Cases on E-Learning Management:

Development and Implementation

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Chapter 16
Collaborative Learning in the Virtual English Class:
A Hong Kong Case Study

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EXECUTIVE SUMMARY

This chapter demonstrates how Second Life (SL) is used to enhance collaborative language learning on a virtual campus of a Hong Kong university. The case study reports on the learning experience of a number of undergraduate students as they navigated through a virtual task in an existing course: English for Technical and Web-Based Writing. Student avatars assessed each other's work and shared learning experiences and comments via SL-enabled tools such as voting bars and note cards. To determine if this practice was more effective as a learning tool than a traditional classroom or two-dimensional discussion on the Internet, the students' feedback on SL was collected through the university's online survey system (i-Feedback), camera recorded focus group discussion and audio recorded tutor feedback. The findings suggest that different tasks in a virtual learning environment may stimulate

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students' interest in their learning process, even though the technical complexities might frustrate them. The possibilities, shortcomings, and technical challenges of cultivating a community of collaborative language learning are also discussed.

ORGANIZATION BACKGROUND

The Hong Kong Polytechnic University took the lead in Asia to set up a PolyU Virtual Campus in Second Life in 2007. Up to now, 11 out of its 29 departments have set up virtual classrooms or laboratories. The virtual campus provides a three-dimensional environment supporting student activities under four functions: teaching and learning, assessment, design, and resources (Herold, et al., 2008), and has enabled various applications. Over 4,000 students have visited or worked in the virtual library, hotel, hospital, and workshop, etc. The virtual worlds prove to be useful in helping students achieve pre-set educational goals and objectives when the activities in the virtual world are sufficiently contextualized and integrated into the offline course. They can further promote interactions between people online.

SETTING THE STAGE

Society has moved from the Information Age to the Age of Peer Production, and now that composition must include a variety of non-traditional genres to ensure relevancy, English departments are undergoing even greater impetus to change. In response to this, peer-reviewed pedagogies are subject to immediate revision, collaboration, and even deletion; they challenge traditional assumptions about authorship, authority, collaboration, and power (Moxley, 2008). As a result, the virtual learning environment proves to be an effective medium in facilitating the emergence of "a learner-centered discourse community" (Darhower, 2002). The nature of virtual environments is generative, allowing self-navigation and interaction with the environment and other virtual residents, as well as creating objects. In the context of a language classroom, user and builder-embedded tools in a virtual setting like Second Life allow for three-dimensional visualization, instant creation, retrieval of specific learning products, and multimodal representations of images and texts allowing students to "benefit from interaction, because the written nature of the discussion allows greater opportunity to attend to and reflect on the form and content of the communication" (Kern & Warschauer, 2000). As a form of social media, Second Life (as well as blogs and wikis) may address learning in the form of interaction and connections since collaboration and social construction of knowledge are key components of the dynamics seen in social media. It has the potential

to motivate student learning and help students gain a deeper level of understanding of the potential of technology, extend professional knowledge and life skills for all-rounded development.

Digital enhancements offer unlimited opportunities for infusing subject matter directly into the classroom (Fox, et al., 2009). Within social media, virtual worlds are different from other applications in three ways: 1) virtual worlds allow users to interact in real time (whereas there are time delays in such tools as Facebook); 2) virtual worlds allow users to create fully customized self-representations (avatars) (far more flexible than image creations in online communities like YouTube); and 3) the basic rules of physics makes Second Life three dimensional and navigationally comparable (Kaplan & Haenlein, 2009). Virtual worlds can provide additional affordances to English courses with a technology-based component, yet in order to produce effective products, students need to use principles of design as well as be technically competent in the virtual environment. The technical barrier may prove challenging to some students, and this should not be overlooked when teachers integrate virtual worlds into their institution's existing Learning Management System (LMS) which when merged with virtual environments potentially becomes a student-centered and -managed space that also delivers traditional learning outcomes such as course deliverance, collaboration, and assessment (Yasar & Adiguzel, 2010). To build professional competence, students first need to build confidence and develop critical evaluative expertise when selecting elements for their assessments, using design software and providing peer evaluation. In both the physical classroom and the LMS, tutorials on how to use the virtual learning platform, or—if the institution possesses one—the virtual campus would be important to building up students' navigational skills in this area. Additionally, technical competence for both students and teachers requires continuing development for efficiency and effectiveness during group interaction. As such, instructors in Multi-User Virtual Environments (MUVEs) are responsible to help their students: 1) create an environment that facilitates the expansion of knowledge to students via building and exploring; 2) discover activities within virtual worlds that should be adapted to the abilities of the students; 3) produce lessons and objectives which can be implemented within a virtual world in addition to classroom instruction; and iv) acquire knowledge and skills via use of MUVEs as an effective and powerful instrument for students who are digital natives (Burgess, et al., 2010).

This study investigates a collaborative project involving undergraduate students from a subject English for Technical and Web-Based Writing (ETWW) at the Hong Kong Polytechnic University (HK PolyU). Here, student-created products functioned as artifacts in a Second Life virtual department using Communal Constructivism and Knowledge Building theories (Girvan & Savage, 2010) for both current and future classes to use as context points to add on to their own language and design

knowledge. From 2009 to 2011, three cohorts' students had peer assessments on their technical writing projects in virtual environment and reflected their experience in this new type of e-learning platform. This chapter attempts to answer the following questions:

- What are students' perceptions of working in a virtual campus as an alternative platform for technical and Web-based writing?
- What could students' attitudes and accomplishments when engaging with virtual tasks suggest about using Second Life as a collaborative learning community?
- How might the Second Life learning experience help with future university studies and career goals?
- How does peer critique possibly influence student comprehension of the taught components—namely the application of design principles in technical writing?

CASE DESCRIPTION

English for Technical and Web-Based Writing (ETWW) is an elective subject for full-time students and compulsory for part-time students at the Department of English, Hong Kong Polytechnic University. It is designed to help students to understand the genre of technical writing; to develop linguistic skills to write clearly, correctly, and concisely; to work creatively with basic technical skills in desktop publishing and Web design; and to develop competence and confidence in basic human-computer interaction. To provide multiple opportunities to develop proficient technical writing and design skills, the subject team assigned a set of different tasks (which considered purpose, context, language, and audience) to different cohorts of students, including a book cover, billboard, user guide, personal website, and portfolio. The student assignments were submitted through WebCT (the former LMS for the university), or—at the discretion of the instructor—a wiki-based system that allowed for peer and teacher feedback and collaboration. Both full-time and part-time cohorts were asked to participate in the project.

Given the student-centred nature of outcome-based education, learners are heavily involved in assessment as a part of their learning process. Haas, Tulley, and Blair (2002) call for the sharing of Web-based projects through a "studio review"—juxtaposing between exchanging of hardcopies of papers in a traditional classroom peer review, versus virtual commentary and sharing of works-in-progress in the multimodal virtual classroom. In the past, ETWW student work was uploaded to the WebCT system and students had to download or open the files one by one be-

fore peer assessment. The comments were either written on a sheet of paper, or in an online forum with students jumping between windows. Second Life provides a potential interactive platform and can speed up the peer evaluation process.

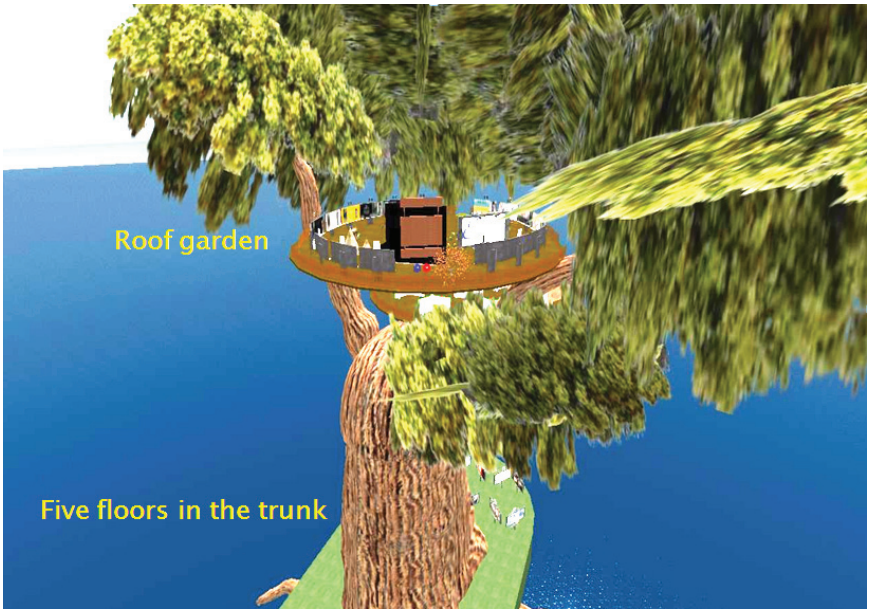
The impetus for the project was a reaction to the Hong Kong-wide university change from a three-year to four-year curriculum starting in 2011, and thus the perceived needs for an alternative delivery of learning in order to better prepare our students for a more international and comprehensive university and professional life. One of the major contributions of Second Life lies in education. It can support learning activities by creating innovative environments for distance education (a potential consideration for the new university curriculum). Students can, in the virtual world, enjoy simulations of lectures, enhance experiential learning, practice skills, try new ideas, and learn from their mistakes. The objective of the proposed additional task was for students to create a movie poster (which was, ironically, for the movie *Avatar*) using elements of design such as balance, proximity, contrast, and alignment. After posters were uploaded to Second Life, students would then engage in collaboration through the voting of their favorite posters; peer feedback via virtual notecards; in-world discussion of particular posters; and finally review of the experience back in the physical classroom. In addition, the task was a way to introduce and ease ETWW students into an unfamiliar learning environment.

The Virtual Department of English

The English project started in a borrowed space in the virtual Convention Centre of PolyU, then developed into a more comprehensive, creative and official venue for interactive learning. Inspired in part by Salmon's Tree of Learning ideology (2010), the virtual Department of English, also fondly and appropriately referred to as the Tree of Knowledge (Figure 1), attempted to extend virtual learning to different English subjects.

Inside the trunk, there are five floors. The first floor is the Drama Lab where language art students can design a stage and demo a performance; the second and the third floors are the Exhibition Spheres for displaying staff research result and masterpiece of student work; the fourth floor is for lectures; and the fifth floor is the Meeting Sphere for sharing of ideas. Outside the trunk, different platforms can be built onto branches. Students can teleport or fly to various "branches" for different interactive and building experiences, and share their discoveries with each other through blogging or discussion forums. The organic design of the virtual department intends to encourage what Craft et al. call "collaborative learning," representing a significant shift away from the typical teacher-centred or lecture-centred milieu in college classrooms, whereby the learner applies learning in new contexts, thus increasing competence (2007). Teachers become designers of intel-

Figure 1. The virtual department of English, tree of knowledge



lectual experiences for students – as coaches of a more emergent learning process (Smith & MacGregor, 1992).

In this case study, collaborative learning co-exists with other learning processes (lecturing, listening, note taking), in a computer-mediated learning platform which is time and place independent, enabling quick feedback and real time interaction. It also brings speech and writing together "with the interactional and reflective aspects of language merged in a single medium" (Zeng & Takatsuka, 2009). In contrast to the physical classroom, students were now able to meet anytime; collaborate with students from different class sections who they've never previously met; participate in a space more affordable than renting physical space or for enlarging student products (some products like the user guide could not feasibly be enlarged); and view all products within a contained virtual space.

The Design Task

A total of 96 students from four ETWW seminar groups participated in the project in the last three years. A design task was assigned to the students as non-graded, easily transportable (to the virtual world) work, specifically for the project. We cherished the hope that students would feel less pressure and focus instead on task criteria, creativity in design, and open to collaboration and assessment in a new learning

environment—Second Life (most—if not all—students were either unfamiliar with Second Life or had little experience navigating through virtual environments). The task required students to consider a scenario: for instance, a poster promoting the movie, *Avatar,* on campus, and to satisfy specific information needs of audience, including movie images, venue and scheduling information, logos, contact information, and blurbs. Design criteria also needed to be considered, namely contrast, proximity, balance, and alignment. Each cohort was given one week to complete a task, and submit their products via WebCT, after which the project manager uploaded the posters to a display gallery (Figure 2, 3, 4), ready for peer comments.

Training Workshop

To help students migrate as seamlessly as possible onto the virtual platform, the tutors (project manager and ETWW teachers) provided a two-hour training session to explain Second Life: creating avatars, using the display setup, and navigating around the virtual campus. The students were given one week to familiarize themselves with the virtual campus before they negotiated the peer evaluation in class– and were encouraged to revisit the site to review more peers' work after class.

Figure 2. Peer review of movie posters

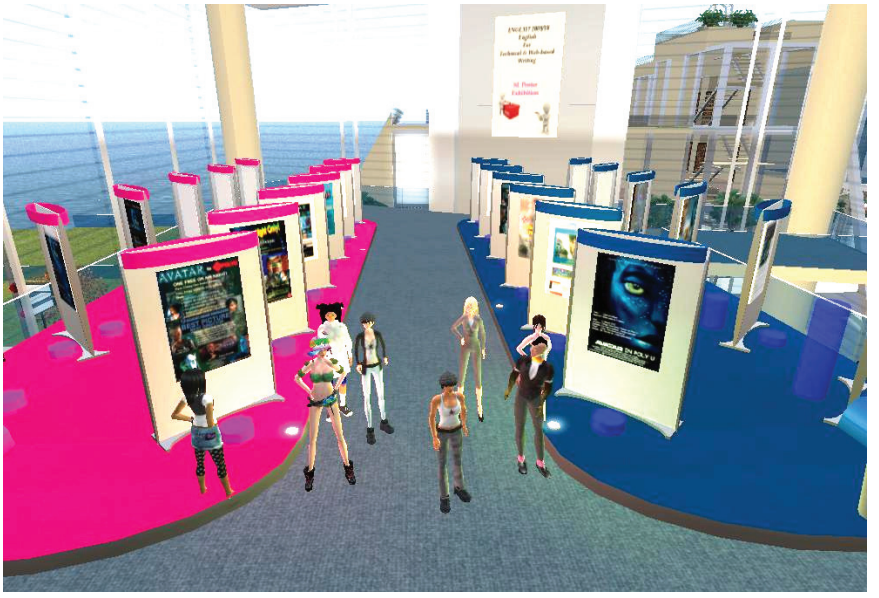


Figure 3. Peer review site of billboards

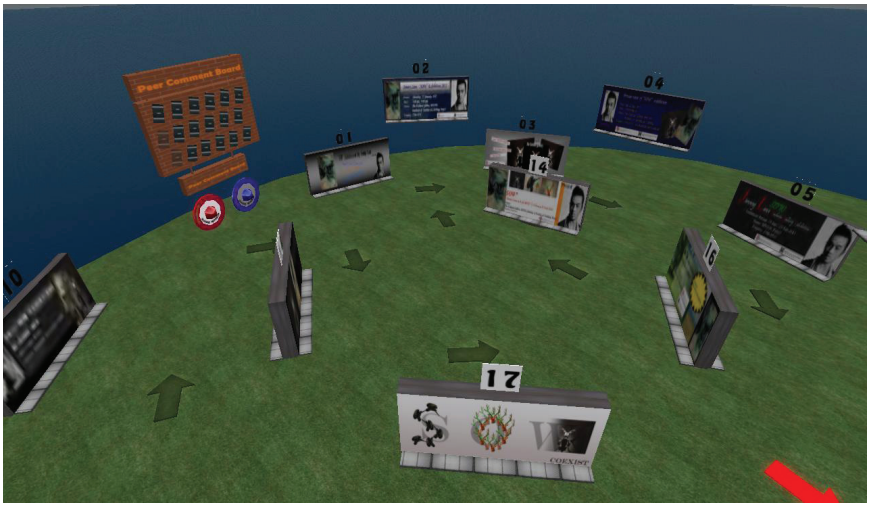


Figure 4. Peer review area of websites

User-Friendly Interface

The design for peer evaluation helped curve the learning time for students to adapt to the platform. First, road signs were posted around the virtual campus so that student avatars could teleport directly to the peer evaluation area. Second, visually enhanced buttons, mailboxes, display boards, and voting bars were built around student work to create a space for immediate feedback. The overall design concept ideally supported students, teacher, and supporting staff in the learning and collaboration process (Figures 5, 6, and 7).

Project Assessment

The project was assessed with four instruments: text analysis of peer comments, i-feedback survey, focus group discussions and interview with tutors.

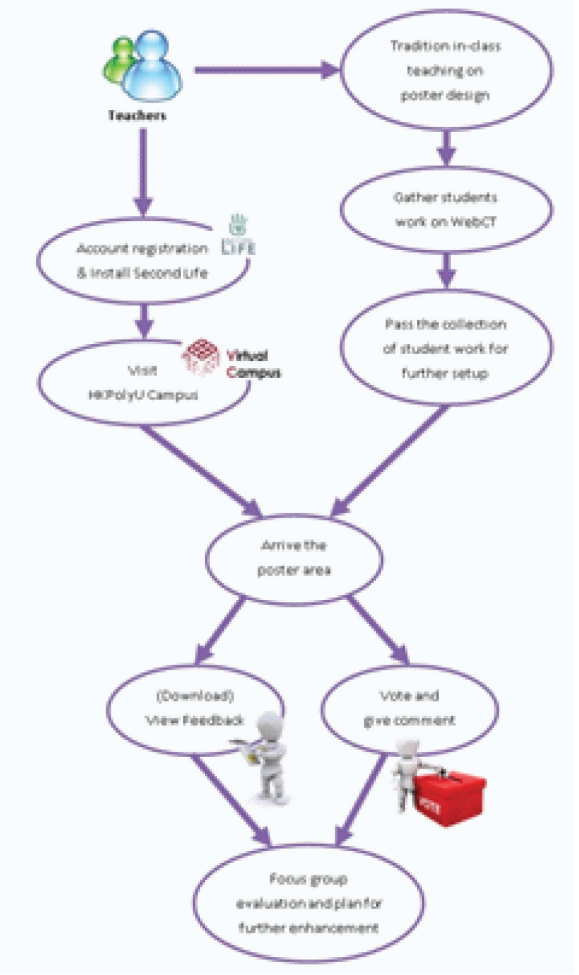
Peer Comments via Note Card

Students were instructed to base their evaluations on design principles of contrast, proximity, balance and alignment. All their works were numbered and colour-coded into different seminar groups. Avatars would click the colour sphere in front of the display boards to vote for their favourite work, and click on any poster to write comments on a pop-up note card (this is explained in detail in the next sections). Double-sided exhibition boards were arranged strategically for easy navigation and viewing. The peer comments can be viewed by other avatars and will automatically be collected in EXCEL file by the project manager.

HK PolyU i-Feedback Survey

The online survey system (i-Feedback) at PolyU is intranet-based, with pre-generated or customisable close-ended, open-ended, and scaled enquiries, and is accessible by university staff and students. Since ETWW classes took place in multimedia labs, the survey was completed during class time. Students were asked about their perception of e-learning via Second Life channeled through three statements on a five-point Likert scale (1 = strongly disagree, 5 = strongly agree) and three open-ended questions (see Appendix A).

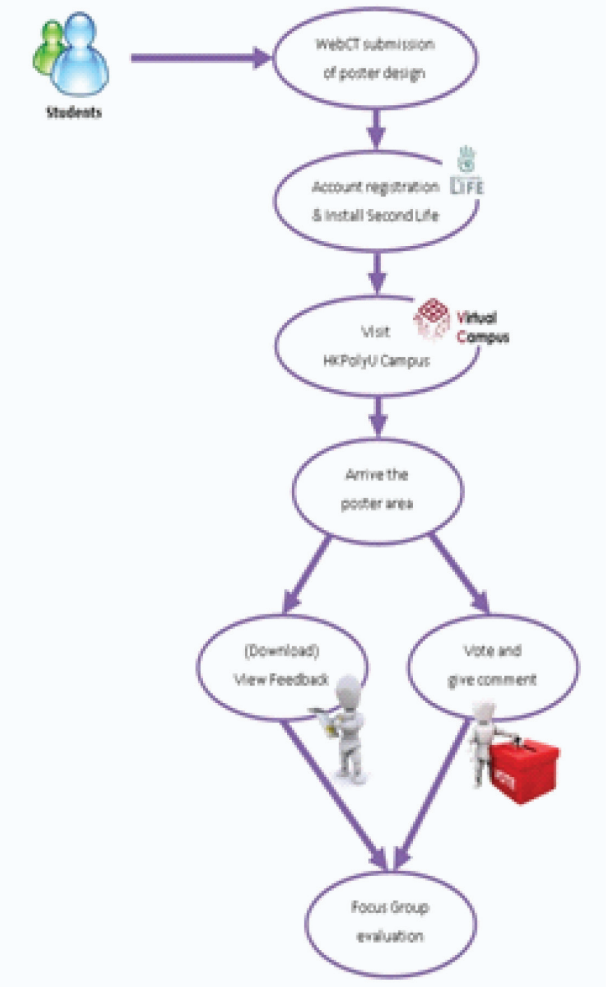
Figure 5. Activity design promoting learning and collaboration among project stakeholders (teachers)



Focus Group Discussions

The research questions were further examined by recording four focus group discussions with seven to eight students from each seminar group. The focus group discussion was to supplement the i-Feedback data and share personal experiences regarding Second Life with the tutors. The interviews concentrated on the details of collaborative learning through peer assessment and the experiences of using Second Life as a learning tool (see Appendix B).

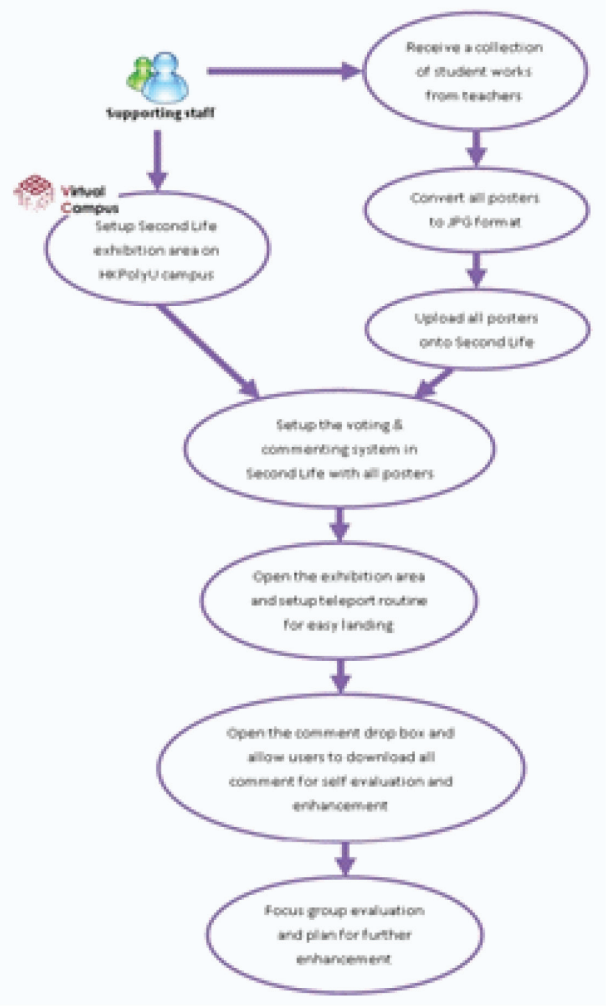
Figure 6. Activity design promoting learning and collaboration among project stakeholders (students)



Interview with Class Tutors

Four tutors comprised the Second Life project team (three teachers and the project manager), wearing the role of avatar mentors for the Virtual Department of English. They were interviewed individually and recorded by a research assistant (see Appendix C). Both group discussions and interviews were thematically transcribed.

Figure 7. Activity design promoting learning and collaboration among project stakeholders (supporting staff)



Findings

Initial data indicated that student attitudes towards their experiences in Second Life ranged from neutral to somewhat positive, although specific areas of concern and applicability were addressed.

Peer Critique on the Note Cards

Researchers have found that written comments can be more effective than providing grades (Hattie & Timperley, 2007; Black & William, 1998). In the case of peer feedback between students, comments can evince student understanding of criteria for success, particularly the ability to articulate suggestions for improvement. The majority of the seventy notecards submitted through the virtual mailboxes suggested areas for improvement including clarity of language, balance of image, alignment of texts, proximity of contents, and contrast of colours.

Table 1 shows a student response to a peer's poster using four elements of design. The structure of the notecard allowed the students to hone in specific areas of discussion. However, language such as "big" and "words can be more widely apart" could be indicative of lower-level vocabulary competence. Additionally, suggestions in the form of statements seem to remove the students from any personal connection to their peers, and objectify the collaborative process. However, an interesting and unexpected contrast became evident in feedback from students who did not follow the task guidelines.

Table 2 is an example of two sets of student feedback with elements of language characterising direct, personal communication with the intended poster owner, as well as a more intimate collaborative relationship. Each response was initiated with the owner's name being addressed (the names are removed from the sample); the student evaluation uses "I" as a subjective, and more importantly relationship-oriented stance; direction quotations are used ("Avatar comes to PolyU now" and "free show"); and emoticons (":)") are also inserted. Additionally, in the second example, the student refers specifically to the Chiang Chen Theatre by name, ad-

Table 1. Student's note card structured under elements of design

Contrast
The big size of the name of the movie [arouse] people's interest
The white colour of the wordings makes them stand out from the background
The blue colour of the wordings in the bottom should be lighter so that they will be [clearer]
The information about the cast and director should be in different [colours]
Alignment
The words are aligned with each other. This make them clear
Balance
The words are arranged in balance
Proximity
The words can be more widely apart

dressing the need for a possible adjustment in the proximity of the theatre logo to the theatre description, suggesting a more practical and thorough examination of the product. Of course, it can be assumed that some students may have been classmates in the same course seminar group, were friendly with each other and knew which posters belonged to the other, thus exhibiting less formalities in their responses and a closer collaborative relationship. However, in all the data analysed, none of the structured responses contained personal salutations or emoticons. This observation could also indicate that delivering over-structured lessons in an environment that is intended for borderless exploration may result in restrictive student experiences.

i-Feedback Results

Likert Scale Statements

Table 3 shows the results from the three Likert scale statements regarding preference towards using Second Life as an assessment tool. Mean and standard deviation for both Full-Time (FT) and Part-Time (PT) student responses from both course sections were averaged.

While there were insignificant differences between FT and PT students' responses to statements 1 and 3, a 0.6 difference was evident for statement 2. One possible explanation for FT students displaying a greater propensity than PT students for displaying work in Second Life could be FT students having more opportunity to interact with the gallery and platform due to more time spent on the university campus and continuous access to computer labs. Additionally, FT students had the highest scores for statement 2, while PT students scored lowest for the same statement. These results may indicate that FT students lean more towards tasks which are more individualistic and self-fulfilling, whereas PT students—balancing work with self-financed studies—are more inclined towards course curriculum with alternative assessment possibilities (statement 1) and opportunities for collaboration

Table 2. Student's notecard, unstructured

I like the background of the poster, very rich and relevant:) I also like how you use the words "Avatar comes to PolyU now" to make the poster more vivid and attractive. Also the techniques you have shown to merge the edges of each picture and made it like one big picture. At the same time, it will be even more attractive if you can put more movie photos as well as introduce a few more characters in the poster	I like how you arrange the information into different areas to make it clear and easy to refer. I also suggest that the background picture can be sharper and the words "free show" can exaggerate the size a bit so it's more eye catching. For the logo of Chiang Chen Theatre, it may be better to make it relate to the theatre description. Also maybe you can put more pictures?:)

(statement 3). However, overall, student attitudes towards Second Life as an assessment tool were mostly neutral to slightly satisfied.

Open-Ended Questions

For each of the three open-ended questions, eight sample responses given from both sections, provide a general representation of student attitudes to and suggestions for the overall learning experience in a virtual world.

Table 4 addresses responses to the question: "What were the most useful, meaningful, or important things you learned during this project?"

Table 5 addresses responses to the question: "What suggestions for improvement do you have for using Second Life in your learning?"

Table 6 addresses responses to the question: "What additional comments might you have regarding your experience with this project?"

The students found the project experience unique, interactive and in some instances practical regarding cost-effectiveness. However, students lacked the skills necessary to negotiate the intended task instructions (hence, more time needed to spend in training). They found the software MS Publisher used for the poster task was not user-friendly, and Second Life as a platform for executing collaborative and design-oriented tasks might not have been just as easily performed in existing e-learning environments such as PowerPoint.

Feedback from Focus Group Discussions

During the focus group discussions, the students gave generally positive feedback regarding the peer evaluations and new learning opportunities in Second Life. Many, however, also expressed frustration over severe lagging when more than ten avatars were logged into the virtual campus, which the project designer—manager—attributed to the inadequate capacity of computers in the Department labs

Table 3. Average student responses to the statements

]No.	Statement	Mean (FT)	SD	Mean (PT)	SD
1	I believe Second Life is a useful environment for alternative assessments.	2.9	1.1	2.7	1.1
2	I enjoyed displaying my work in Second Life.	3.2	1	2.6	1.1
3	The design and layout of the display area was suitable for my viewing, evaluation, and feedback of my peers' work.	2.8	1.1	2.9	1

Table 4. Student comments on the most useful elements in the project

S1	We can vote other students' work without any pressure as we use our nickname. Moreover, we can evaluate other students' work by putting comments in email box.
S2	The learning in Second life is a quite unique learning experience. The most useful things in this session are the new way to collect feedback and display our works.
S3	It was my first try to design a poster by myself. It was useful as I could apply what I have learnt in the lesson, for example, the contrast of colour, the design of alignment/balance.
S4	We can have better interaction with our classmates by using SL, such as voting for the posters and post our comments.
S5	Good use of technology which is matched with lesson feature. Fair judgment as every student can enter into second life to vote for their [favorite] movie [poster] as well as leaving comments.
S6	Second Life is a very..."amazing" tool for learning. This modern classroom provides all "Avatars" with a very comprehensive platform to communicate and host activities. I am deeply inspired with this tool for never can I imagine our learning environment can so vivid and real life like.
S7	Interactive in the online platform. We can post comments and view each other's work easily. It's also a cost effective way to share our work.
S8	This new method of learning/playing/socialising is inspiring.

Table 5. Student suggestions to SL learning

S1	I think the first thing is to make sure the computer server has the enough capacity to function the Second Life programme. If the Second Life programme can run smoothly then students will have more interest to learn in Second Life.
S2	Posters are very different among us, some of us with a lot of information but some aren't, I'm not sure if we've all received the same message to create the posters as the poster should have included a lot of information. I would like to know how I did my poster. And if I'm on the right track.
S3	I dont know how to move properly in the game. And i always couldnt control my movement. Also the game is kind of too complicated, there are so many functions and buttons that i dont even know how to use. And the screen always made me wanna throw up and dizzy. Maybe i cant stand with the 3D world.
S4	More guidelines / samples to show what is the best movie poster should be.
S5	How to do the proof-reading. Please do some exercise together.
S6	Sorry. I think second life is no use and not common in the e-community. If it still be promoted to other students, a more efficient and stable server will do.
S7	Second life is quite difficult to use. The poster designing task is good and the commenting session is good too, but a little bit complicated to do it on second life.
S8	The operation of it should be more user-friendly. One suggestion is on the communication with other students. It is better if I can click on the avatar of other students and choose which actions I can take to communicate with them.

Table 6. Additional student comments on their experience in the project

S1	Everything taught in this subject are very pragmatic and practical. It would be better if more real life examples are given to show how technical writing works.
S2	The complicated travel / entrance procedure to get to the desired location.
S3	I am lacking knowledge in technologies, my own computer is too slow to load the second-life.
S4	If there's a platform which shows all poster in a 2-D way (just like slide show or power point), it does the same purpose but easy to assess.
S5	It is not user-friendly that new users cannot control and make good use of the functions in Second Life. More introduction in this subject is needed to make sure every students has enough knowledge in using it. With better understanding, they will be more interested in it.
S6	As mentioned, it is difficult to master Second Life. It takes me time in searching the right place. And I had no idea where can I go or what I can do beyond the poster gallery.
S7	More software should be provided in the computer. As only publisher could be used, there were some difficulties for me to finish the poster.
S8	I think this subject schedule is a bit tight, I prefer focusing on few things rather than learn a lot but everything just like a piece.

and the fact that when many were logging into a single server, the average speed MBps became low. One student indicated a strong dislike towards Second Life because "it is only a game." Moberly argues, however, that "computer games not only require players to read and make meaning of symbols presented on the screen but to write and ultimately to revise their actions in the game relationship to these symbols" (2008). Even though Second Life is not a game—it does not have defined ends determining victory or defeat—it nevertheless retains certain game-like qualities such as instructions, tasks, and collaborative opportunities serving as criteria for success. Games do exist in Second Life (arcade games, Zyngo, word puzzles); however, since the writing of this chapter Linden Labs has been beta-testing game play as part of the actual Second Life interactive environment in the form of Linden Realms, a project that would potentially incorporate gaming tools into the user's existing design and building tools.

A number of students nevertheless said they still preferred face-to-face integration and online learning tools like WebCT and blogs, which they were more familiar with.

Feedback from Tutors

The tutors expected that Second Life could not only have enhanced students' computer literacy but also have added unique elements to learning. They found students were "genuinely excited" at the beginning of the project when they explored the PolyU Virtual Campus and saw their own work displayed in the virtual Department

with opportunities for commentary. The enthusiasm seemed to wane when technical problems surfaced: getting stuck when logging into the system; getting lost in the virtual world; and difficulty in locating a target. One tutor believed that if the Second Life platform could be technically improved, more could be accomplished in teaching and learning. The tutors concluded that the activities executed in Second Life were "a kind of increased collaborative learning" because "students can actually walk around and examine all the works at the same time" and read peer evaluations directly.

DISCUSSION

Far from being restricted to a classroom presentation, the students' project became both local and global (Jarmon, et al., 2009) in that: a) the exhibition hall provided a meeting point on the virtual campus for students who may have never met each other in person due to different class hours (day time and evenings) and learning modes (full-time and part-time); and b) the affordances of Second Life provide a borderless landscape where avatars can roam freely over land, by air and teleportation. These possibilities extend a single poster task from individual contributions to a collective and collaborative learning environment so that learners share common interests—to build a learning community it is necessary to establish group goals and to hold individuals accountable for their contributions (Slavin, 1989). Specifically, the data and findings from this project address the research questions for this case study as such:

1. What are students' perceptions of working in a virtual campus as an alternative platform for technical and Web-based writing?

The findings from the project reveal that negative opinions towards Second Life were not targeted at the learning features and interactivities of a virtual world, but rather towards technical issues, which hinder these functions. As Andreas et al. (2010) noticed, primary drawbacks of the Second Life platform included hardware requirements, discussion coordination, lack of impulsiveness, scalability, disorientation, functionality familiarization, avatar preparation, lack of shareable applications, and limited interaction. Assets included novelty of approach, distance learning support, multiple communication channels, and graphical representation. Some students felt that Second Life was not a learning tool, claiming little learning experienced from their peers' work; while the majority of students had no intention to engage with virtual communities outside of their required course tasks (Traphagan, 2007). On the one hand, technical issues and unfamiliarity with Second Life environments

tended to be more of a source of frustration rather than a challenge to overcome and learn from (Herold, 2010). However, concerns regarding server lag was temporarily resolved by moving from Department-based labs to a university computer lab with computers that adhered to Linden Lab hardware recommendations (see Appendix D). On the other hand, most of the project activities seemed to be directed by the ETWW teachers, assuming students would enjoy creating alternate identities through avatars, social networks, and learning spaces. This discrepancy between students' expectation and tutors' intentions could be reduced by considering and incorporating student needs prior to the project design and activity planning.

2. What could students' attitudes and accomplishments when engaging with virtual tasks suggest about using Second Life as a collaborative learning community?

As part of a collaborative learning community, students also had an opportunity to interact in the physical classroom during the poster design and production, exhibiting stages of learning including "information exchange" and "knowledge construction" as described by Salmon (2002) in the five-stage model of online activities (e-tivities). In fact, in one seminar group during the virtual experience, students addressed their peers on a first name basis, showing that the Second Life environment may be a social tool for mediating learning (Swain, 2000). Using "collaborative dialogue" (Swain, 2000) in the form of virtual notecards also assisted students in scaffolding expressions for their intended meaning by giving and receiving support as they interacted with each other. Conversations between peers formed a critical component in engaging with student learning (Laurillard, 2002), and as such the Second Life environment simulated a potentially authentic venue for students to demonstrate their performance competencies and exercise evaluative skills.

3. How might the Second Life learning experience help with future university studies and career goals?

It was hoped that the tasks required of students during the project could become transferable skills, so that they might develop evaluative expertise in other courses and in the workplace (Sluijsmans, Dochy, & Moerkerke, 1998). However, in terms of relevance to university studies, students felt Second Life remained an uncommon and unfamiliar tool compared to existing e-learning platforms; while there was appreciation for the pragmatic and practical nature of the ETWW course, students realised that perfecting skills in technical writing may require additional use of real-life examples; and that planning, designing, constructing and displaying of products in a virtual environment behave as an alternative production method and could save on costs otherwise attributed to booking space and purchasing resources with the

physical university community. No significant findings were noted in student feedback regarding relevance of the learning experience to potential professional goals.

4. How does peer critique possibly influence student comprehension of the taught components—namely the application of design principles in technical writing?

Turnley (2005) posits that students may tend to favour speed and proficiency with technical tools over reflective issues such as audience, purpose, and argument in Web design. This was evident in student reflection that the teaching of language in design could be better disseminated through existing two-dimensional—third generation—media like PowerPoint which are more accessible. However, students also became aware that poster elements varied between the different products amongst their peers, and so there were enquiries as to whether or not sufficient instruction and examples were provided for students to properly understand task criteria.

We would also like to borrow Salmon's (2002) five-stage model of teaching and learning online to explain our SL experience. The first stage, **access and motivation**, is to involve e-tivities to motivate learners to participate and explore the online learning environment. This stage however was not so well established in this case study. One important reason is that many students in this study regard the SL environment more of an unreal one. This can be seen from their preference for tools like blogs and Facebook. Students declared visual elements or designs were not attractions for them in subjects like technical writing.

However, visual elements are regarded by the designer and teachers as important cues for users to make use of the virtual learning world. Therefore, design features of the online environment need to foster professional learning opportunities.

Another key factor for a successful virtual learning world is the ease of its use. This is especially important when peer interaction takes place during class. Technical hiccups have so far seriously affected the smooth use of the learning tool. They can be especially damaging when most students only use SL for completing tasks assigned by the teacher during class time, the time they really experience the virtual learning world is already very limited.

Before going onto other stages of the model for the development of the virtual learning world, designers and teachers will need to ask the question of why SL, not other online tools, is used. Student collaboration in SL projects can go beyond one university and even beyond one territory. This can then make use of the uniqueness of SL and help to build a learning community leveraging on the virtual learning world. It can also be a concrete step for stage two of the model, **online socialization**, when learners of varying cultural backgrounds can bond and work together.

In this study, the teachers withheld from intervening or providing feedback to students as encouraged in Stage Three, **information exchange**. While the peer comment board was designed and used for collaborative learning and information exchange, it is suggested teachers can also give their evaluation after the peer review exercise has been completed. It reinforces the learning as the teacher helps to form a deeper understanding of what is required of the task and highlight the key goals to be achieved.

Stage Four, **knowledge construction**, was identified by Salmon (2010) in her study through collaboration and sharing. Participants are to be seen as online authors rather than transmitters of information. It echoes with the findings of this study, that student participation and involvement will be essential. Students and potential users of the virtual learning world are to be invited in the design of e-tivities. This means more participant-led goals and objectives are to be set and the whole design of the virtual learning world has to consider the needs of the learners.

Stage Five, **development**, is of the highest level of achievement where participants develop self-insight, pursue personal goals, reflect on their new experiences and knowledge and look beyond the forum. SL can then become a playground, a crucible for ideas about how people can augment their interaction (Stevens, 2007) through constructive play or work.

CURRENT CHALLENGES FACING THE ORGANIZATION

Challenges of using SL for e-learning are from three directions: students, teachers and the technology. Working towards a common purpose, students became contributing members to SL learning in the virtual world by pooling their knowledge and resources together for joint decision-making and problem solving (Zeng & Takatsuka, 2009). However, they were still novices in the stage of knowledge construction in the field of professional design and technical writing. Many students demonstrated that they were capable of articulating valid and practical comments and suggestions, and they could internalize some of the assessment criteria, but they were not motivated to express the opinion in e-form because of technical complication. In light of trusting relationships, the comments made by participants permitted their peers to reflect on their work for further improvement. Nevertheless, it is still unclear as to whether they reached the standards required by the workplace or not. To benchmark professional practice and standards, it would be useful to conduct further research into collaboration with professionals in a virtual world.

Teachers were just as unfamiliar with the virtual surroundings as the students. While all three teachers were aware of the Second Life virtual campus, none had

ever either interacted with the landscape or considered it for educational purposes until the inception of the project. This, understandably, posed some difficulties, as the faculty members, who also served as student mentors, had to train them within a limited time, both ahead of project and alongside the student participations.

Technical challenges seem to be the main reason that hampers students' enthusiasm in adopting Second Life for learning. They are also the source of tutors' frustration. Although Savin-Baden et al. (2010) claim that technology has outpaced pedagogy (p. 123), our practice indicates that technology has not caught up with educational demands. When a number of computers logged on to the Virtual Department at the same time in class, the computer process slowed down or even stopped working. This may indicate that Second Life is not suitable for classroom teaching.

SOLUTIONS AND RECOMMENDATIONS

This study investigated a project in the course English for Technical and Web-Based Writing (ETWW) at a university in Hong Kong with an attempt to demonstrate how Second Life might be used to enhance collaborative language learning in a virtual Department of English. The project assessed student work and learning experiences through Second Life-enabled tools such as voting bars and note cards as well as through the i-Feedback system, focus group discussion, and tutor feedback. Criteria for completion of the task included avatar-representations of students to critique each other's work, to observe and develop both their linguistic and computer skills. It is clear that learning in a virtual setting potentially increases students' interest in a unique learning environment if e-tivities are carefully designed. To reduce technical barriers, more powerful computers (see Appendix D) and a better Internet service are needed. In addition, students should be encouraged to log on to the virtual department to assess their peers' work in their spare time when Internet congestion is less likely to happen.

To benchmark e-learning practice and standards in a virtual world, it would be useful to conduct further research into motivation, implementation and collaboration with virtual practitioners, the avatars.

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KEY TERMS AND DEFINITIONS

Second Life: A computer based three-dimensional, simulated multi-media environment provided by Linden Lab.

Virtual Campus: A simulated learning environment with different sections for different teaching and learning purposes.

Collaborative Learning: A method of teaching and learning in which students team together to work on a project.

Peer Assessment: The way in which students evaluate each other's work with feedback and judgment after the tutor's instructions on rubrics, checklists, and probably a demo of sample assessment.

MBps: A measure of bandwidth speed of data transfer, standing for megabits per second. The IT service of an institution is likely to allocate different MBps according to the needs of different PC labs.

APPENDIX A: I-FEEDBACK SURVEY QUESTIONS

Statements:

- I believe Second Life is a useful environment for alternative assessments and learning.
- I enjoyed displaying my work in Second Life.
- The design and layout of the display area was suitable for my viewing, evaluation, and feedback of my peers' work.

Questions:

- What were the most useful, meaningful, or important thing you learned in this session?
- What suggestions do you have on using Second Life in our learning?

APPENDIX B: QUESTIONS FOR FOCUS GROUP DISCUSSIONS

1. How did your learning change (either positively or negatively) because of the use of Second Life in this course?
2. What were some differences in learning in this course compared to other courses that do not use Second Life?
3. Did you visit any other virtual resources in Second Life or other areas of the PolyU virtual campus?
4. Apart from displaying posters, voting and commenting on other's work, what other ways could you use Second Life for this subject?
5. How are your experiences with and the comments you've received from both your Second Life poster going to help with you with other project?
6. For what other types of learning activities do you think Second Life could be potentially helpful with your future university studies and career goals?

APPENDIX C: QUESTIONS FOR THE TUTOR INTERVIEW

1. How did you embed the learning outcomes in the subject?
2. How did you introduce the Second Life assessment system to your students? How did they respond?
3. What difficulties did you encounter in your teaching?
4. What do you think can be improved in the virtual Department of English?
5. How do you think Second Life can help student learning?

APPENDIX D: HARDWARE RECOMMENDATIONS FOR RUNNING SECOND LIFE

Table 7. Recommendations

	MIN. REQUIREMENTS	RECOMMENDED
WINDOWS		
Internet Connection*	Cable or DSL	Cable or DSL
Operating System	2000, XP, or Vista	XP or Vista
Computer Processor	800 MHz Pentium III or Athlon, or better	1.5 GHz (XP), 2-GHz (Vista) 32-bit (x86) or better
Computer Memory	512 MB or more	1 GB or more
Screen Resolution	1024x768 pixels	1024x768 pixels or higher
Graphics Card for XP/2000**	• NVIDIA GeForce 2, GeForce 4 MX or better • OR ATI Radeon 8500, 9250 or better • OR Intel 945 chipset	NVIDIA Graphics cards 6000 Series: • 6600, 6700, 6800 7000 Series: • 7600, 7800, 7900 8000 Series: • 8500, 8600, 8800 GeForce Go Series: • 7600, 7800, 7900 **ATI Graphics Cards** • X800, X900, X1600, X1700, X1800, X1900 • x2600, x2900 • x3650, x3850
Graphics Card for Vista (requires latest drivers)**	• NVIDIA GeForce 6600 or better • OR ATI Radeon 9500 or better • OR Intel 945 chipset	NVIDIA Graphics cards 7000 Series: • 7600, 7800, 7900 8000 Series: • 8500, 8600, 8800 GeForce Go Series: • 7600, 7800, 7900 ATI Graphics Cards • X1600, X1700, X1800, X1900 • x2600, x2900 • x3650, x3850
Mac OS		
Internet Connection*	Cable or DSL	Cable or DSL
Operating System	Mac OS X 10.4.11 or better	Mac OS X 10.5.4 or better
Computer Processor	1 GHz G4 or better	1.25 GHz G4 or better
Computer Memory	512 MB or more	1 GB or more

continued on following page

Table 7. Continued

Screen Resolution	1024x768 pixels	1024x768 pixels or higher
Graphics Card **	• ATI Radeon 9200 and above • OR ATI Radeon X Series • OR NVIDIA GeForce 2, GeForce 4 • OR NVIDIA GeForce 5000 Series and above	• ATI: X1600, X1900, X2400, X2600 • OR NVIDIA: 6800, 7600, 7800, 8800
LINUX		
Internet Connection*	Cable or DSL	Cable or DSL
Operating System	A reasonably modern 32-bit Linux environment is required. If you are running a 64-bit Linux distribution then you will need its 32-bit compatibility environment installed.	A reasonably modern 32-bit Linux environment is required. If you are running a 64-bit Linux distribution then you will need its 32-bit compatibility environment installed.
Computer Processor	800 MHz Pentium III or Athlon, or better	1.5 GHz or better
Computer Memory	512 MB or more	1 GB or more
Screen Resolution	1024x768 pixels	1024x768 pixels or higher
Graphics Card **	• NVIDIA GeForce 2, GeForce 4 MX, or better • OR ATI Radeon 8500, 9250, or better	NVIDIA Graphics cards 6000 Series: • 6600, 6700, 6800 7000 Series: • 7600, 7800, 7900 8000 Series: • 8500, 8600, 8800 GeForce Go Series: • 7600, 7800, 7900

Source: http://secondlife.com/support/system-requirements/?lang=en-US