range of contexts and language combinations. Higher education programmes for business and community interpreting have emerged throughout Europe (Niska 2005), but they urgently need resources and self-study opportunities to alleviate pressure on teaching time while ensuring that trainee interpreters master an ever more diverse range of communication scenarios.

At the same time, there is a growing consensus that a client-side understanding of what is involved in working with an interpreter is crucial in many business and community interpreting settings, but efforts to train and educate potential clients of interpreters are scarce and normally separate from interpreter training (Friedman-Rhodes & Hale 2010, Kalet *et al.* 2002, Kolstad Zehou & Fiva 2010, Marion *et al.* 2008, McCaffrey 2000).

Available resources for interpreter training include digital audiovisual content (electronic corpora of spoken language) and computer-assisted interpreter training packages, but they are mostly geared towards conference interpreting. Moreover, they only address trainee interpreters but not those who need to work with interpreters. An emerging tendency in the education of interpreters and their potential clients especially in business and community settings is role play simulation to simulate professional practice as realistically as possible and to help the trainees to contextualise the resources they use.

It is against this background that the IVY project set out to use the innovative features of an avatar-based 3D virtual environment to simulate professional practice in business and community interpreting for educational and training purposes. Research into the pedagogical value of virtual worlds conducted to date has taken place across a range of different disciplines (e.g. medical education, psychology, law, language learning) for many different types of learners, including primary schools, secondary schools, higher education, professional training, and continuing professional development. This research has yielded positive results.

The IVY virtual environment will support the training of interpreters and their potential clients in HE (e.g. students from subjects such as law and medicine), vocational training and adult learning contexts. It will provide a novel platform for presenting digital audiovisual content as well as enabling live activity in the context of interpreter training. Trainee interpreters will be able to practise interpreting, whilst their potential clients (e.g. HE students from subjects such as law and medicine and adult learners) can observe interpreting practice and learn how to work with an interpreter. Both user groups can also interact live.

The IVY virtual environment will include a range of virtual scenarios for the simulation of interpreting situations (e.g. a meeting room, lecture hall, community centre) and will be populated with digital content (spoken source language material, i.e. dialogues and monologues/presentations, and pedagogical material, i.e. learning activities).

Based on the tasks in work packages 3.1, 3.2 and 3.3, and drawing on the outcomes of Deliverables 3.1 and 3.2, this Deliverable aims to outline the conceptual framework that will be used in the IVY solution. It identifies relevant interpreting scenarios and provides the basis for developing the system components, contents and activities in work packages 4 and 5. It was highlighted in D3.1 that much of the research that has been carried out into using virtual environments for learning purposes has shown that the technology has often led the pedagogy. The present Deliverable aims to show how the pedagogical approach taken in the IVY project informs the conceptual design of the virtual environment. The solutions that will be implemented in the design of the IVY virtual environment are based on clear pedagogical reasoning with the needs of the end user in mind.

Chapter 2 of this deliverable discusses the pedagogical background and rationale for the IVY project. It gives an overview of available resources for interpreter training before outlining the potential benefits and challenges of using a 3D virtual world in interpreter training and describing the audiovisual content on which the IVY project builds to populate the 3D virtual environment. Sections 3, 4 and 5 discuss the various requirements for the IVY solution with regard to the virtual environment, pedagogic content and user access respectively. Chapter 6 concludes the deliverable by highlighting the key points for further development in project IVY.

2 Background

In interpreting practice, the increasing differentiation of disciplines has turned the spotlight on fields of interpreting that were hitherto often seen as the ‘ugly ducklings’ of interpreting. These fields include business interpreting and community interpreting in a broad range of contexts and language combinations. The training of future interpreters in these fields (and the professional development or re-training of practising interpreters from other fields) is currently impeded by a dearth of training resources and opportunities. At the same time, business and community interpreting settings make it particularly obvious that an interpreter can only work professionally if there is a client-side understanding of his/her work. Training initiatives in business and community interpreting therefore need to focus on methodological approaches that provide appropriate resources as well as bringing interpreters and their potential clients closer together. This insight was at the inception of the IVY project and provides the pedagogical rationale for it. The approach adopted in IVY – i.e. the use of a 3D virtual environment which is populated with digital audiovisual content to simulate professional interpreting practice – builds on several strands of development, which will be outlined in this chapter. Section 2.1 discusses available resources for interpreter training with a view to the requirements for business and community interpreting. Section 2.2 outlines the potential benefits and challenges of using a 3D virtual environment to overcome prevailing problems in the provision of training resources for interpreters and their clients. Section 2.3 describes the audiovisual corpora of spoken language on which the IVY project builds to populate the 3D virtual environment.

2.1 Resources for business and community interpreter training

Due to the long-standing focus of interpreter training on conference interpreting, available pedagogical resources are often of limited benefit for training in business and community interpreting. The EU speech repository,¹ for example, a well established e-learning resource for trainee interpreters, provided by the DG Interpreting with contributions from all European Institutions, understandably focuses on material that is most beneficial for the training in conference interpreting as required by these institutions. The SIMON (Shared Interpreting Materials Online) collection for interpreter trainers at the Ecole de Traduction et d’Interprétation in Geneva has been a similar initiative, albeit with restricted access (Seeber 2006). A more recent effort to provide open-access training material is the ORCIT website (Online Resources for Conference Interpreter Training).² In addition to source text material, it offers interactive tools for trainers and students but is targeted at conference interpreting as well.

¹ <http://www.multilingualspeeches.tv/scic/portal/index.html>

² <http://www.orcit.eu>

Different in its aims and composition but geared towards the same group of trainees, the European Parliament Interpreting Corpus (EPIC)³ includes speeches from the European Parliament and their simultaneous interpretations covering English, Italian and Spanish. The subcorpora (source and target texts) have been aligned and annotated for interpreting research purposes and possible pedagogical applications (Bendazzoli / Sandrelli 2005).

Other developments in interpreter training include computer-assisted interpreter training (CAIT) tools (for overviews see Berber 2008 and Sandrelli / de Manuel Jerez 2007), although these are, once again, mostly geared towards conference interpreting. One exception is *Black Box 3.0*, an authoring tool which enables interpreter trainers “to create exercises to train students in all interpreting modes, i.e. simultaneous, consecutive and liaison interpreting, as well as sight translation” (Sandrelli / de Manuel Jerez 2007: 289).

Authoring tools open up interesting opportunities for supporting interpreter training, but a prerequisite for using them, i.e. filling them with content, would seem to be a good and pedagogically viable collection or corpus of resources, which is what is missing for the area of business and community interpreting. The material collections mentioned above, and especially the EPIC corpus, demonstrate that corpus-based approaches to interpreter training are potentially very useful. However, as said above, they are geared towards conference interpreting. Equally important, research in ‘Applied Corpus Linguistics’, especially in the field of corpus-based language learning, suggests that corpus-based approaches developed for (linguistic) research purposes require adaptation in order to use the full pedagogical potential of corpora (Braun 2005, 2007, 2010; McEnery / Wilson 1997a, b; Mishan 2004; Campoy / Luzón 2007; Kohn / Hoffstaedter / Widmann 2010; Kohn 2012). This concerns the content of the corpora as much as the requirements for the presentation and retrieval of information.

Whilst the work with genuine source text material, e.g. speeches that have been interpreted for real-life purposes, is clearly a valuable exercise, not all such speeches may lend themselves to classroom practice (or self-study). It may be difficult for a student to re-contextualise them, i.e. there may be problems with what Widdowson (2003: 66-7, 93ff.) has referred to as ‘authentication’. A pedagogically viable corpus of resources should therefore follow pedagogically motivated criteria for material selection and also presentation. In terms of material selection, the resources required for business and community interpreter training are often bilingual dialogues, which are at the heart of many interpreter-mediated business and public service encounters, short monologues and/or presentations. For practical reasons, it would also be useful to include material with a greater lifetime than e.g. many political speeches. The collection of such material can be challenging, especially bilingual material. Equally important, once a suitable corpus has been collected, the question arises of how to best present and use this material in the context of interpreter training, bearing in mind that

³ <http://dev.sslmit.unibo.it/corpora/corporaproject.php?path=E.P.I.C.>

traditional ways of retrieving and presenting corpus data, e.g. in the form of concordances or word lists (for the purposes of linguistic research), would be of limited use in an interpreter training context. As a minimum requirement, the use of audio and video corpora seems to be in order in an interpreter training context.

Hansen and Shlesinger (2007) describe an initiative of video-based interpreter training at the Copenhagen Business School. This initiative has produced a series of video clips in which tutors and others perform monologues and bilingual role-play dialogues. The material is given to students to practice in their own time. The initiative has yielded very positive outcomes. Student feedback was reported to be “overwhelmingly positive” (Hansen & Shlesinger 2007: 110). At the same time, student performance improved dramatically after the materials were made available with exam pass rates of 97% and above in two subsequent years after the introduction of this resource. Hansen and Shlesinger also report increased motivation among students to practise because of the availability of self-study materials. The detailed results of this initiative as well as its design and methodology – including e.g. the way in which the video material is presented to the students, the instructions given to students and the methods of assessment used to gauge learning success – provide one of the most valuable types of input for the design for the IVY project and has informed the design of the IVY environment in several ways. What makes the practicalities of this initiative particularly interesting is that along with the recorded video materials, students were also given a range of additional materials including background documents, written texts for sight translation, PowerPoint presentations, glossaries as well as tasks and exercises; that the initiative focused on consecutive interpreting; and that the presentation of the video clips gave students the option “of applying self-spaced short consecutive; i.e. pausing to interpret at intervals of their choice, rather than working with pre-determined segments” (Hansen & Shlesinger 2007: 105-6).

The creation of such repositories, especially when video clips are involved and when several language combinations have to be covered, is resource-intensive. The main idea underlying the IVY project was therefore to re-use audiovisual material from available spoken corpora, especially from corpora that had been developed previously with pedagogical purposes in mind (see section 2.3), and to use a learning environment in which the audiovisual material can be presented more flexibly than in a video clip. Equally important, the IVY environment has to be capable of integrating different sets of activities – built around the audiovisual content – to cover the needs of different user groups.

2.2 Educational uses of 3D environment technology

For over a decade, 3D virtual environments have been used successfully for educational purposes. Applications range from relatively simple virtual lecture halls to game-based learning and complex simulations, and they cover different domains and educational sectors (see e.g. Calongne 2008, Joseph

2007). The use of 3D virtual worlds in education has been spurred on by the fact that 3D virtual environment technology has matured in the last decade. Especially the use of avatar-based environments in which users can create their own virtual representation of themselves, and interact live with others, using text or voice chat, has become popular in educational settings to support distance learning.

The problem with more traditional forms of distance and online learning has often been that they are not capable of recreating the sense of shared presence that traditional educational settings – in the classroom – rely on. Common e-learning platforms only provide limited support for features that contribute to creating this sense of presence, especially *scene setting*, *synchronous interaction* and *role-play simulation*. Despite its many apparent advantages, distance learning has therefore created problems with learner motivation and participation. Whilst it is widely believed today that the key to success lies in ‘blended learning’, combining distance and presence learning (see e.g. Kohn 2006 in a language learning context), the option of implementing a ‘blended learning’ solution may be limited in the case of some of the envisaged IVY user groups, especially in contexts of informal learning. Hence, a more effective distance learning solution is needed in the context of the IVY project.

The use of a three-dimensional immersive virtual world is likely to help overcome some of the problems with motivation and participation in distance learning because of “the use of avatars to represent class participants, and the sense of presence that puts learners within the scene” (Calongne 2008).

The opportunities for *synchronous communication and interaction* afforded by 3D environments have been shown to have a positive effect on the learning process (e.g. Konstantinou *et al.* 2009, Russo & Benson 2005). The idea of *scene setting* is of particular importance to training interpreters and future users of interpreting services: a 3D environment will allow both sets of learners to immerse themselves in a relevant interpreting situation and see the scene from different perspectives. Moreover, situation-based learning and *role play* is very important for interpreting and working with an interpreter. Approaches to training in working with an interpreter often include role play or similar to recreate the conditions of professional practice as far as possible (Friedman-Rhodes & Hale 2010, Kalet *et al.* 2002, Kolstad Zehouo & Fiva 2010, Marion *et al.* 2008, McCaffrey 2000).

3D worlds are not without problems. Prior research as well as the IVY focus group workshops with potential users suggest that the threshold for using them comfortably may be relatively high. Moscato & Moscato therefore note that it is very important to get the students to “buy in” to the whole learning process of learning in a virtual world platform” (2009: 93). Calongne (2008) emphasises that orientating the learners is an important initial step, and Salmon *et al.* recommend that “learning designers should avoid missing out on the critical ‘online socialisation’ stage” (2010: 181) and that the major aim for those who moderate virtual learning environments “should be to enable

each student to become comfortable in his or her avatar's identity" (2010: 181). Their research suggests that the learners need to be at ease in the new learning environment before being asked to work and learn in such an environment.

Interestingly, one of the interpreting tutors who participated in the focus group workshops (conducted in IVY to elicit early feedback from potential users) said that the students would be "unlikely to require much guidance and support" although the tutors would probably need some help. Given the outcome of our review of Best Practices, which showed that the learning curve in virtual environments is generally considered to be steep, the idea that students would not require much guidance or support is as surprising as it is encouraging.

Woods also disagrees with the argument that tutors and users have to be competent users of the software to benefit fully from the learning opportunities they offer, arguing instead that "the level of skills needed is directly related to the context and intended outcomes of the learning" (2010: 92).

Most of the studies conducted to date have indeed aimed to find out whether particular learning outcomes can be achieved in virtual worlds and what the challenges of learning and teaching in virtual worlds are. According to these studies, the answers to these questions are driven by the concrete shape and design of the environment, the content and the task learners are given. In a similar vein, Saleeb & Dafoulas (2010) carried out a study with students at Middlesex University (UK) to investigate the relationship between student satisfaction from 3D virtual learning environments and their individual design components and architectural features. Saleeb and Dafoulas's conclusion is that "architectural design elements of 3D educational facilities in 3D VLES have an impact on students" (2010: 86). The related and equally important question of whether learners learn better in virtual worlds has not been addressed.

Another challenge that is relevant to the IVY project is the types of learning activities that will be incorporated in the virtual environment. Moschini reports that educators using virtual environments often start with simple activities (2010: 33). However, given that the IVY environment is designed to provide simulated interpreting scenarios for the learners to use, it may not be possible to start with simple activities.

An equally important aspect is that studies to date have normally focused on students in a higher education environment. The IVY project addresses user groups across different educational sectors and will therefore have to pay attention to satisfying the needs of different groups, including groups who may be less amenable to novel learning experiences than HE students.

The questions arising are therefore questions of design, which IVY will address by using virtual scenarios that represent real-life interpreting situations; questions of learner familiarisation and support, i.e. how much time it will take to show the users the software, how this could best be achieved,

how the learners can be trained to a sufficiently competent level, and how their interest and motivation can subsequently be maintained; and questions of the appropriateness of the learning content and the learning activities in relation to both the environment and the envisaged users. This last point will be further elaborated in the next section.

2.3 Pedagogic corpora of spoken language

The IVY project is mainly geared towards business and community interpreting, covering primarily dyadic and interactive communicative situations in which short consecutive and liaison interpreting are required. The focus of the content development in IVY will therefore be on the creation of bilingual dialogues, short monologues such as presentations and semi-formal speeches, i.e. speech genres which are at the heart of many interpreter-mediated business and public service encounters.

From the point of view of the pedagogical design, the main question arising is how genuine or credible bilingual dialogues as well as appropriate monologues can be created and how they can then be used in the IVY virtual environment to simulate relevant interpreting situations. The availability of ready-made content – for both interpreting practice and learning about interpreting – in the virtual environment will be essential to make the environment interesting and stimulating for the users. As was pointed out in section 2.1, digital corpora, especially multimedia corpora, in principle have the potential to provide relevant learning content. IVY therefore builds on several corpus-based research and development initiatives, which were geared towards language learning and, to a certain extent, interpreter training.

An early initiative was the development of the ELISA corpus⁴ (English Language Interview Corpus as a Second-Language Application) in 2003/04, which was a small collection of video-recorded narrative interviews with speakers from different walks of life who gave accounts of their professional life, their career, educational background, future plans etc (Braun 2005). The interviews which constitute the ELISA corpus belong to the broad field of professional English. It includes speakers working in education, local politics, tourism, banking, environmental protection, sports and the media and in particular, a number of speakers with 'culture-embedded' careers. The aim of this corpus was to have a resource of spoken professional English, intended first and foremost for language learning purposes. The wider aim of the creation of the ELISA corpus was, however, to develop a methodological solution for the use of corpora in language learning and teaching, based on the observation that traditional corpora, created for linguistic research, were not necessarily appropriate for pedagogical purposes. The approach adopted a corpus design sensitive to pedagogical needs to facilitate the 'pedagogical mediation' (Widdowson 2003: 102-3) of the corpus, i.e. to support the learners in exploring the corpus.

⁴ <http://www.corpora4learning.net/elisa>

The ELISA corpus was a forerunner of the EU Lifelong Learning project BACKBONE (Corpora for Content and Language Integrated Learning, 2009-10; co-ordinator: University of Tübingen, Germany),⁵ which produced video interviews with native speakers of British and Irish English, French, German, Polish, Spanish and Turkish, as well as with non-native speakers of English (English as a Lingua Franca corpus). Apart from offering a wide range of pedagogical materials to support second language learning activities in secondary, higher and vocational education, the BACKBONE corpora were also accompanied by generic interpreting exercises that can be applied to any of the videos interviews in the BACKBONE corpora. This was a first step to use the corpora for interpreter training. In the IVY project, the BACKBONE and ELISA audiovisual content will form the core of the IVY content. In line with the materials needed in business and community contexts, relevant extracts from these corpora will be used as short monologues, and other extracts will be converted into bilingual dialogues by inserting question-turns into the BACKBONE and ELISA narrative interviews to obtain dialogues in different language pairs.

One important point is the use of such material, i.e. spoken corpora, in an educational context. There have been some attempts of integrating corpora in interpreter training (see also 2.1), but most of the current experience in corpus-based learning is derived from language learning contexts. In spite of the enthusiasm for the use of small and DIY corpora in language learning that began to emerge in the 1990s, following the rise of corpus linguistics in previous decades, empirical studies that applied corpora to the classroom have generated mixed results and have highlighted that the use of corpora for language training is not without problems, especially outside Higher Education contexts (Braun 2007, Kaltenböck & Mehlmauer-Larcher 2005).

It might be tempting to conclude from this that corpora are simply of limited use in language education. However, careful analysis of the reasons for the problems suggests that in order to turn corpora into a more effective and attractive resource for a wider range of users, and in particular for 'non-expert' users such as language learners or trainee interpreters, we may have to move away from, or beyond, 'classic' corpus-based activities. We may have to think of other ways of presenting corpora (to learners) and other tasks to foster their exploration. Multimedia corpora such as the BACKBONE and ELISE corpora open up a plethora of new opportunities here. When they are presented as part of a 3D virtual environment that allows users to interact with the material in a very different way, the pedagogical benefits could be very high.

This is the methodological challenge for the IVY project – bringing multimedia corpora together with 3D virtual environment technology to create a pedagogical resource that presents and visualizes the corpus data in an innovative pedagogically appropriate way, without a fear of leaving behind traditional methods of presenting corpus data.

⁵ <http://www.uni-tuebingen.de/backbone> and <http://purl.org/backbone/searchtool>

In the light of the educational experience with both corpora and virtual environments to date, it seems crucial not to get drawn into the traditional uses (linguistics and gaming respectively), but to exploit both corpora and virtual worlds in such a way that the specific aims of interpreter training are satisfied. One point that needs to be highlighted in this context is that the grounding of the IVY design – and interpreter training as such – in constructivist principles of learning is as important as in related areas of training, especially language training, where the importance of constructivist principles of learning has been highlighted for a long time (Rüschhoff & Wolff 1999; Kohn 2004, 2009). According to cognitive-constructivist learning theories, learning can only take place by constructing knowledge in the mind from appropriate learning content and learning activities. Clearly, this construction process involves exploration and a degree of autonomy to enable learners to use the pedagogical resources according to their learning style, preferences, prior knowledge, proficiency level etc.

Savin-Baden et al (2010) argue that “the literature on immersive worlds and e-learning to date largely indicates that technology has led the pedagogy” and that “in order for development to occur in these [virtual] environments there needs to be a stronger informing pedagogy” (2010: 123). It is anticipated that the new integration, presentation and visualization of corpus material in the 3D environment will open up new opportunities for learning in line with constructivist principles of pedagogy and that the merger of 3D environment technology and digital corpora (with relevant language content) will be an important step towards a pedagogy-driven approach.

As was pointed out above, the availability of ready-made pedagogical content will ensure that the environment is interesting and indeed relevant for the learning context. An equally important point will be an appropriate system for the classification and retrieval of content to help users find their way through the multitude of language combinations, types of content (monologue and dialogue), scenarios and levels of difficulty covered by IVY and to select content that is relevant for their learning needs. Last but not least, one development that has proved to be useful is the ‘pedagogical enrichment’ of corpus content with relevant learning activities to help learners exploit the corpus material in a systematic and relevant way (Braun 2007). This will form part and parcel of the IVY approach. It will help to make the IVY content accessible for different user groups with different/complementary needs.

The remaining sections of this report will outline the conceptual design of the IVY system in terms of the virtual environment (Chapter 3), the pedagogical content (Chapter 4) and the user access to the environment (Chapter 5).

3 The virtual environment for IVY

Research into the pedagogical value of virtual worlds conducted to date has taken place across a range of different disciplines for many different types of learners, including primary schools, secondary schools, higher education, professional training, and continuing professional development. A range of language teaching providers such as Avatar Languages (www.avatarlanguages.com) and Language Lab (www.languagelab.com), are offering language tuition in virtual worlds. International cultural institutions such as the Goethe Institute and the British Council also have presences in Second Life where language classes – ranging from very informal language learning opportunities to organised courses – are offered. The inclusion of voice chat in virtual worlds such as Second Life further increased the appeal for educational contexts, especially language-based subjects.

Our review of best practices has confirmed that there is a choice between different types of 3D virtual environments with different advantages and drawbacks for educational purposes. One of the first steps in the IVY project was therefore the selection of a virtual environment for this project. The rationale behind the decision to use the virtual world Second Life will be summarised in section 3.1. A crucial aspect of the IVY environment is to use a range of virtual interpreting scenarios to simulate interpreting situations such as business meetings, interview situations, educational interpreting, tourist settings, community centres etc., and to design four different working ‘modes’ (i.e. ways of using the environment and the scenarios). The main requirements for the virtual interpreting scenarios will be described in section 3.2. An overview of the working modes will be given in section 3.3.

3.1 Choice of the virtual environment for the IVY project

The literature review undertaken in the IVY project shows that of the available 3D virtual environments, those allowing multiple-user interaction with the environment through avatars are considered to be the most engaging environments for educational purposes. Of those environments, Second Life (SL) presented by Linden Lab Research (www.secondlife.com) appears to be the most suitable environment for the initial development in IVY for the following reasons:

- SL is a public-facing environment and well established for educational purposes, which means that there is useful educational experience with SL for the IVY design and development work to draw on.
- From a user’s point of view, SL presents a relatively rich environment, i.e. many social and educational activities are available to users, making it an attractive virtual space to be part of. Basic membership, i.e. the form of membership a student would need, is free of charge.
- From a developer’s point of view, SL comes with many features that support core aspects of the IVY environment and on which the development work can build, e.g. ready-made and modifiable buildings

and landscapes, robot-avatars, voice chat between users, streaming of audio and video files, links to websites and options for creating learning activities.

SL also has disadvantages: In January 2011, the owners of Second Life – Linden Lab – stopped offering discounted educational and non-profit pricing. The cost of virtual space is therefore relatively high, especially compared to the cost of running open source alternatives such as Open Simulator (OpenSim), an open source virtual environment platform that is based upon the SL architecture.

However, given the advantages of SL described above, this environment appears to be a good initial option and experimental space for the IVY development. Since SL objects can be transferred to an OpenSim environment, there is the option to transfer the IVY environment to an OpenSim environment at a later stage, once the components of this environment that have been specified.

The fact that SL is a public-facing environment raised one other issue at one of the focus group workshops. One tutor commented that the open-access nature of SL may entail a potential lack of privacy and security. These points will be addressed in the development and in the key decisions about how the IVY environment is to be accessed in the future (see also Chapter 5). One option is also to link access issues to communicative and ethical behaviour in interpreting contexts. This will be discussed further in section 3.3 (IVY working modes).

3.2 The virtual interpreting scenarios

One of the core components of the IVY environment are virtual scenarios that allow the simulation and observation of various interpreting situations. The core idea is that the scenarios will be populated with relevant objects as well as multilingual content as source text for the interpreting students) and with robots (to present the source texts) and avatars (interpreting students and/or interpreter clients). Since the user can move around in the scenarios (with their avatars), they allow more flexibility than a video clip produced for educational purposes. The user can view the scenario from different perspectives and interact with the content and/or with other users. Figure 1 below shows an initial meeting room scenario. As an exploratory exercise, it would, for example, be interesting for interpreter clients to discover the best position for the interpreter or to try out how much of the meeting they can 'see' from different positions in the room.



Figure 1: virtual interpreting scenario: meeting room

The IVY scenarios need to follow a number of criteria. Firstly and most important, the scenarios should present genuine and realistic settings in which an interpreter would work, with a focus on business and community interpreting. This criterion is important given the vocational nature of interpreter training and the fact that the IVY solution will be used by (future) users of interpreter services. Secondly, given that the main source of initial content for the IVY environment are the ELISA and BACKBONE corpora, the scenarios should reflect the content of these corpora. To create this coherence, the scenarios need to be developed in conjunction with the selection of the materials from the existing BACKBONE and ELISA corpora, which requires close cooperation between the partners involved in the development of the IVY virtual environment and the pedagogic content. Thirdly, the scenarios need to strike a balance between being generic enough to be used with a number of different materials and being specific enough to provide authentic settings for the materials, and between being culture/country specific and reusable for presenting material in several languages or language combinations. This is important with a view to the sustainability of the environment after the end of the project lifetime.

To fulfil these criteria, the IVY project has identified and will implement a core of 10 to 15 scenarios representing situations that are relevant for business and community interpreting and that match the BACKBONE and ELISA content (and the content of the new corpora, which will be similar to BACKBONE and ELISA). These scenarios will be further customised through options where applicable (rather than creating a larger number of scenarios). The focus will be on the essential components and functionality of the virtual scenarios, i.e. the components and functions that support the use of the IVY environment in an interpreter/client training context. The look and feel of the scenarios will be kept neutral. Specific issues such as culture-specific features of a particular scenario and cross-cultural differences (e.g. the layouts of

courtrooms in different countries) can be addressed through awareness-raising activities and discussion.

Based on the above criteria, the following 11 scenarios have so far been defined:

1. meeting room/office
2. tourist office
3. classroom
4. outdoor
5. sports ground
6. shop
7. workshop space
8. community centre
9. medical setting
10. presentation area
11. court room

This approach will allow similar dialogues to be situated in the same virtual scenario. Table 1 below shows the English material that has been selected from BACKBONE and ELISA for creating bilingual dialogues.

Content (from BACKBONE/ ELISA corpora)	Domain	Scenario in SL	Options for scenario
Audio description (informative interview)	Arts, Education, Travel	Meeting room/office	
Bookshop (informative interview)	Business, Politics, Industry	Meeting room/office	
Fairtrade (discussion)	Business, Politics, Industry	Meeting room/office	
Web designer (discussion)	Business, Politics, Industry	Meeting room/office	
Creative writing (discussion - publishing)	Business, Politics, Industry	Meeting room/office	
Interview web design company (interview)	Business, Politics, Industry	Meeting room/office	
Travel publicity person (ELISA) (interview)	Arts, Education, Travel	Tourist office	
Primary school (informative interview)	Arts, Education, Travel	Classroom	primary/secondary school/kindergarten
Arts school (informative interview)	Arts, Education, Travel	Classroom	primary/secondary school/kindergarten
Birmingham (informative interview)	Business, Politics, Industry	Outdoor	A cityscape
Bishopswood Centre (ELISA); environmental education centre (informative interview)	Arts, Education, Travel	Outdoor	A generic landscape with forest and lake

Wine production (informative interview)	Arts, Education, Travel	Outdoor	A generic landscape with forest and lake
Camogie (informative interview)	Sports	Sports ground	
Gaelic football (informative interview)	Sports	Sports ground	
Jewellery salesperson (informative interview)	Business, Politics, Industry	Shop	jewellery shop
Community dietician (discussion)	Community and Healthcare	Community centre	
Arts therapist (ELISA) (discussion)	Community and Healthcare	Community centre	
Traveller Community II (informative interview)	Community and Healthcare	Community centre	
Nursing home (informative interview)	Community and Healthcare	Medical setting	
Baby unit (informative interview)	Community and Healthcare	Medical setting	

Table 1: Scenarios for English materials (here for dialogues based on English answers, see section 4.1).

It became apparent, however, that it will in some cases be necessary to tailor these scenarios further to the content. The “classroom” scenario, for example, could be further tailored to the material content by using the same basic classroom design but customising it into either a primary school environment or a university teaching room or a seminar room, for example. Customising the scenarios in this way is an example of how the affordances of the virtual environment can be exploited and how maximal realism can be achieved for the materials.

The scenarios and options will be linked to the individual materials to ensure that when the user selects a particular monologue or dialogue the appropriate customised scenario will be loaded in the virtual environment. This solution was felt to be preferable to the user’s having to select a scenario and the material separately.

3.3 The IVY working modes

The virtual interpreting scenarios describe above can be run in different modes: ‘interpreting practice’, ‘exploration’, ‘learning activity’ and ‘live interaction’. This is to cater for different activities and, above all, for the different target groups that IVY addresses.

The aim of the ‘**interpreting practice**’ mode is to provide interpreting students with access to role plays in a chosen scenario and in a chosen language or language pair in order to support the practice of interpreting with the multilingual content developed in IVY (see section 4.1). The scenarios on offer are the scenarios described above, provided that there is any content for the student’s chosen source language or language pair available. The

scenarios will be filled with spatial objects (rooms, furniture, backgrounds etc) and robot avatars. The audio content from the corpora will be projected onto these robots to simulate a monologue or a dialogue. As pointed out above, the users should not have to choose the situation and the virtual scenario separately. Rather the interpreting students will be able to select a monologue and dialogue situation, based on a brief description (see also Chapter 5). This will activate the associated virtual scenario and allow the interpreting students to participate in it with their avatars in order to practise consecutive and liaison interpreting. The other IVY groups can join such simulations to observe interpreting practice.

The **‘exploration’** mode addresses novice interpreters and clients of interpreters alike. The aim of this mode is to offer users an induction to interpreting in a chosen scenario (e.g. linguistic, cultural, ethical and practical issues). The exploration mode uses the scenarios defined above but enriched with support material to give information about the role, task and skills of an interpreter. The mode will use guidance notes, interactive panels and demo video clips (e.g. of good and bad practice). Although it is mainly towards the clients of interpreters, it can also be used in introductory interpreting modules, e.g. at undergraduate level. The focus is on observation, exploration and acquisition of knowledge about interpreting.

The **‘learning activity’** mode is for both target groups. It aims to provide interpreting students with audiovisual content to practise individual skills that are required for interpreting (e.g. listening comprehension, identifying ideas, memory training, note-taking), while enabling clients of interpreting services to access awareness-raising exercises and opportunities to acquire knowledge about interpreting. The learning activities for trainee interpreters will build on the generic interpreting exercises developed in the LLP project BACKBONE and will use the BACKBONE corpus search website to give students access to the original video corpora (and transcripts) underlying the IVY content. To create a close link between the IVY environment and the corpora used in IVY (BACKBONE, ELISA and the new corpora), all corpora will be integrated into the BACKBONE corpus website. Furthermore, the BACKBONE annotation and search interface will be adapted to the needs of interpreter training. For example, an annotation based on source-text related interpreting difficulties will be implemented. This will allow interpreting students and teachers to select extracts from the corpora which share similar difficulties, and to practise systematically with those extracts. The learning activity mode will include tasks and exercises that encourage students to use the search interface (see also section 4.2). Another strand of activities in this mode will cover the role of an interpreter and practical and ethical issues involved in interpreting (ranging from the interpreter’s impartiality to dealing with clients, seating position during an assignment, dress code etc.)

Finally, the **‘live interaction’** mode provides a virtual space where interpreting students and their “clients” can work and learn together in joint practice. In other words, the aim of the live interaction mode is to use the scenarios without the IVY content in order to practise live in the virtual space. For

example, a business management student can give a presentation in one language, and an interpreting student can render this into another language.

What follows from the above is that users are likely to switch between working modes. For example, an interpreting student may start off in the interpreting practice mode and select an interpreting scenario, read its description, but then realise that s/he has to do more preparation work on the given scenario, and switches to the learning activity mode. This point, which is related to how the user accesses the environment, will be taken up in section 5.2.

4 The pedagogic content for IVY

As was pointed out in section 2.3, due to the focus of the IVY project on business and community interpreting, the availability of dyadic and interactive communicative situations for the practice of short consecutive and liaison interpreting and learning about the role of the interpreter in such situations where the interpreter is a very 'visible' participant in the communication is crucial in the IVY context.

As was explained in section 2.3, the IVY project therefore uses material from the ELISA and BACKBONE corpora and similar new corpora for additional languages created in IVY. These corpora are well suited to create content for the purposes of interpreter training but adaptation is required e.g. to produce bilingual material for dyadic communication situations. The adaptation will be described in section 4.1. As was also pointed above, research has shown that the use of corpora in pedagogical contexts is more effective when the corpora are accompanied by learning activities that help learners to explore the corpora ('pedagogic enrichment'). The approach taken in IVY to learning activities will be discussed in section 4.2.

4.1 Monologues and dialogues

The selection of interviews from the existing BACKBONE corpora (English, French, German and Polish), the ELISA corpus (English) and similar new corpora (for Greek, Hebrew and Russian) will be motivated by the fact that these corpora can be adapted to a realistic interpreting situation. The decision was backed up by a focus group with students on the MA Business Translation with Interpreting programme at the University of Surrey. These students were familiar with the BACKBONE interviews and were able to identify those that they felt would be useful and productive resources in the new IVY environment.

The speech in the BACKBONE and ELISA corpora (and the new IVY corpora) is best characterised as elicited and thematically focussed speech. This makes these corpora different from a number of other spoken corpora which have been collected for different purposes and (partially) contain unplanned spontaneous conversations. Understanding them is highly dependent on the immediate situational context and/or on a high degree of familiarity with the conversational interlocutors. They cover situations which are not necessarily characteristic for the situations interpreters encounter. The interviews in the IVY-related corpora rely on different types of contexts and knowledge, in particular on the wider cultural and professional context and related background knowledge, which is highly relevant for most interpreting students.

The approach to creating the **monologues** will be to select and edit extracts from the existing interviews. This will, for example, entail editing out the short prompter questions that were asked in the original narrative BACKBONE/ELISA interviews. The editing process requires a coherence check to make sure that the answers to those prompter questions can stand by themselves, i.e. that they make sense without the questions. TO avoid coherence problems in the

new IVY corpora, the partners creating the new corpora for Greek, Hebrew and Russian will be advised, for example, to make sure that the speakers in their interviews do not use pronominal or deictic reference in response to a question. Interviews that are relevant in terms of topic but that cannot be turned into a monologue will be converted into a dialogue.

Apart from that, the bilingual **dialogues** will be created by selecting extracts that lend themselves to ‘interactivity’. To convert the extracts into dialogues, they are first divided into suitable turns, and then questions in the project languages are scripted and inserted. The language pairs that will be covered in IVY were decided at the beginning of the project according to the educational needs in the partner institutions (see Figure 1). Effectively, the questions will first be scripted in a ‘master-language’ or template (English in most cases, see column three of the table) and then translated into all relevant question-languages. For any English base text, there will thus be one set of questions, which will be made available in French, German, Greek, Hebrew, Polish and Russian in order to create a FR-EN, GE-EN, GR-EN, HE-EN, PL-EN and RU-EN dialogue (with English as the answer-language). Similarly, as shown in Figure 1, for each Polish base text, there will have a set of questions that is available in English, French, German and Russian questions to form EN-PL, FR-PL, GE-PL and RU-PL dialogues (with the answer-language being Polish).

CORPUS language	Selection of material from corpus, scripting of dialogue questions	DIALOGUE language								
		EN: SUR (template)	SUR	GE: StC	PL: UAM	GR: UCY	EL: BL	RU/AR: BL	FR: SUR	
ENGLISH	SUR	EN: SUR (template)	SUR	GE: StC	PL: UAM	GR: UCY	EL: BL	RU/AR: BL	FR: SUR	
GERMAN	StC	EN: SUR (template)	SUR		PL: UAM	GR: UCY				
POLISH	UAM	EN: UAM (template) ->	SUR	GE: StC				RU/AR: BL	FR: SUR	
GREEK	UCY	EN: UCY (template) ->	SUR	GE: StC				RU/AR: BL	FR: SUR	
HEBREW	BL	EN: BL (template) ?->	SUR					RU/AR: BL	FR: SUR	
RU/AR	BL	EN: BL (template) ?->	SUR		PL: UAM	GR: UCY	EL: BL			
FRENCH	SUR	EN: SUR (template)	SUR		PL: UAM	GR: UCY	EL: BL			

Figure 2: Creation of bilingual dialogues in IVY

From the corpus material it is clear, that the original interviews lend themselves to different genres of monologue and dialogue. For example, some of the material that is suitable for a monologue could be used for a presentation, whilst other material may provide the basis for a short welcome speech or an explanation etc. Dialogue genres may include informative interview, job interview, discussion and others.

Another point to be addressed is the length of turns or sections in both the monologues and the dialogues. The dialogues and monologues will be divided up into turns or sections that could serve as the basis for interpreting practice. The length of a turn is therefore a crucial issue to explore and determine. The underlying assumption is that the users (in this case an interpreting students) will listen to a complete turn, then interpret it and continue playing the next turn at their own initiative. The outcomes of the pedagogical evaluation in the LLP project BACKBONE suggest that the students would prefer this to having to pause the audio/video file in order to interpret (but see section 5.3).

One factor that needs to be taken into account when dividing up the monologues and dialogues is the actual content of the material (complexity of the subject matter), its lexical and grammatical density, the amount of dates or figures it includes and similar features. A passage of text that has a particularly complex idea or a lot of terminology in it would probably be split into shorter segments, because the assumption would be that the interpreter would intervene in order to get the floor and interpret. A passage of text which contains a lot of fillers or expresses the same idea in different ways would be split into longer sections because the interpreter would have time to extract the key ideas.

A further consideration is that the different partners in the IVY project have different requirements for their interpreting classes and examination requirements (short and long consecutive), and it is with these partners that the IVY solution will be tested and assessed in the first instance. One way to maximise the resources would be to create two monologues or dialogues from one original interview. Another way to do so would be to have the option of listening to a monologue in full before interpreting. This would provide students with the opportunity to practise with passages of 6-10 minutes, as required in classic consecutive interpreting. The different playback options will be further discussed in section 5.2.

In the dialogues, a further relevant aspect is the order of turns. In natural dialogue, interlocutors take turns irregularly, and it is possible that one speaker has two sequential turns, for example when one speaker completes one thought or idea but then carries on talking. To simulate such situations, the order of turns in the IVY dialogues will be flexible (e.g. ABBABAA, etc.). The only restriction that was agreed upon is that at present, a dialogue will have no more than two speakers.

Interpreting assignments do not take place in a vacuum. The monologues and dialogues will be embedded in communicative situations, which the users of the material will need to access beforehand to prepare for an interpreting assignment. The way in which this will be made available in the IVY environment will be described in Chapter 5. The other way of ensuring that the monologue and dialogue materials are contextualised is to enrich them with learning activities to make sure that the users get the most out of the virtual scenarios and the content. Moreover, the learning activities pay particular

attention to the needs of the interpreter client target group. The rationale behind the target group is the focus of the next section.

4.2 Pedagogical enrichment through learning activities

The idea of pedagogic enrichment is derived from the insight that learners normally require guidance and assistance in the use of genuine, corpus-based resources. Given the research into educational uses of virtual worlds (see section 2.2), the same assumption can be made with regard to the IVY environment. Enriching the IVY environment with additional materials which are relevant for an interpreting context, whether from the interpreter's or the client's perspective, can be seen as a major step towards the 'pedagogic mediation' of the IVY environment. Moreover, it is in line with constructivist requests for a rich learning environment. Broadly speaking, pedagogic enrichment should help learners to contextualise the content and situation they work with.

In the area of using corpora for educational purposes it has been argued that one type of enrichment which fulfils a multitude of purposes is the inclusion of audiovisual materials into the corpus. In the IVY 3D virtual environment the pedagogic content is already embedded in a visually/graphically rich environment (see also section 3.1), which should support the contextualisation. Therefore the addition of further audiovisual material, especially the streaming of video clips into this environment has to be done carefully to make sure that the users of such an environment do not get overwhelmed by it.

Many spoken corpora also include transcripts of the spoken record. In the context of language learning, for example, it can be argued that a transcript helps learners grasp the meaning of the text they deal with. However, the IVY consortium decided not to include transcripts in the 3D environment, as it was felt that this would better simulate real-life conditions of business and community interpreting where speech scripts are not normally available upfront.

The most important type of enrichment is the inclusion of two sets of learning activities, one for trainee interpreters and one for their (potential) clients. The activities for potential clients of interpreters will focus on awareness-raising and opportunities to acquire knowledge about interpreting. They will be based on selected interpreting scenarios and will use demo videos where appropriate (but see above) and/or role play to simulate professional practice, to demonstrate good and bad practice in working with an interpreter and to help the trainees to contextualise the knowledge they acquire. As was pointed out in section 2.2), role play simulations are also used in many of the scarce initiatives to educate the clients of interpreters. What needs to be further explored is whether the different target groups within the "interpreter's client" group (i.e. students in Higher Education, vocational training and adult learners) will require different types of learning activity.

The set of activities addressing the interpreting students provides the students with an opportunity to practice and develop the individual skills that are required for consecutive and liaison interpreting in business and community contexts. These include, for example, listening comprehension, identifying ideas, memory training, note-taking, public speaking and others. The learning activities will also support the preparation of an interpreting assignment (e.g. retrieval of appropriate subject knowledge as well as linguistic/terminological retrieval).

Some of the learning activities – especially those that are geared towards preparation – will take the interpreting students to the existing BACKBONE and ELISA corpora or the new IVY corpora, for example to research words, terms and phrases in a systematic way, to study the communicative behaviours of a particular speaker or to explore a specific interpreting problem. To this end, the ELISA corpus and the new IVY corpora will be integrated into the BACKBONE corpus website, and the BACKBONE annotation and search interface, which were originally geared towards language learning, will be expanded and adapted to enable the retrieval of video and audio content and transcripts in line with the requirements of interpreter training. This will mean that the learners will have access to a combination of digital audiovisual corpora and the 3D virtual environment, thereby maximising the flexibility of both learning opportunities. Students will, for example, be able to use the BACKBONE website in order to retrieve, watch and analyse a series of videos that are relevant for a particular topic and prepare this topic e.g. by using the available corpus query options to research terms and phrases. They will then be ready to enter the 3D environment, where they can call up a 3D simulation of a situation that uses a monologue or bilingual dialogue based on one of the corpus videos, and practice interpreting.

The interpreting students are thus likely to encounter different versions of a situation – the original corpus video in the learning activity mode and the edited version of it (adapted as a monologue or dialogue) in the interpreting practice mode. This is in line with professional interpreting practice where the interpreter may know the client and may have access to similar situations involving the same client.

5 User access to the IVY environment

The final chapter of this report is devoted to the question of how the users of IVY will act and move in the virtual world in order to get access to the modes, scenarios, pedagogic content and enrichment materials they want to work with. One aspect of user access concerns privacy and security. As was reported in section 3.1, some of the participants in the focus group workshops were concerned about the security of the users of the IVY environment. For the time being, access to the IVY Second Life island will be restricted to members of the consortium and those who participate in the evaluation. In the long run, permission restrictions can be implemented to exclude non-members from the virtual scenarios to provide a higher level of security. Other aspects of access relate to user guidance in the virtual world (this will be discussed in section 5.1), navigation in the environment (section 5.2) and the use of the environment or scenarios by concurrent users (section 5.3).

5.1 Guidance in the virtual environment

One type of guidance was discussed in section 4.2 in terms of pedagogic enrichment, which aims to help the users to maximise their learning in the IVY environment. However, guidance is also necessary for using the virtual environment itself because research has shown that it is easy for learners working in section a virtual world to become overwhelmed by the by the options that are available to them and that this can distract from the learning task at hand (see e.g. Carr *et al.* 2010, Sanchez 2007, Woods 2010; see also Tymczynska 2009 for a similar observation in relation to the use of a web-based platform for interpreter training). It is therefore essential for access to, and navigation within, the virtual environment to be as clear and as straightforward for the user as possible. To this end, the IVY environment in Second Life will offer different levels of support for different user groups and purposes.

Building on the discussion in section 2.2, it should be clear that a user who enters Second Life and the IVY environment for the first time will normally need a certain amount of induction. Although opinions on how much induction is needed vary, and the required level of support certainly depends on a variety of factors (prior experience, the actual task at hand etc.), the specifics of Second Life and the aims and purpose of IVY will need to be explained to an extent that allows IVY users to operate in the environment without getting distracted by technicalities.

Access to the IVY Second Life island will be through the IVY website (via SLurl). Upon entering the IVY Second Life island the user will arrive in a reception and orientation area where s/he will – among other things – have the following options:

- Visiting an exhibition about the aims of project IVY
- Doing a short tutorial on Second Life (many such tutorial are available in-world and can be displayed on the IVY island)
- Doing a tutorial about the IVY environment (working modes, content)

Each of these options will be realised through exhibition-style display of panels such as PowerPoint screens or video clips or a combination, similar to the exhibition area shown in Figure 3.



Figure 3: Exhibition area in Second Life (Bangor University)

One of the questions arising is how the user can best be directed to these areas, i.e. whether they should be encouraged to ‘walk’ or whether they should be teleported to the different reception areas. Whilst walking in SL is difficult for novice users, the different types of reception areas could be used to help users get familiar with SL. This could be achieved by placing the three areas close to the arrival point so that the amount of walking required to reach them is minimal. The advantage is that the user would have a sense of space, i.e. would know that s/he is close to the reception area.

Another option could be an informal meeting area where users can interact outside the scenarios and working modes, e.g. to help each other, to share ideas and/or meet with a tutor. In any case, the reception area is an area the user should be able to get back to easily at any time during his/her stay in-world (e.g. through teleporting back from a scenario).

Further types of user guidance will be explored along with the development of the working modes. It may be useful, for example, to have specific guidance on how to use a particular working mode within this mode rather than in the general IVY tutorial only. This would prevent users from having to go back to the tutorial area frequently (especially when they are new to IVY). Wiecha *et al.* (2010) suggest offering an SL coaching session for those who are new to SL. Similar to Wood’s (2010) argument, they also point out that “[s]ince the Second Life learning curve is so steep, it might be more effective to narrow the training to those skills absolutely required for the event and trust that the participant will go further with the virtual world on their own time, if they are interested” (Wiecha et al 2010). Furthermore, Wicha et al. suggest a method of partnering more confident SL users with less confident users so as to help with navigation and controls in SL. The SL island of the Open University also provides a “buddy” system to help newcomers to Second Life find their way

around. These options will be considered for the IVY environment and assessed during the functional and pedagogical evaluation.

Given the heterogeneity of the IVY target user groups and the anticipated differences in their experience with educational technology (e.g. higher education students vs. adult learners), it will also be important to evaluate the IVY solution in the light of their potentially different levels of prior experience with educational technology.

5.2 Navigation in the virtual environment

Apart from helping users to get familiar with SL and the IVY environment, an important step in supporting them to navigate easily is to provide clear and simple navigation paths which reflect the tasks that the users expected to carry out. The important questions in this connection are how the IVY working modes, the virtual interpreting scenarios— where required – the pedagogic content can be accessed, bearing in mind that the different user groups have different needs.

The arrival area, which will give access to the tutorials as described above, should also be the main point of entry into the IVY environment with its various working modes and virtual scenarios. The working mode will determine how a scenario will be presented to the user (i.e. whether it will be filled with a dialogue/monologue as in the interpreting practice mode or whether it will be empty as in the live interaction mode). The choice of working mode, in turn, will partly depend on the type of user. For example, the interpreting students can be expected to use the interpreting practice mode whilst the 'clients' are more likely to work in the exploration mode. Therefore, it seems reasonable that the first choice the user is given is a choice of working mode. Since it cannot be assumed that all users use the environment as recommended, i.e. some novice users may skip the induction/tutorials, the modes should be presented with a brief explanation as a minimum help.

The next steps will depend on the chosen mode. Possibly the most complex mode in terms of choices is the interpreting practice mode, as it involves choosing the type of material (monologue or dialogue), the source language or language pair, and finally the actual source text, i.e. a particular monologue or bilingual dialogue. An analysis of different approaches to corpus-based interpreter training shows that filters are crucial in retrieving relevant material from the corpus (see section 2.1). It is therefore advisable that the user can apply filters in the interpreting practice mode to select the material to practise with.

Figure 4 below shows the way in which the user can select the materials to work with when working in interpreting practice mode. The user should be able to start by choosing the form of communication, i.e. whether s/he wants to work with either a monologue or bilingual dialogue. If the monologue option is selected, the user should then be able to select a source language from which to work.

As a next step, the user should have the option to browse the full list of monologues in that source language or to filter them by choosing a relevant domain (as shown in section 3.2, all monologues and dialogues were classified according to the subject domain – currently Arts, Education, Travel; Business, Politics, Industry; Sports; Community and Healthcare). For example, the user might want to practise interpreting for a business meeting to follow up on an interpreting lesson where the focus has been on interpreting in a business context. In this case, s/he can use the domain filter to see only business-related monologues. By contrast, if the user selects the “Browse full list” option, all monologues in the chosen source language will be displayed. The domain filter will become more important as the amount of material available in IVY grows.

Alternatively, if the user wants to practise bidirectional interpreting, s/he should be able to select the dialogue option. Once this option has been selected, the user can then select the language *pair* to work with. As with the monologues, the user can then choose between seeing all dialogues for the chosen language pair or filtering the dialogues according to domain.

When the user sees a list of available monologues or dialogues (either the full list or a domain-specific list), s/he should ideally be presented with a short summary of the situation and the interpreting brief to enable him/her to select the monologue or dialogue s/he wants to practice with. Upon selection of a monologue or dialogue, the user will be ‘transferred’ – possibly teleported – to the associated scenario where s/he can start working.

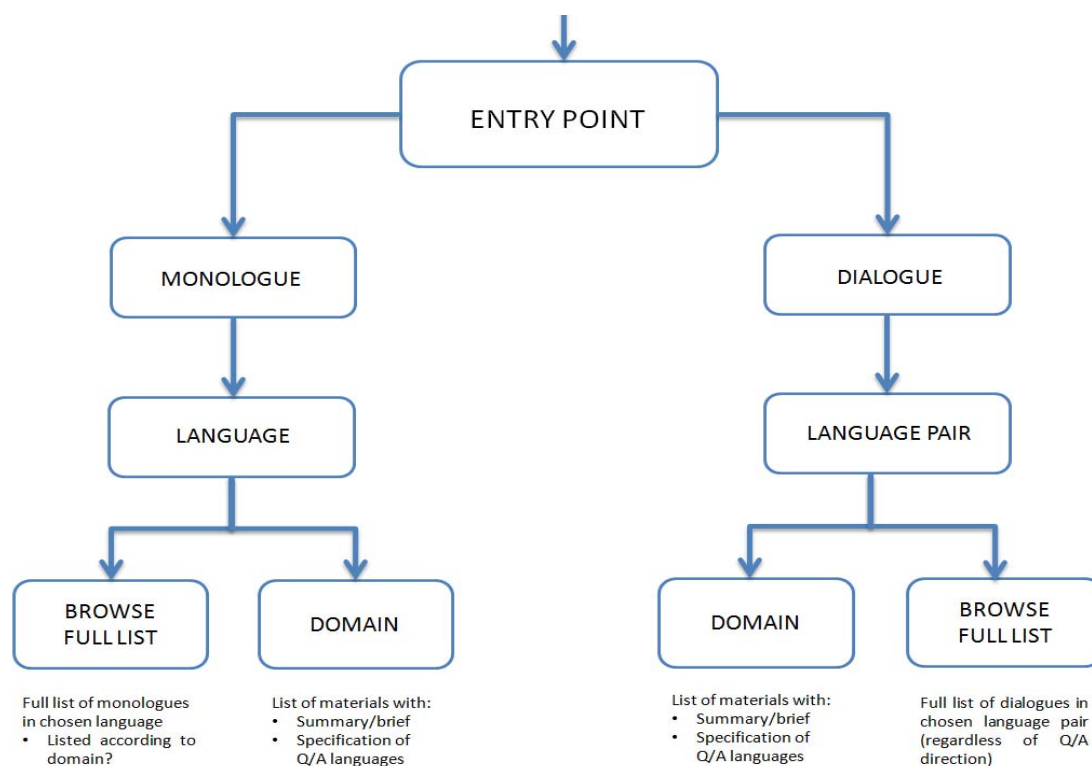


Figure 4: Plan for Second Life material selection filters

One question is whether dialogues in which the question language is A and the answer language is B should be treated differently from dialogues in which the question language is B and the answer language is A. For example, the question refers to whether Polish-German dialogues should be treated differently from German-Polish dialogues and especially whether the user should be able to choose the one or the other. As long as the content base is small, it is arguably preferable not to have this as a filter as it narrows down the range of available material. Instead, the question and answer language could be described as part of the description of the interpreting situation.

For example, if the user wants to practise interpreting between Polish and German, there is likely to be a difference dialogues with Polish questions and German answers and the dialogues with German questions and Polish answers. Given the nature of the IVY bilingual dialogues (based on BACKBONE narrative interviews), a dialogue with Polish questions (A turns) and German answers (A turns) will focus more on German content as the interview started out as a monolingual German dialogue. Conversely, if the questions (A turns) are in German and the answers (B turns) are in Polish, the content of the dialogue will focus more on Polish content as the interview start out as a monolingual Polish interview. This is important for the user as this information will provide guidance as to the content of the dialogue and the terminology that may be used in that dialogue.

In the Polish-German language pair example given above, if the B turns are in Polish in a dialogue from the domain of Community and Healthcare, the user will know that the content is more likely to be focused on community matters or the healthcare system in Poland and can therefore carry out the appropriate research if necessary before practising with this dialogue. Conversely, if the B turns are in German in a dialogue from the domain of Community and Healthcare, the user will expect content that is more about that domain in Germany or other German-speaking countries and can research the topic with this in mind.

Another question concerns the user engagement with the monologues and dialogues. First of all, one of the great advantages of using a 3D virtual environment such as SL is that the user can move around in the environment (with their avatar) and can view each virtual interpreting scenario from different perspectives. This should promote the sense of realism and should be used, e.g. by giving the interpreting student the option to choose their position in relation to the interlocutors (the robots). All scenarios should therefore offer different seating options or standing spaces for the interpreter's avatar.

Secondly, the interpreting student needs to be able to initiate the monologue or dialogue and to control the audio playback. As was pointed out in section 4.1, the monologues and dialogues have been divided into turns or sections, and the expectation is that the interpreting students will listen to a section and then attempt to interpret it. This was based on the outcome of prior pilot studies (in the LLP project BACKBONE) where students preferred the videos

to pause automatically at a useful point rather than having to pause the video while trying to focus on the content and the interpretation. Chen and Ko (2010), who designed an online conference interpreter testing platform, come to similar conclusions. However, other studies – notably Hansen and Shlesinger (2007) – have emphasised the importance of practising self-spaced consecutive interpreting, because it is arguably an important skill of an interpreter to be able to manage the turn-taking between the interlocutors. This would also include the ability to intervene at an appropriate point in order to deliver an interpretation. The audio playback function should therefore have some flexibility. The default could be that the user listens to a turn until its end, interprets and then clicks to call up the next turn, but the user should be enabled to pause the audio within a turn at any time.

Similarly, it was pointed out in section 4.1 that training requirements for consecutive interpreting vary and that some students may wish to practice interpreting an entire speech at once or in very few, large sections rather than using the pre-set sections. It should therefore also be possible to play an entire monologue (or also a dialogue) at once.

5.3 Requirements for the virtual scenarios

One of the major aims of the IVY solution is to create self-study opportunities for learners from different backgrounds. A crucial point is that the environment can be used simultaneously by **concurrent users** with different interests and needs. This raises questions regarding the availability of the virtual scenarios. In its simplest form, the first prototype of the IVY environment will feature one instance of each virtual scenario, which can be ‘occupied’ either by one user or one group of users at a time. For example, an interpreting student may select the interpreting practice mode and choose to work with a Polish-English dialogue that runs in the seminar room scenario. If there is only one instance of this scenario, then no other student would be able to use it at the same time. Similarly, a group of law students and interpreting students may decide to practise together in live mode in the ‘virtual court’. The court room scenario will then be occupied. Other students could either join the current group or would have to wait.

The solution would have to take into account that the scenarios need to be used in conjunction with robots for some of the working modes, and that sound (streamed audio or video, voice chat) is needed in many situations of use that can be expected in the IVY context. The Open University’s SL island, for example, uses custom-built ‘discussion pods’ that “are placed at intervals greater than the maximum voice range in Second Life” (Peachy in Kirriemuir, 2010: 14) to provide concurrent groups of users with the opportunity to use voice chat without disturbing each other.

The idea of individual pods where interpreting students or groups of interpreting students and “clients” can practise is worth further consideration. However, it may not solve the problem of duplicating robots and other objects in the virtual scenarios. Duplication can also be problematic because of the restrictions that Second Life imposes on the number of objects (prims) that

can be used on an island. These difficulties notwithstanding, a small amount of duplication of the virtual scenarios can be a good initial strategy at prototype stage and for the functional and pedagogical evaluation within the lifetime of the project.

A similar point is that the virtual scenarios will include not only talking robots but also presentation screens, interactive boards and other objects to support the various working modes, all of which have to be available to concurrent users in different places.

Returning to the point made at the beginning of Chapter 5 about privacy and security, the virtual scenarios will also be conceived in such a way that once they are 'occupied' by a learner, other (uninvited) learners or observers cannot intrude or disturb e.g. an ongoing simulation. The IVY solution will therefore be able to keep track of whether a scenario (or how many instances of a scenario) are in use at any point in time, and have a mechanism for 'locking' the scenarios while they are in use.

Ultimately, the decision regarding the virtual environment that is used to develop the final solution may have to be revised in light of the IVY requirements. However, for the time being the chosen world, Second Life, and the option to use an OpenSim environment, will suffice to demonstrate best practice as long as the limitations and the possibility of transferring to 'another world' are kept in mind.

Conclusion

At the inception of the IVY project was the idea of creating an innovative digital resource that offers opportunities for training interpreting students and educating potential clients of interpreters. In so doing, the IVY concept combines the use of a bespoke 3D virtual environment with the use of pedagogically enriched spoken-language corpora. The 3D virtual world provides the visual/graphical and functional framework for the presentation of the pedagogic content.

The deliverable has outlined the pedagogical foundations for the IVY solution. It was shown how the approach taken in project IVY is rooted in the current dearth of training resources especially for business and community interpreting and the insufficient number of initiatives to education interpreters' clients; how the IVY approach can build on prior experience in the educational use of 3D environments; how the spoken-language corpora developed in previous projects, with pedagogical aims in mind, can be adapted and integrated in the planned 3D environment. It has given an overview of the key requirements for the design and functions of the IVY virtual world (including e.g. the virtual interpreting scenarios and the IVY working modes), the pedagogic content (the corpus-based monologues and bilingual dialogues) and enrichment materials. It has also highlighted the main requirements in terms of user access such as navigation, retrieval of content, working in the virtual scenarios and concurrent users. The possible solutions outlined in this deliverable will form one of the major sources of input for the functional and technical design specification of the IVY environment.

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