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## Foreign language vocabulary development through activities in an online 3D environment

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On-line virtual 3D worlds offer the opportunity for users to interact in real time with native speakers of the language they are learning. In principle, this ought to be of great benefit to learners, and mimicking the opportunity for immersion that real-life travel to a foreign country offers. We have very little research to show whether this is the case, however, nor how best to take advantage of virtual travel for foreign language development. This paper investigates the vocabulary environment and learning among learners in the Vill@ge virtual learning environment in *Second Life*. It appears that outside controlled learning activities, the lexical environment is poor and offers little opportunity for lexical growth. However, there is some evidence that learners, even in a short space of time, can improve their speed of language interaction and their fluency, and in focussed vocabulary-learning activities uptake was good and comparable with more traditional vocabulary-learning activities.

### Introduction

The learning of a foreign language can be a lengthy and difficult process and there appear to be few learning circumstances which can help this process as much as total immersion in the foreign language environments. Immersion in the foreign language environment provides maximum exposure to the communicative use of the target language, and can give the opportunity for maximum meaningful use of the foreign language by learners. These are circumstances which should enhance learning. As Churchill and DuFon (2006: 1) note ‘concentrated time enjoyed by learners in the host context would appear to facilitate linguistics gains.’ For most foreign language learners, young learners in school, gaining access to this type of learning environment is difficult. Travel abroad can be impractical and expensive, and it is not a feature of most learners’ experience. In a language such as English there may be other routes which can enhance exposure – pop songs and DVDs with sub-titles, for example – but these are not so readily available in other languages. For most learners, as Häcker (2008) notes, language exposure is limited to the classroom and the text book.

Since real travel is difficult, expensive and impractical, perhaps it is not surprising if both learners and teachers are interested in virtual travel: the use of on-line, 3D

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environments where users can move, meet and speak naturalistically with other users in the target language. The subject of technologically assisted language pedagogy, generally, is a subject which has attracted a substantial research literature (Thorne and Reinhard 2008); however, comparatively little of this work is directed at social networking sites and the virtual environments which offer the opportunity for virtual travel (Clark and Gruba 2010). We have little idea whether these are rich and stimulating foreign language environments for learners, and whether there are language gains to be had. Indeed, Chapelle (2010: 72) stresses the absence even of good methodologies for assessing the benefits which might emerge from the use of virtual environments. The purpose of this paper, therefore, is to report the findings of a study involving language learning in such an environment and where an attempt has been made to usefully describe the language environment, and measure the vocabulary and fluency gains which resulted.

### What are on-line 3D environments?

A 3D environment is a virtual world, running on the Internet, where you have an avatar which you can use to move around in this virtual world. Among many locations there are virtual cities like London to visit. Figure 1 shows an avatar visiting the virtual Acropolis in virtual Greece in *Second Life* (<http://secondlife.com/>). You can have a virtual house in these places and there are virtual shops to visit, where you can buy virtual clothes for your avatar and other things for your virtual home. There are virtual bars and night clubs where your avatar can dance and you can meet



Figure 1. Visiting the virtual Acropolis in virtual Greece in *Second Life* (Second Life, Linden Research, Inc., San Francisco, CA, USA).

other people's avatars. You can talk to these other people in real time either directly through speech or by typing into a chatbox.

Other on-line interactions, such as wikis and blogs, can also offer the opportunity for foreign language exchange but these interactions are generally asynchronous. There is a time-lag, often considerable, between each interaction. **This may actually be a benefit for low-level learners who struggle to assemble language for communication quickly, but one of the challenges for foreign language learning is to develop the speed and automaticity of response which is necessary for fluent oral communication, and simulated conversations in the classroom are often poor substitutes in preparing learners for the speed and unpredictability of the native-like use of language.** Virtual 3D environments, such as *Second Life*, offer the opportunity for real-time oral interaction in a variety of relatively normal-looking settings with native speakers.

Using a foreign language in these virtual environments offers features which are thought to be of particular benefit to language learning. Where learners are interacting with **native speakers** there is the **opportunity for authentic language in meaningful tasks**; if these can be created in the virtual environment, this fits well with the tenets of task-based language learning. **Task-based learning is an approach which is designed to foster fluency and learner confidence** (e.g. Brumfit 1984; Willis 1996; Willis and Willis 2007). Virtual environments are thought to offer the opportunity for lots of exposure to the foreign language and this fits too with social interactionist theory and competition theory (MacWhinney and Bates 1989) where extensive language exposure is a requirement of learning. It should further provide the learner with comprehensible input gained through interaction. Negotiating meaning and modifying output, the processes learners engage in to get a clear understanding of each other, are considered central to second-language acquisition (Long 1985, 1996).

However, it is not inevitable that the use of these environments should result in large-scale language gains. Many of the activities which these environments include, such as the ability to fly and change your avatar's clothes, are largely or completely language free. If the users of these environments do not use language, then they cannot learn. The challenge for language learning in these environments is to engineer tasks which require learners and native speakers to interact and where a condition of success in the task is the meaningful use of language. An example might be that if you want to change the clothes on your avatar you have to negotiate with another avatar to do this. If your language lets you down, you cannot achieve what you want. Other features of the virtual world, like flying or the use of cars, might be held back as rewards for the successful completion of language tasks.

### **Research on learning in on-line environments**

The research that exists on learning in these environments broadly supports their use in language learning. It seems using these sites results in high levels of interaction and the negotiation of meaning (e.g. Shih and Yang 2008; Sadler and Nurmukhamedov reported in Thorne, Black and Sykes 2009: 809). It appears that working through avatars reduces communicative inhibition and encourages risk taking in language use (Peterson 2010) and these qualities may help in encouraging the more extensive use of language which is thought to result in fluency. Evidence suggests too that the use of these sites has benefits for motivation and that learners' attitudes to learning

and correction improve (Kuriscak and Luke 2009). Milton et al. (2000) and Filipoupolitis (2005) report increases in both length of utterance and in the speed with which these utterances were produced among learners communicating in a virtual environment, suggesting increases in fluency. Milton et al. (2000) also report that the learners in their study showed vocabulary gains although the learner numbers in this study are small and quantification of the vocabulary gains is not provided. However, despite the considerable potential, as Sykes, Oskoz and Thorne (2008: 535) note, research addressing the effectiveness of the use of these environments is insufficient to demonstrate conclusively that learners really do learn. It might even be argued we lack descriptions of the language produced in virtual environments to meaningfully assess what is the potential for language learning.

### **Comparative information from classroom learning**

If learners are to make use of these environments, there is a need for research data which can demonstrate that language gains occur. But the potential and usefulness of virtual worlds as a learning tool can really only be judged when language gains, if they do occur, are meaningfully compared with learning in more traditional environments. Is the use of these environments comparable with the traditional classroom or more traditional language learning activities? For judgements of this kind to be made the data on learning and language use in the classroom and other environments need to be considered.

It seems that the language classroom can be a poor place for language interaction between learners. It will always be a challenge to language teachers to create opportunities of language use in the classroom when student numbers may be large, tasks inevitably appear artificial, and the learners themselves may feel they have insufficient knowledge for the tasks set them. In any language classroom there will always be a tendency for the teacher, who knows the language, to talk and the students, who do not, to listen. In a study of a single oral class by Alsaif (2011), the teacher talk exceeded the contribution of all learners combined. The teacher produced more than twice the volume of words than all the learners together and each individual learner contributed only a handful of words to the class. There is evidence too that the classroom environment can be lexically poor (Meara, Lightbown and Halter 1997; Tang and Nesi 2003). The vocabulary of the classroom can be so restricted that it appears to offer little for the learners to learn. It seems that learners in these environments may learn as few as one or two words in the foreign language only, per classroom hour (Milton 2006; Laufer 2010).

The data available for more traditional learning also suggests that the time available for language learning is often strictly limited by the demands of other subjects in the curriculum (Milton and Meara 1998). Milton and Meara also note the crucial role that the time available for learning a foreign language plays in foreign language-learning success. Studies also show how limiting the nature of the text book and the classroom can be. The foreign language classroom in Britain, for example, includes few structures and small volumes of vocabulary (Häcker 2008). There is an emphasis on only the most frequent vocabulary in the text books (Tschichold 2012, this issue). Milton (2009) points to the absence of thematic variety and the high degree of repetition involved in these text books. Milton (2006) and David (2008) demonstrate that little vocabulary is learned on average, and a study by Richards, Malvern and Graham (2008) observes how dependent French foreign language exam

grades in UK schools are on knowledge of the most frequent 1000 words only. It seems that text books and current educational systems can provide very limited exposure to the foreign language resulting in insufficient knowledge for effective communication. There is a real opportunity for on-line activities to extend the time available for language learning, to extend the range of vocabulary and structures available to learners, and to increase both language knowledge and competence.

It is a hopeful sign for the use of virtual learning environments that other studies suggest that there are considerable learning gains to be had outside the classroom. In the area of vocabulary learning we have a number of carefully controlled case studies to illustrate this using a variety of media. Horst and Meara (1999) studied the lexical learning in Dutch which resulted from the reading and rereading of a *Lucky Luke* comic book, and suggest that gains of more than 30 words per contact hour are possible. Studies of Greek vocabulary learning from listening to songs and watching DVDs with sub-titles (Milton 2008) suggest learning on a similar scale. Fitzpatrick, Al-Qarni and Meara (2008) also report comparable vocabulary uptake from bilingual word lists in English and Arabic using word cards. These activities turn into highly focussed vocabulary activities so it is not, perhaps, surprising that uptake here is so much greater than the one or two words per contact hour noted in the traditional classroom where many other aspects of language knowledge and skill are covered in addition to vocabulary. Nonetheless, these figures provide a basis for comparison with learning in this study.

### **The on-line environment used in this study**

The study reported in this paper took place as part of the European-funded Lifelong Learning project entitled Vill@ge (143370-2008-LLP-GR-KA2-KA2MP). The project was designed to take advantage of the second-language learning opportunities afforded by 3D virtual environments and used *Second Life* as the platform to investigate the nature and scale of learning that takes place. The project involved the creation of a language-learning environment designed for two very different types of users: young primary school-age learners and university-level adults.

For primary-age learners a dedicated island, a virtual island surrounded by virtual sea, was created. The protection required by primary-age learners makes such an island an attractive location. Not only can the environment itself be controlled, but access can be restricted. In this environment locations such as a supermarket, a clothes shop and a virtual museum, where users could write posters about themselves and where they lived for others to see, were created. These locations matched the thematic areas which language learners typically address at the outset of learning, giving even low-level users the chances to use their knowledge and communicate. An example of how language interaction was integrated into the Vill@ge environment is provided by a shopping task in the island's supermarket. Shopping with a shopping list need not, for a single shopper, involve much language. However, for this task a learner was given the task of shopping with a native speaker. The native speaker had the shopping list and told the learner what to buy, while the learner had the shopping basket and had to fill it with the items needed. When the name of an item was not known then pointing and naming was used to make the name clear. The learners from Greece and the UK carried out the tasks in both Greek and English as a foreign language (EFL). The supermarket environment is shown in Figure 2.

Adult learners on the Vill@ge island were more linguistically able than the younger learners and had some specialist language requirements: business, banking and travel-related EFL. For these learners virtual banks, travel and estate agency shops, and show homes were constructed. In these locations learners were set tasks to fulfil; for example, to take the role of a bank assistant and have to deal with customer avatars who, within the role-play were trying to open an account or change travellers' cheques. Figure 3 illustrates the bank environment. The adult learners,



Figure 2. Supermarket shopping task on the Vill@ge island (Second Life, Linden Research, Inc., San Francisco, CA, USA).



Figure 3. Inside the Vill@ge bank (Second Life, Linden Research, Inc., San Francisco, CA, USA).

university students in Hungary and the UK, were further given access to the supermarket and other locations with the instruction that the Hungarian speakers had to teach the UK participants Hungarian.

### Aims

It is the intention in this paper to report a description of the language which is produced by the university-level learners and their partners in the Vill@ge virtual reality project, and to assess features of the language learning which occurred. Specific objectives include:

- (1) Calculating the volumes of language produced and reporting features of the language which are thought to be relevant to language learning such as the lexical sophistication of the language environment which emerged.
- (2) Calculating the volumes of Hungarian vocabulary presented to and learned by the British university learners in the virtual environment.
- (3) Calculating the volumes of English language produced by the Hungarian learners of English in each successive session to gauge whether there are increases in language output and, potentially therefore, increases in fluency.

### Methodology

Four one-hour sessions were timetabled with students from Swansea University and Szeged University in Hungary. During the course of the sessions the students were paired up (that is, Swansea University–Szeged University pairs) and were asked to converse in English and Hungarian, carrying out pre-planned and loosely structured conversational tasks. The students were provided with guidelines of what to talk about in the different situations, as well as suggestions of things to ask about and comment on. The one-hour sessions were split into two activities, the first one a role-play in English followed by a second task aiming to elicit Hungarian words and phrases. The role-plays in English took place in the virtual bank, travel agency, estate agents and museum. The activities to elicit Hungarian took place in the virtual zoo, supermarket and clothes shop. There was also a virtual karaoke session where all the learners sang Christmas carols and this session, the fourth, has proved difficult to analyse. The data reported in this paper are drawn from the first three sessions only. The environment necessitated travel to and between these locations and this also resulted in meaningful language production. The participants were given considerable latitude in the use of the environment and this, together with the inevitable technical glitches which occurred, meant that the time available for language activity in the environment was considerably less than the four hours timetabled.

In this study the results of three pairs of learners are reported. The participants were all university students aged between 20 and 25. The British students were taking courses leading to a degree in English language studies and other related subjects. The Hungarian students were taking degrees in business including modules in English language related to several specialist areas of English including banking and tourism.

The language produced was both speech and writing. All the language was transcribed for analysis and in both formats this required a consistent treatment of non-standard elements. Contractions such as *don't* were converted to full form, *do*



*not*. Proper nouns and names were left in. Hesitations, *um* and *er*, and partial word forms were excluded, and so too were emoticons such as ☺. Spelling mistakes were corrected in order to make calculations for lexical sophistication possible. In order to try to capture the nature of the language environment in the *Second Life* world, the volumes of vocabulary produced by each pair and its lexical sophistication (the percentage of this vocabulary which falls outside the 2000 words range) have been calculated.

The transcriptions allowed the volumes of Hungarian words and phrases presented to each British university learner to be calculated. A vocabulary item in this study can be an adjective or noun, for example, but function words were not separated out so that phrases such as *mi ez* (what is this?) were counted as one item. Individual tests were prepared for each learner based on the vocabulary each had been exposed to. These took the form, firstly, of recognition vocabulary checklist tests (as in Meara and Milton's 2003 X-Lex tests) including false Hungarian words created by staff from Szeged University. Each test included 17 Hungarian words introduced to the learners and six false Hungarian words. Secondly, a productive English to Hungarian translation test comprising 15 words and phrases was also given to the learners. These were administered 16 weeks after the final session.

Finally, the volumes of English vocabulary produced by the Hungarian learners in each successive session have been calculated to confirm the suggestion in Milton et al. (2000) and Filipoupolitis (2005) that as language learners increase in fluency they become faster in language production.

## Results

### *The language environment*

To characterise the language environment created by the users of this *Second Life* project the volumes of words produced and the lexical sophistication of the output for each pair of users have been calculated and are given in Table 1.

### *Presentation and uptake of Hungarian vocabulary*

The volumes of Hungarian words and phrases presented to each British learner in each session are summarised in Table 2. The number of words recognised receptively in the receptive test, and translated successfully from English into Hungarian as measures of lexical uptake, are given in Table 3.

### *Volumes of English produced by learners as an indication of fluency*

It might be expected that as learners become more fluent in using their foreign language they will hesitate less and produce the language they seek more quickly.

Table 1. Words used and lexical sophistication measure.

Student pair	Words produced	Lexical sophistication
Whitewood	2075	18.84
Colter	5380	22.81
Avora	1891	13.86

Table 4 records the volumes of English words produced by learners in Hungary in each successive session.

## Discussion

### *The language environment*

It is immediately apparent that the volume of communicative language produced by learners in this environment is very large, especially for the Colter pairing. Comparable data from classroom environments suggest that even in oral classes the volumes of language produced is generally small, only a handful of words per student per class (Alsaif 2011). The volume of production in this environment is reminiscent of the volumes of speech possible in language laboratories, but here the communication is genuine as the participants navigate the virtual environment and try to carry out the tasks. The balance of speech between learner and native speaker is also quite even: the figures suggest that learners produce about 45% of the language and the native speakers quite consistently produce about 10% more. The learners communicate in real time extensively with native speakers and this should lead to greater fluency.

It is not possible with the data available from this project to report systematically on the proportions of spoken and written language produced by these learners. Technical glitches, particularly where the audibility of the interlocutors was inhibited, meant that the participants reverted to typing more often than they otherwise might have. However, the session without such obstacles demonstrated that learners of English who are at the relatively high level of the Hungarian

Table 2. Hungarian words and phrases introduced per session.

Student	Session 1	Session 2	Session 3	Total
Whitewood	19	31	6	56
Colter	17	26	6	49
Avora	3	9	7	19

Table 3. Hungarian words recognised receptively and produced in translation (scaled to reflect the volume of exposure).

Student	Receptive	Translation
Whitewood	45	39
Colter	32	43
Avora	18	17

Table 4. Volumes of vocabulary produced by Hungarian learners per session.

Student	Session 1	Session 2	Session 3
Bizet	204	311	459
Lemton	613	721	1175
Mocha	205	219	352

university learners in this study overwhelmingly produced their language orally by choice and reverted to typing only to illustrate the spelling of Hungarian words or to convey encouraging emoticons. This contrasts with the lower-level learners reported in Milton et al. (2000) who used typing much more often both as an aid to communication, when a word in spoken form was unclear to the learner, and as a strategy to slow down communication and allow structures to be assembled for transmission.

Superficially, the language of this environment appears lexically rich. The environments reported in Alsaif (2011), Tang and Nesi (2003) and Meara, Lightbown and Halter (1997) all report lexically poor classroom language which gives little new vocabulary material for learners to learn. Two of the pairs in this study produced lexical sophistication scores of over 20% which should provide the opportunity for vocabulary gains. However, closer examination of the data suggests this result is an artefact of the two languages produced by the pairs in their tasks. Once Hungarian words and phrases are removed from the corpus then the percentage of words outside the 2000 word level is reduced to approximately 10% for each pair, highly comparable with earlier data. The score of only 13% produced by one pair in the original analysis is entirely due to the fewer Hungarian words this pair used.

The language-learning sessions had pre-planned tasks to target specific vocabulary, phrases and topics, and these tasks were performed producing exchanges like the section below.

Monitor: Okay, can we start?

Airy: Yes.

Monitor: Hello, how can I help you?

Airy: I would like a house.

Monitor: What kind of area are you interested in? In the city, in the countryside or next to the sea?

Airy: City centre may be polluted so I would like somewhere in a place that is quiet and rural.

Monitor: Okay, I offer you a three-bedroom house near to Lake Swansea it's quiet and rural.

Airy: That sounds good thank you.

However, the participants also spontaneously talked about many other things, such as the weather, upcoming exams and items around them in *Second Life*, for instance a discussion concerning purchasing a virtual carpet. The participants seemed very at ease making jokes and chatting about themselves. The exchange below illustrates this kind of language:

Lemton: Hi!

Colter: Hi, how are you?

Lemton: Fine, but the weather it sucks... you?

Colter: I'm very good thanks. But it's SO cold! Do you have snow?

Lemton: Yeah, and raining! No just rain yet.

Colter: Oh no, slush!

Lemton: Uhh I hate it!

Colter: Swansea is normally the rainiest city in the UK, so I know how you feel.

Lemton: Do you have snow?

Colter: No, if we had I wouldn't be in uni. It very rarely snows here, so when it does everything closes. It's really funny.

Lemton: I can imagine. Should we start?

The appearance of such casual topics in the data is not a bad thing and suggests the *Second Life* context really does produce spontaneous communication. However, a feature of this is the large number of non-standard forms which are produced. These include forms in writing such as *dont* for *don't*, *its* for *it's* and *bc* for *because* but also a prevalent use of emoticons. The participants also used many non-standard conversational expressions such as *mhm*, *ahaa*, *uhm*, *hehe* and *haha*, in speech and also when necessary in writing, all adding to the casual tone of conversation found throughout the interactions. Altogether this casual tone suggests that this context for interaction appears familiar and natural enough for users to carry out everyday conversations, supporting Au's (2008: xi) argument of the sense of immersion given by *Second Life*.

### ***Presentation and uptake of Hungarian vocabulary***

The three pairs interpreted the tasks to introduce Hungarian words into their interaction slightly differently. Two of the pairs introduced about 50 words and phrases each while the third introduced fewer than 20. Notwithstanding this difference all three learners seemed to find this a stimulating way to begin learning a language in what turns, effectively, into a vocabulary-focussed learning activity. This is illustrated in the section below.

Colter: Bird?

Lemton: Madár.

Colter: How do I say 'this is a bird'?

Lemton: Ez egy madár.

Colter: What's Hungarian for cow?

Lemton: Tehén.

Rain: Ezek tigrisek.

Lemton: And you ask how many cows are there like – Hány tehén van?

Not surprisingly, as a highly focussed vocabulary task, the uptake of the Hungarian words and phrases appears very good. In the limited time available, the learners acquired between 20 and 40 vocabulary items both receptively and productively in something less than an hour, **at a much greater rate than appears to be possible in the normal classroom** (Milton and Meara 1998; Laufer 2010). These rates of acquisition compare favourably with other vocabulary-focussed activities reported in Horst and Meara (1999), Milton (2008) and Fitzpatrick, Al-Qarni and Meara (2008), and the Hungarian partners reported in feedback how impressed they were at the speed of learning.

There are issues with using non-specialist teachers in this way and the quality of the input can be questioned. In the supermarket three different words were presented by two different Hungarian students for the English noun *cereal*. One Hungarian student presented her partner with *gabona* before correcting herself with *zabpehely*. Another presented cereal as *müzli*. No explanations were given at the time and indeed the English-speaking students would not have been aware of any potential confusion. However, upon further scrutiny it appears that two of the items presented, *müzli* and *zabpehely*, are hyponyms of the Hungarian word *gabonapehely* (which means cereal). In isolation, *gabona* actually means grain whereas *müzli* is muesli and *zabpehely* means oat flakes, two different types of cereal. This kind of confusion of terminology is, of course, common enough in everyday English in naming breakfast cereal but it does emphasise that the

informal environment and language input of *Second Life* allows access to non-standard language forms.

### *Volumes of English produced by learners as an indication of fluency*

It might be expected that non-fluent users of a foreign language will be hesitant in their production which will be characterised by pauses as the words that are needed are searched for in the mental lexicon. **As learners improve their fluency, access to words in the lexicon will become more automatic, will be faster, there will be fewer pauses and less hesitancy. More speech can be produced in any given time therefore.** Table 4 records the volumes of English words produced by each Hungarian participant in each session. If students do become more fluent and confident in using their foreign language then it is anticipated that the volumes of words they produce will increase over the course of the study. This is indeed what happens. In each successive session the number of words produced by all three participants increases and between the first and the third session the number of words produced has approximately doubled. There is no task effect here, the tasks were rotated and the participants were not doing the same tasks at the same time. This is not definitive evidence of fluency increases; it is effectively only three small case studies looking only at vocabulary. Nonetheless, it is in line with the expectation that environments of this kind can promote fluency increases.

### **Conclusions and limitations of on-line environments**

It was commented at the outset that there is an expectation that a virtual environment of the kind used in this study will promote **oral language production in the foreign language through access to native speakers, and this will promote language learning including fluency. It was also noted that** we have almost no research to suggest that this is what actually happens. This study has, however, provided evidence that these 3D virtual environments can be viable language-learning environments. This study has shown that the environment can generate a large quantity of productive and genuinely communicative language by learners, far more than would be possible in the normal classroom. The potential exists, therefore, for language-learning gains to occur. In controlled activities the participants were able to demonstrate good vocabulary gains, comparable with other vocabulary-focussed learning activities. However, overall the lexical environment which the users generate appears lexically poor and the question arises whether, without careful direction for the learners and control of the lexical environment by teachers, there is the opportunity for growing a lexicon on the scale necessary for high levels of competence. There is the suggestion in these results, however, that the environment may promote fluency for learners who appear able, in a short space of time, to increase the volumes of language they produce. The environment of itself may not promote the learning of lots of new words, but will encourage learners to use what they have and get faster at doing this. While it was not part of the research reported here, **it is worth noting too how positively the participants engaged in the project and how motivated they were to use the virtual environment.** Overall, these are very encouraging conclusions to reach and suggest that further use and research in these environments would be useful.

It would be misleading, however, not to record some of the **limitations** also associated with the environments. One is the cost and time required to set up a controlled and secure learning environment. For **younger learners**, access has to be controlled if they are to use the virtual world securely. Just like the real world, the whole of *Second Life* contains people and places that it is simply not appropriate to have in a classroom and where learning probably cannot occur. But to create a controlled and secure environment takes time, expertise and money. A second observation is that while the technology of *Second Life* is pretty robust it is notable how much time was spent, and how much language was generated, in the business of participating in the environment. The participants frequently made comments about their being uncomfortable with unfamiliar things such as manoeuvring their avatars, having to type and encountering things in the virtual world not functioning as expected. Setting up the interactions and navigating the environment takes time, and this is time taken away from language learning. One participant commented that 'first life is easier'. The virtual environment is not a perfect replacement for real life. In the absence of gestures, eye contact and facial expressions, turn-taking can be challenging especially when speaking in a group. It can sometimes be difficult to be sure who said what and to follow the thread of a conversation. Combined with occasionally poor audio transmission, some remarks not being perceived with their illocutionary meaning intact, misinterpretations occur and jokes go wrong. The communication in this environment is good but interaction in *Second Life* is still not as efficient as real-life face-to-face conversations.

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