Phonetically Augmented Virtuality in Second Life

Włodzimierz Sobkowiak in RL

Wlodek Barbosa in SL

Abstract

In my Accents 2008 presentation I talked about and demonstrated some phonetic affordances of the virtual world of Second Life for EFL pronunciation teaching and learning; I also discussed some environment-inherent problems in this respect. In my Accents 2009 presentation I go further along this path and show how SL objects can be augmented with pronunciation-relevant qualities, such as built-in audio, phonetic transcription, pronunciation exercises and drills, expository information on selected phonetic topics, etc. Together they make up what I call an integrated PAV system of Phonetically Augmented Virtuality, on a par with similar systems of Augmented Reality (AR) currently developed in Real Life. They include, but are not limited to: (i) phonetic dominoes, (ii) word-stress block game, (iii) phonetic walk-through grid, (iv) phonetic finder. These PAVed objects with phonetic affordances are just one of the ways in which the unique features of SL as a three-dimensional, programmable and collaborative virtual world can be exploited. Because the functionalities of such objects cannot be presented in the medium of print, in this contribution I describe them rather cursorily, providing some examples, rather than offering an integrated theory of PAV. Instead, as a sui generis preamble to this description, I quote from an extended discussion of the "added value" of SL for foreign language teaching (FLT) held in January-March 2009 on the forum of the TESOL Electronic Village Online, Virtual Worlds and Language Learning 2009 course, where I was one of the teacher trainees. This discussion shows the development of my own thinking about how PAV can provide some of the "added value".

1. Introduction

Second Life is one of a few hundred virtual worlds in existence, with about 18 million registered "residents", and between 40 and 80 thousand of them concurrently online. In the opinion of most experts it is the largest non-gaming virtual world with built-in incentives for educators and ubiquitous in-world presence of many educational institutions of RL, such as universities, schools, associations and conferences. Some of the SL educational institutions, such as LanguageLab, Avatar Languages (for-profit schools), English Village, Cypris Village, SLEnglish (pro-bono communities) or SLanguages (annual conference) are devoted to teaching foreign languages, especially English, Spanish and Italian in-world. Because English functions as lingua franca in SL (just as it does in RL), most available courses are concerned with English as a Foreign Language (EFL). Few of them, if any, however, devote any particular attention to pronunciation of EFL, which has been my main professional preoccupation throughout my academic career. It is little wonder, then, that briefly after I was born in SL in March 2007 I entered a community of language educators called SLEnglish to extend my EFL pronunciation teaching experience into virtual worlds. In my Accents 2008 contribution (Sobkowiak 2010) I described some of the early stages of my EFL teaching involvement in SL. Here I will address one more specific issue, which I believe to be of utmost importance for all teaching in virtual worlds, including SL: what could be the "added value" of such Multi-User Virtual Learning Environments (MUVLEs) for foreign language teaching and learning, vis-à-vis both RL and 2-dimensional online LEs, such as Moodle, for example.

The search for this "added value" is neither simple nor uncontroversial, and I will only report on one potentially fruitful idea here which seems to contribute to it, namely that of augmenting SL environment with "superimposed" information on a par with what has been recently developed under the label of Augmented Reality (AR) in RL. In section 2 of this contribution I provide a heavily abridged log of an extended discussion on "added value" in SL, held in January-March 2009 on the forum of the TESOL Electronic Village Online, Virtual Worlds and Language Learning 2009 course, where I was one of the over 350 teacher trainees. It is available in its entirety here: http://evovwll.ning.com/forum/topics/added-value-of-sl-for-flt. This discussion shows the development of my own thinking about how Phonetically Augmented Virtuality (PAV) can provide some of the "added value". All quotes are reproduced by permission of their respective authors, identified below with their SL avatar nicknames. In section 3 I briefly describe and exemplify some implementations of PAV in the form of phonetic objects and games which I have been using in SL for my own teaching of EFL pronunciation to a group of international students. Due to the constraints of this medium, only a very superficial treatment will be possible. For a fully interactive and multisensory experience of my PAVed objects the interested reader is welcome to go in-world and visit my "launchroom" on the virtual island of Virtlantis: http://slurl.com/secondlife/Virtlantis/202/196/21/.

2. The "added value of SL for FLT" discussion

This "added value" thread on the TESOL Electronic Village Online, Virtual Worlds and Language Learning 2009 Ning forum (http://evovwll.ning.com/forum/topics/added-value-of-sl-for-flt) was one of 19 "other" discussions held during, and after, the extremely active and fruitful six-week online course held between January 12th and February 22nd 2009. Of the nineteen discussions in the "other" category this was the most contributed to, with 52 replies, the last reply dated March 9, 2009. The next discussion in the frequency ranking, with 26 replies, was about "nothing to do in SL", and concerned mostly the difference between the gamelike nature of such virtual worlds as the *World of Warcraft* and the open-scenario character of SL, with its affordance[1] for building, creating and collaborating. Clearly, then, the "added value" discussion which I started generated ample response, which, incidentally, came from some of the most expert SL language educators. It is by taking issue with, and elaborating upon, some of these responses that my own views on the issue gradually developed. This is why I chose this somewhat unorthodox way of presenting the theoretical basis for my PAV experiments: discursive, dialogic, confrontational, collaborative, constructivist, augmentative. The reader will thus be presented not only with my current stance on the discussed issues, but also with the account of the process of reaching it, this corresponding with the commonly postulated educational character of MUV(L)Es.

The following abridged log of the "added value" thread picks on the responses most relevant to the focus of this contribution, namely those which are concerned with the actual definition of what could effectively constitute the "added value", i.e. those affordances of SL for teaching/learning foreign languages which do not simply replicate those of RL or two-dimensional web applications and Learning Management Systems (LMSs), such as Moodle. Naturally, in a discussion of this length and scope, there were many extraneous threads and loose ends, which are not covered here. Likewise, entries in this discussion may at times be heavily shortened, thus possibly misinterpreting the original goals and intentions of the discussants. This is not meant, however, to be a faithful representation of the whole discussion, but rather an account of my personal journey through

[1] An affordance is a quality of an object, or an environment, that allows an individual to perform an action (http://en.wikipedia.org/wiki/Affordance).

conceptual space, thus unavoidably subjective. Nevertheless, a draft version of this paper was presented to all quoted discussants for approval, and such approval was granted.

The reader completely unacquainted with virtual worlds, or Second Life in particular, may at times have problems with the unavoidable jargon in the following text. A short glossary of relevant acronyms is provided at the end of this paper, but no further background explanation and clarification can be offered here for lack of space. Extensive sources exist on the web addressing the needs of new and potential SL residents where some help with SL concepts and jargon can be found.

The style of the discussion log following is that of a lively and rather informal exchange typical of such community platforms as Ning, where it was originally taking place. This is of course rather different from what is expected in carefully edited academic prose deemed to be printable in peer-reviewed journals. It would be possible, at pains, to bring the following text into closer conformity with such discourse, but (i) some of the original impact of the exchange would necessarily be lost, (ii) gradually more and more research is conducted in this collaborative manner and style, especially research on such thoroughly community-oriented pursuits as online FL teaching. Therefore, I decided to present the discussion content without major stylistic changes (save a few typographic corrections here and there), fully aware that it may offend the stylistic taste of some readers. Caveat emptor!

Wlodek Barbosa on January 20, 2009

What is the added educational value of SL, compared to FL? The most obvious and most commonly touted advantages of SL you'll have heard around are those where SL is compared against Web2, i.e. two-dimensional web applications, such as Learning Management Systems (LMSs, e.g. Moodle), community portals (e.g. Ning or Facebook), collaborative spaces (such as Google docs), file-hosting services (such as Flickr or YouTube). It is in this comparison that SL shines, with its immersiveness, embodiment, social presence, three-dimensionality, literally understood constructivism, simulated natural environments, replicas of FL objects/monuments/ places, etc. But how is SL educationally better than FL?

Well... What immediately comes to mind in this context are fly-through hearts, simulated CPR phantoms, the Sistine Chapel or Virtual Macbeth. These are sims/builds which share a number of characteristics, the crucial being: affording a rich multisensory experience of an aspect/object of FL going beyond what is feasible in FL. One cannot experience the living heart from inside in FL; one cannot fly up to the ceiling of Sistine Chapel in FL; one cannot enter Macbeth's head in FL. Let us assume (without empirical proof, which is not easy to come by, BTW) that such affordances are actually conducive to better learning/understanding/knowledge creation. And that this advantage carries over to FL. So far so good.

But in this community we're concerned with language. Language is a system of immaterial symbols. So how do we, language teachers, construct the "rich multisensory experience" which would provide affordances going beyond what is possible in FL? We're not doing this by asking our students to solve multiple-choice tests, even if -- instead of clicking -- they need to move their avatars to occupy certain positions in-world. A multiple choice is a multiple choice. We're not doing this when we tell them to answer vocabulary questions whereupon they'll be able to open another door in a simulated maze. The vocabulary remains symbolic, and the maze is just an icing on the cake, rather than the crucial element of the experience. Even the hyped scavenger hunts only add value to the entertainment side of the exercise, not to the actual linguistic content or skill. If we tell students to TP to Barcelona and find answers to some language questions in their notecards by talking to the (presumably) native speakers of Spanish (and we all know that is an extremely risky

task to issue, pedagogically speaking), exactly where's the added value, compared to grabbing a mobile phone (or VoIP) and calling Barcelona Tourist Information, right here and right now, in the FL classroom?

It is easy enough to imagine a fly-through simulation of the oral cavity for pronunciation training in a foreign language, with some of the same pros and cons as the human heart experience, I guess. But this is because here we have the most "physical" end of the knowledge of a foreign language: the positioning of the tongue with respect to the teeth, the rounding of lips, the opening of the jaw, etc. Some linguists do not count phonetics as part of linguistics, by the way, simply because it is physical, and language is not. But beyond such simple ideas? How do we add SL value on top of what is already doable in FL? (And we're not talking about SL allowing geographically distanced students to come together -- this is another matter altogether). How do we use the amazing affordances of SL to really go *beyond* FL in teaching/learning languages. How do we avoid simply replicating our tired teaching techniques in-world? How is SL better than RL for FLT? What is the bottom line? What is the experimentum crucis?

Lynn Carlucci on January 22, 2009

There's always a trade off. For example, is it better language practice to send students to virtual Dublin to practice social conversation at the pub, or have a practice session in class where it might be easier for the teacher to identify whether a problem is with the language or simply not understanding how to work the voice toggle? Obviously, Dublin is more "fun" but is it better teaching? Undecided.

Daffodil Fargis on February 16, 2009

Hm, I've just read your post again, Wlodek (now that we are in week 6 ;). What strikes me most is that it seems you put SL on one side and FL (First Life or Real Life) on the other as if they couldn't exist side by side like other tools we use. I think we (at least you and me and some others) agree that SL is a tool among many. For me, SL is one of the my FL tools. SL is my 3D tools but I also have Web 2.0 tools and offline tools in a face-to-face class. Also, you say that games like scavenger hunts, mazes, etc. "only" add to the entertainment. But don't you think that we learn better when learning is entertaining whether this is in FL, SL or online?

Wlodek Barbosa on February 17, 2009

Entertainment, as part of edutainment, certainly helps teaching, but it can be achieved in many ways and in many places, ordinary RL classroom including. We don't need to enter SL to have fun teaching and learning. I fully understand that SL is/can be a powerful motivator to students because it adds the (quote from my original post) "immersiveness, embodiment, social presence, three-dimensionality, literally understood constructivism, simulated natural environments, replicas of FL objects/monuments/places", etc. But these advantages come from simply *replicating* RL, not from adding any specific VW value. My original "additional value" question concerned the so-far hardly well understood unique features of MUVEs which can be employed for teaching/learning. What are they? Oversimplifying: what is it in SL that we can do pedagogically that we cannot do in RL? My ideas of voice-enabled dominoes (see http://www.ted.com/talks/view/id/457 for a similar RL concept) or ubiquitous in-world dictionary distributed in virtually all objects/gestures are but humble attempts to wrap my mind around this question.

Notice that in today's panel discussion we hardly at all moved beyond the usual advantages of SL: immersion, role-playing, easy aid use. Walkthroughs were mentioned once by Frank Spearmann in the context of literature teaching/learning. So what have we got in language pedagogy, beyond the idea of a guided tour of the mouth cavity (of use to pronunciation teachers)? Towards the end of the panel, Gwen Gwasi asked: "can I ask a question to the teachers here, what was it that made the difference for you in SL?". She then continued to summarize some answers. At [4:35] she said: "can do the impossible". So this is my challenge: *Let's find ways in language teaching/learning to do the RL-impossible in SL*!

Osnacantab Nesterov on February 17, 2009

In any case, as I tried to state in chat during the panel - just part of the problem is the basic one of how foreign languages are learned and taught/facilitated, which is partly a question of how to use SL more exploratively, creatively and innovatively - is we still tend to base our views on how languages are learned on the scholastic model - sitting at desks, books, rules, exercises, tests, final examinations. There is, however, at least one other model - more natural and interesting, I'd say, though I've come across no written studies - they must exist. It is what I call the NMM method - the natural market method. Just think of all those people in the large markets of India, Africa, Istanbul where people pick up foreign languages. No evening classes in hot dusty classes for them. (Think of taxi drivers around the world, too).

And a final point - connected in my inner logical processes though probably not transparent to anyone reading this - the sense that SL works best when the language as such is virtually forgotten, when SL is being exploited as a setting, a milieu, place where things can happen, be enacted be done - which will probably include language, but not necessarily as the focal point.

Wlodek Barbosa on February 17, 2009

I can only add wrt to your market method -- well, this is what has gone down in the history of FLT as a direct or natural method, I guess. There's no denying that SL, as well as any other VW (the more realistic, the better), is a good environment to apply it, quite simply because it replicates RL, where people learn languages naturally/directly. Lots of role-play, authentic tasks, no reading, etc. I said "gone down", because I believe current FL pedagogy has since distanced itself somewhat from it, for all kinds of reasons, which we need not go into here. All this does not answer my question/challenge, though: we can use SL to teach/learn 'directly/naturally', *like in RL*, but then there's no added value of SL over RL, is there? In this way we're not doing anything 'impossible' to do in RL; we're simply replicating one method of RL language pedagogy in-world.

The close association between the teacher's feeling of SL immersion and their pedagogy, which I sense, should ideally generate teaching ideas/techniques/methods/aids which would cohere with this feeling, i.e. which would employ the affordances of SL which attract residents in the first place. If SL were a simple replica of RL there would be no reason to go in-world. The point is: there's *something* more there. I've been trying to capture this intuition by the seemingly paradoxical saying: "SL is just like RL, except better :-)". Likewise FL pedagogy: it should be just like SL, except better. The crucial question is: how can we make it significantly better (and better implies different, even if different does not imply better)?

Logan Walker on February 18, 2009

I think some of the advantages of using SL are:

1. It provides access to visually stimulating, three dimensional environments – students can get a more genuine experience of spatial relationships in a 3D world than a 2D map.
2. It provides opportunities to communicate with real people from all over the world – students can have genuine interactions with others where they need to negotiate meaning and achieve a communicative purpose (rather than always talking to their classmates).
3. It never closes – students can log in and find someone to talk to and something to do without waiting for their scheduled language class to start.
4. It provides a kind of mask – students can hide behind their avatar and may be less conscious of making mistakes or speaking out (and using an avatar also means people can't form opinions based on things like RL looks, clothing, age, etc.).
5. It speaks to "digital natives" in a language they understand – for some younger learners, textbooks and board work are boring symbols of traditional education; a virtual world is something fresh, exciting and engaging.
6. It provides a new and different way to practice language and engage students – which allows teachers to add more variety to their classes and hopefully provides a rich and memorable experience for students which may aid their retention of words or phrases.
7. It provides instant access to a wide variety of interesting experiences in diverse settings which can be the start point for discussions and group work (both in SL and in RL).
8. It is a uncensored world with many different kinds of people – students are not protected by the sanitized world of ELT textbooks where everyone is always nice to each other and everything is very jolly.
9. It can all be quickly and easily recorded and stored – you can take photos and keep chat logs, and then blog about it or keep it for yourself (and it probably looks much more interesting and memorable than lots and lots of photos of the same people in the same classroom).

However, I think RL is better because:

1. You know who you are really talking to and where you are, so you can choose appropriate language.
2. You can use and understand body language and gestures (especially ones that people don't mean to make - SL gestures are planned and deliberate).
3. You are not distracted by technological issues.
4. It's easier to maintain focus on one thing at a time, because there is often so much going on in SL!
5. SL doesn't really prepare students for situations in which they are likely to use the language – unless they are learning English because of their interest in virtual worlds.
6. Some conversation topics within SL are limited to SL and use SL-specific vocabulary which is not useful outside of SL.
7. The main focus is on reading and typing skills – rather than speaking and listening (in fact, due to audio issues, listening may be more difficult in SL than in RL).

Lynn Carlucci on February 18, 2009

When video became widespread, there were teachers who used it extensively in class because video provided "added value" to their classes. When multimedia became more common, teachers brought

in computers and stuck students with CD Roms because they provided "added value." And at first, students (and their parents) were happy with these new toys. But toys alone didn't make for better teaching. Good teachers found more effective ways of using these new tools, and their classes and students flourished. Bad teachers depended on the "added value" to continue to keep their students happy, and it didn't. When they didn't improve in the way they expected, students (or their parents) moved on to another instructor who provided what they needed -- good teaching.

Wlodek Barbosa on February 18, 2009

Let me comment wholesale on the many issues raised by the participants of this thread over the last 24 hours. We seem to be having a problem here with the definition of "added value". True: I never explicitly defined it in the first place, mostly assuming an intuitive understanding. So maybe I should start from this. Lynn, you say: "I don't think there is any "added value" to Second Life for Language Learning. Incredible potential and possibility, yes, but nothing that makes SL intrinsically better". In my understanding the "incredible potential and possibility" are precisely the added value. We now need to implement this potential into techniques, aids, methods which will *actualize* that potential, and which -- when compared against RL techniques, aids and methods will clearly constitute the SL added value. My original question concerned such concepts/objects.

Logan: "It provides a kind of mask – students can hide behind their avatar and may be less conscious of making mistakes or speaking out". Now *this* to me is a good candidate for some added value. The learner cannot hide behind an avatar *in RL*, so if this is indeed in any way conducive to learning (and we need much more research here, of course), this is an obvious advantage of SL over RL learning.

Wlodek Barbosa on February 19, 2009

Gestures obviously benefit both parties. There's the crucial difference in intentionality, though. Some gestures (minority) are under conscious control of the speaker, most are not. The receiver/decoder gets both categories in one bunch. Some gestures the speaker would be happy to avoid making, if only s/he knew how to stop. So much for RL. In SL the situation is very different: practically all gestures are controlled (even the standing ones, if you know how to use AO). This has two types of consequences for the speaker: (a) good - because there is no fear of exposing oneself through unintended gestures, and (b) bad - because the repertoire of gestures, compared to RL, is minute and hard to implement; hence less expressivity. On the receiving end there are no good consequences: a motionless avi with a frozen face and unsynched lips is obviously a worse conversation partner than a RL person. No gain at all here...

Wlodek Barbosa on February 19, 2009

In *3D Virtual Learning Environments* (http://iresearch.edumall.sg/iresearch/slot/u110/litreviews/3d_vle.pdf) Darren Nonis says that "From the research literature, the following advantages have been associated with using 3D VLE for teaching and learning (with my cuts):

1. The novelty of the three-dimensional virtual reality environment
2. The sense of empowerment, control and interactivity
3. The game-like experience, heightened levels of motivation and extrinsic and intrinsic rewards
4. The concretizing of objects to support visual learners
5. It supports a constructivist approach to learning

6. The allowance of greater self-awareness, support for interaction, and the enabling of real-time collaboration
7. The ability to situate students in environments and contexts unavailable within the classroom
8. The ability to scaffold student learning

In my mind, only points 4. and 7. might qualify to constitute added value of SL over RL, and that under additional conditions. The remaining advantages are achievable in RL with well-constructed learning environments. If so, the questions are: (a) how do we concretize linguistic objects to support visual learners? and (b) how do we best model in SL linguistically advantageous "environments and contexts unavailable within the classroom"?

Wlodek Barbosa on March 1, 2009

One more take on the issue of added value of SL for FLT. John Lester (Pathfinder Linden) said: "If you want to teach biology, why build a virtual classroom with desk and a blackboard in Second Life when you could build a whole interactive human cell?" (*Guide to getting started in Second Life*, 2006, http://www.simteach.com/SLCC06/slcc2006-proceedings.pdf). Now, there're probably few SL language teachers in this community and elsewhere who would question this. So, applied to FLT, what would Pathfinder's words be? "If you want to teach a foreign language, why build a virtual classroom with desk and a blackboard in Second Life when you could build a whole ..... ?"

Osnacantab Nesterov on March 1, 2009

Well, Wlodek, I guess a simple end to the sentence would be...."when you can build a whole city." There is no doubt that classrooms and boards are not necessary for language learning in SL. Classrooms are OK for getting out of and as long as the facilitator has a display device in his/her inventory you can write things in the North Pole or the Sahara Desert - as long as there are SL versions. What your question really invites us to consider, though, is just what do we, ideally need for effective language learning in SL - and what don't we need?

Wlodek Barbosa on March 1, 2009

The city for language learning is no equivalent of the cell for learning biology. The city is just a venue/opportunity/stimulus to use/learn language, whereas the cell is the actual object of study for biologists. As I was emphasizing a few times on this community, the question really is: if (foreign) language is the object of study, how does one "rez" it in SL, considering that language is an abstraction, not like a cell (to biologists), a planet (to astronomers), a building (to architects), etc. Language is a *code*, not an *object*. Some parts of language are less abstract: sounds, for example, are actually physically articulated in the mouth. But most language is really pretty much unrezzable, otherwise than as a certain reified metaphor: hence my domino idea and a few others. But... I feel this is still sadly inadequate, especially in comparison with those proverbial biologists.

Osnacantab Nesterov on March 1, 2009

But isn't one important fact that language learning is about behaviour? Learners are not, or not principally, learning 'facts', they are learning how to behave. So what can be modeled in SL? Perhaps there are parts of language that could be helpfully modeled -- some of the linguistic systems that are fairly stable -- but learning a language, surely, involves performing it. And where SL can help there is in providing physical scenarios that would provide opportunities for certain

parts of a language to be used. I'm not sure there are equivalents for language learners to cells and buildings.

Daffodil Fargis on March 1, 2009

Wlodek, provocative question maybe but why do you want to "rez" language? SL itself can be the object of study (e. g. going to places and reporting about them, examining attitudes, etiquette, appearance in SL and writing or presenting orally about it, ...) So, I would modify your sentence a bit and say: "If you want to teach a foreign language, why build a virtual classroom with desk and a blackboard in Second Life when SL can be your "classroom"?" :-)

Logan Walker on March 2, 2009

I think one of the best things about SL is the creative freedom it gives people. So students can work together to build their own places and communicate with a lot of people while they do so - with sellers, builders, scripters, and eventually visitors. Does this mean that the way to complete Wlodek's sentence is: "If you want to teach a foreign language, why build a virtual classroom with desk and a blackboard in Second Life when you can help the students build whatever they want?"

Wlodek Barbosa on March 2, 2009

Logan Walker said:

>(a) "help the students build whatever they want?"

>(b) tendency of work in CALL to rediscover the same instructional practices and problems with each generation of computer hardware and software". So, is SL just the next generation of software?

Thank you, Logan -- great points! WRT to the two I itemized I have the following to say:

(a) This is the leading issue of this discussion thread. I still tend to look up in envy to those biologists, with their walk-through hearts and testes... They do not simply build "whatever they want"; they build educational objects which can then be analysed, manipulated,... cognized in ways which linguists or language educators have not yet fathomed how to apply to their educational objects. We do have our own linguistic objects to analyse, manipulate, cognize... Or don't we? More on this in my replies to Osnacantab and Daffodil.

(b) I'm afraid this observation (from a leading ICT-in-education specialist) is very true. FLT educators also have a long row of mea culpas in this respect. More often than not we do tend to replicate solutions which we're used to from RL, rather than think of innovative ways of teaching (or facilitating learning) foreign languages. Role-playing in SL is great fun, and doubtless educationally useful/effective, but how does it differ from RL? OK - less need to imagine the environment, with all the glittery holodecks. But in terms of techniques/effects... Not much different, is it?

Wlodek Barbosa on March 2, 2009

Osnacantab Nesterov said:

>But isn't one important fact that language learning is about behaviour? Learners are not, or not principally, learning 'facts', they are learning how to behave. [...] I'm not sure there are equivalents for language learners to cells and buildings.

Of course lg learning is about behaviour! But in order to behave you must know the code. It takes newborns years to learn the code to behave linguistically in roughly the same ways as adults do. We (lg teachers) do not throw our beginning learners into a communicative situation and tell them to behave :-) They must first have some code. Not all of it surely, but some, so that they can then improve the bit and pieces they have and add new ones *while behaving*. As far as I can see, most of the FLT literature is about how we best make them learn the code. And of course there are wildly differing ideas on this issue, from grammar-translation to silent way, and dozens more. But have the code they must.

So, my provocative questions really refer to this bit: learning the code, to be able to use it and improve its knowledge and skill. Now, code is about facts: sounds, words, grammatical structures, spelling, turns of phrase, conventional chunks, etc. If there's any equivalent in language to biologists' cells, hormones, bones, etc. it must be these linguistic 'objects'. So, to rephrase my take on this once again: how can language teachers use the rich affordances of SL, including especially three-dimensionality, but not excluding many others, to help language learners learn these 'facts'/'objects' in ways similar to SL biology teachers helping their learners learn about cells, etc.?

Wlodek Barbosa on March 2, 2009

Daffodil Fargis said:

>Wlodek, provocative question maybe but why do you want to "rez" language?

Let me answer with a question: why do biologists want to rez cells? astronomers - planetary systems? literary scholars - Macbeth? This may indeed be a hard question. Some of them may not even know why they rezzed what they rezzed. If so, this would only show that they should do some more analytic thinking... But most would probably answer you something like this: "We rez because we believe that by interacting with the object in ways only SL allows you to learners will "learn better" (whatever that may mean) about the object itself and about the field of study this object/concept is immersed in". So: why do I want to rez language? For exactly the same reasons. Is it doable with language (in ways in which it is with other objects of learning)? I do not know. But I feel it would be great if it were :-)

Wlodek Barbosa on March 9, 2009

Using Lego and Plasticine to "model" metaphors: http://mutablematter.wordpress.com/tag/lego-serious-play/. Pretty much what I've been trying to find for SL reification/rezzing of linguistic objects :-). Also see here: http://www.artlab.org.uk/rsa-workshop.htm and here: http://www.youtube.com/watch?v=lLGQahsXjVM.

Summarizing this long discussion: the "added value" of SL, as defined somewhat negatively in the course of this exchange by providing arguments why I believe a SL property X *does not qualify*, remains elusive. At the end of the day, then, the best candidates for those pedagogical affordances of SL which do not exist, or are practically hard to obtain, in RL (or in 2-dimensional internet) appear to be: (i) avatar masking, (ii) text and audiovisual recording, (iii) gesture control, (iv) building (from Logan Walker), and (v) "environments and contexts unavailable within the classroom", (vi) "concretizing of objects to support visual learners" (from Darren Nonis). This is

arguably a rather meager catch in this search for the RL-impossible in SL (language) pedagogy. It shows, I believe, that SL (language) educators are still at the very beginning of the long and winding road of (re)conceptualization, implementation and testing.

Rather than wait for the entire theory of SL pedagogical affordances to be built I decided to develop one of the ideas which seems to me to be the most fruitful among those mentioned above: that of concretizing or reifying in SL abstract concepts, such as most linguistic concepts on all levels of language structure, for the sake of better learning, with particular focus on experientially, visually and kinesthetically minded learners of foreign languages (see here http://ifa.amu.edu.pl/~swlodek/E-TEXT_WS.pps for my short discussion of "text reification"). This original reification programme subsequently passed through a number of stages to morph into what I call Phonetically Augmented Virtuality (PAV). In the remained of this paper I discuss some of its aspects.

3. AR, AV and PAV

One unique affordance of Second Life, and commonly regarded as one of its strongest advantages over some other virtual worlds (see Logan Walker's list above), is that the environment allows almost unlimited construction. Indeed, except for the ground, the see and the sky provided by Linden Labs upon purchase of the so-called "sim", i.e. an area of land, everything else is literally built by the residents: trees, houses, streets, mountains, everyday objects, everything. Each such object exhibits a number of physical properties known from RL, such as gravity, mass, colour, shape, etc. What is much more interesting for language educators, however, is that it can also carry features which are impossible or extremely hard to implement in RL. For example, objects can behave in many programmed ways in response to touch or impact. Objects can also contain other objects inside, such as notecards, audio/video recordings, or their own replicas ready to "rez", i.e. start existing in the virtual environment.

These unique SL properties of all objects have not escaped notice by language educators. One of the most popular affordances is making objects dispense notecards when touched by an avatar. The notecard can contain explanatory/informative text, a test question, some instructions on the next step in a quest, a picture, a landmark to teleport to, a url link to a web page, and other types of information. Objects which play linguistically relevant sound files, such as recorded object name, are also used in many places devoted to foreign language teaching and learning. James Abraham (Calisto Encinal in SL), for example, has created a rich environment for learners of Spanish, where he has used these affordances of SL to the utmost. See here http://www.channels.com/episodes/show/3568731/A-Tour-of-Mi-Casa-Es-Su-Casa or here http://blip.tv/file/1320301 for a video tour. This is how he describes one of his language games: "You can click on each letter to hear it pronounced. In addition, you can put a word in on channel 711 (text chat in SL – WS) and it will be spelled back to you in text and audio" (https://lists.secondlife.com/pipermail/educators/2008-December/027920.html). Audio clues for quests and tasks in SL can also be delivered via the streaming audio channel, which is usually used to stream music radio broadcasts. This may be more effective when there is a need for the learner to listen to a recording longer than a few seconds. This method is used with great success on the British Council island in SL to cue learners going on the Merlin and Robin Hood quests. See here for more information, the SL url, and links to video tours of the island: http://www.britishcouncil.org/kids-second-life-for-teens.htm and http://www.teachingenglish.org.uk/try/links/second-life-learners-teachers-english).

In effect, such SL environments containing some "extra" additional information superimposed on the ordinary physical objects and available to the passer by equipped with the right hard- and software are directly reminiscent of what is quickly becoming a standard functionality of the latest

models of mobile phones, i.e. Augmented Reality (AR). With built-in GPS and g-sensor modules such smartphones can superimpose arbitrary information in audio-visual form on the view of the physical environments mediated by the smartphone's camera. One definition of AR is "a live direct or indirect view of a physical real-world environment whose elements are merged with (or augmented by) virtual computer-generated imagery - creating a mixed reality. The augmentation is conventionally in real-time and in semantic context with environmental elements, such as sports scores on TV during a match. With the help of advanced AR technology (e.g. adding computer vision and object recognition) the information about the surrounding real world of the user becomes interactive and digitally usable" (http://en.wikipedia.org/wiki/Augmented_reality). There are basically two functional types of AR currently used for education:

(i) augmenting a book or another type of traditionally printed material with 3d pop-up visualizations, e.g. http://www.youtube.com/watch?v=Q_xF8ujj7ko from Facoltà di Architettura Valle Giulia, and

(ii) augmenting the wide view of the environment with educational content, e.g. http://www.youtube.com/watch?v=8L6ht0fNBRA from Harvard *HARP* Project; an hour-long lecture delivered at a conference in SL here: http://business.treet.tv/shows/bpeducation/episodes/bpeharp).

Augmenting SL objects with additional information is naturally closer to the latter RL implementation of AR. Because the augmentation is effected in a virtual world, the term I tend to use for this SL affordance is *Augmented Virtuality*. And because the range of my own AV interest has so far been limited to EFL pronunciation, the appropriate acronym results in *Phonetically AV*, or *PAV*. Hence: *PAVed* objects, blocks, toys, games, etc. My own definition of PAV follows: "enhancing a virtual world with phonetic information in the form of sound files, text-to-speech synthesis, phonetic transcription, explanatory text, as well as exercises and tasks of all kinds. This phonetic information is built directly into objects in the virtual environment and can be interactively accessed by the student's avatar".

In my SL classroom I have rezzed and tested a number of PAVed objects. This is a brief description of a selection among them (see here http://ifa.amu.edu.pl/~swlodek/PAV in SL.pdf for a more extended discussion):

1. *Phonetic dominoes*: audio-enhanced 'magnetized' cubes can be dragged and linked to each other domino-style one by one to match the offset-onset sounds, e.g.: *alcohol-lemonade-duck-cabbage-gin*. Correctly linked dominoes snap into a flexible chain, wrongly linked repel each other. In both cases objects 'say their name' upon touch. This original phonetic idea can be applied to any language units and structures. Their properties/features/functions can be the basis for their differential behaviour, e.g. irregular verbs or parts of a complex grammatical structure will attract each other, such as some English tenses.

2. *Word-stress blocks*: there are 19 cubes of two sizes, big and small. Each cube represents a syllable of one of the seven words, which can be listened to when the cube is touched. Big cubes are stressed syllables, while small cubes are unstressed syllables. The learner drags the cubes to snap them together in such a way that they make up the entire word, with cube size matching the stress pattern of the word. Thus, *apricot* should look like this: [Ooo].

3. *Phonetic walk-through grid*: this is a variant of the word-stress block game, but this time, rather than dragging magnetized cubes to string them into words, the learner walks through the 4x4 grid of stepping stones in such a way that s/he only steps on stones with a given number of syllables and stress pattern, for example *November*: [oOo]. When s/he steps on a stone, it will say its name.

4. *Phonetic finder*: a cone will emit a stream of glowing particles in the direction of the object whose name was correctly entered in the public chat window. This name may contain phonetic

information of various types (e.g. transcription or test questions). The learner must now follow the stream to find the object, where further clues can be hidden to send him/her on a phonetic quest/hunt. These clues may have a textual or audio-visual forms[2].

Such PAVed objects would be close to impossible to construct in RL, so, as such, they are good candidates for generators of the pedagogical "added value" in SL teaching/learning. Abstract linguistic concepts can be reified as 3d objects; additional information can be inserted into them in many forms; interactive functionalities can be built in; these augmentations could be explicit or dormant, but triggered by avatar presence (as shown for AR in the HARP project above). Notice that, unlike in RL, no special visualizing gadgetry, such as virtualizing goggles or intelligent smartphones, is required because the entire setup is already immersed in a virtual world. This means, among others, that it is much easier and cheaper to implement certain innovative AV ideas in SL than their analogue AR in RL. My PAVed objects rely on readily available basic elements already provided by the SL interface, plus a few free scripts enforcing desired physical properties. Sound files must, however, be uploaded into SL from RL at a cost (about 4 US cents per 10 seconds of recording).

Once it is shown that the PAV potential is implementable in virtual objects, another line of research comes to the fore: how are these AR-impossible objects best integrated in SL teaching and learning, how effective are they pedagogically, compared to other techniques and affordances of the virtual medium, what are the pros and cons, and what are the further ramifications of AV in SL for education. These threads will have to await their turn, as it would be impossible to attach them here. There are some research results to persuade that both reification of abstractions and virtual augmentation are conducive to learning, however. For example, Dalgarno and Lee, in their 2009 overview of learning affordances of 3-D virtual environments, state that "in some knowledge domains, the concepts to be learnt are abstract and do not correspond directly to material objects. The term 'microworld' is often used to describe simulations of abstract environments designed for concept formation (Rieber, 1992). Winn and Jackson (1999) suggest that VEs are "most useful when they embody concepts and principles that are not normally accessible to the senses" (p. 7). They use the term 'reification' to describe the representation of phenomena that have no natural form" (Dalgarno and Lee 2009:19).

As far as the educational effectiveness of AR is concerned, "Patrick O'Shea, the current HARP director at Harvard, says that by entailing students to walk around and rely on handhelds, augmented reality tools force them to play a more active role in their own education. While O'Shea notes that researchers have not conducted rigorous quantitative analyses on whether or not augmented reality is improving learning, anecdotal evidence does show that it is certainly boosting student excitement about learning" (http://vroot.org/node/4826). See HARP's home page for more information: http://isites.harvard.edu/icb/icb.do?keyword=harp.

Finally, for Augmented Virtuality, "much research is needed to help direct instructional developers working in immersive spaces to create original learning experiences, to assess them and gauge improvements" (Jeremy W. Kemp and Ken Haycock 2008). It is rather hard, for example, to propose valid and reliable research design comparing the effectiveness of EFL pronunciation pedagogy with and without PAV resources. While SL language teaching is about three years old now, there has been relatively little solid scientific research into its effectiveness (but see Richardson and Molka-Danielsen 2009 for an up-to-date account of some crucial methodological issues involved). Time will tell if language education in virtual worlds will manage to break the "no significant difference" barrier (Oblinger and Hawkins 2006; see also

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[2] I am grateful to *The Magicians* (http://themagicians.us/index.php) for a gratis copy of their Finder.

http://www.nosignificantdifference.org/) in comparison with RL on the one hand, and with "traditional" 2-dimensional web applications on the other.

4. Conclusions

Most educators and researchers agree that Virtual Worlds, both game-oriented (like *World of Warcraft*) and non-game-oriented (like *Second Life*) generate an enormous educational potential and promise as the next stage in e-learning. These hopes are pinned on a number of VW properties, or more precisely – affordances – such as three-dimensionality, embodiment, co-presence, immersion, interactivity, constructivism, visualization, reification, augmentation and others. Of all these affordances, the last two, i.e. reification and augmentation, appear to be the best candidates for the true educational "added value" of VWs over RL and/or 2d web. While it is eminently possible, and sometimes actually practiced, to exploit the immersive face-to-face properties of the RL educational setting for the benefit of teaching and learning, say by organizing quests or simulations of functionally relevant RL scenes (such as airport or pub), both reification of abstractions and augmentation of reality are either impossible or very hard and expensive to achieve in a RL (language) classroom. Thus, PAVing the learners' VW environment (or indeed GAVing – from Grammar, or VAVing – from Vocabulary) may be among the best techniques teachers can use to scaffold FLT in SL.

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Some links to my PAV resources

My Pecha Kucha presentation of the PAV idea and implementation: http://www.youtube.com/watch?v=uDlWtCtQB8I and http://blip.tv/file/2315534/.

A longer presentation, held in SL: http://ifa.amu.edu.pl/~swlodek/Second_Life.html (scroll to "Wlodek Barbosa'a OsnaGroup presentation on Phonetically Augmented Virtuality (PAV), held July 9th 2009").

My *Mówienie w języku obcym* Konin 2009 conference PowerPoint presentation on "Phonetic affordances of Second Life": http://ifa.amu.edu.pl/~swlodek/Afford.pps.

My *Accents 2009* 4-page conference PAV handout with examples of activities: http://ifa.amu.edu.pl/~swlodek/PAV in SL.pdf

More links on SL in EFL pronunciation teaching are available from my dedicated website: http://ifa.amu.edu.pl/~swlodek/Second_Life.html.

Glossary of some acronyms used in this paper

AO - Animation Override
AR - Augmented Reality
AV - Augmented Virtuality
EFL - English as a Foreign Language
FL - First Life
FLT - Foreign Language Teaching
LE - Learning Environment
LMS - Learning Management System
MUV(L)E - Multi-User Virtual (Learning) Environment
PAV - Phonetically Augmented Virtuality
RL - Real Life (also called First Life or Actual Life)
SL - Second Life
TP - teleport
VW - Virtual World