

# Journal of • Virtual Worlds Research

Volume 2, Number 1.

Pedagogy, Education and Innovation in 3-D Virtual Worlds.

ISSN 1941-8477

**Vol. 2. No.1**  
**“Pedagogy, Education and Innovation in 3-D Virtual Worlds”**  
**April 2009**

**Guest Editors**

Leslie Jarmon  
Kenneth Y. T. Lim  
B. Stephen Carpenter

**Editor**

Jeremiah Spence

**Technical Staff**

Andrea Muñoz  
Amy Reed  
Barbara Broman  
John Tindel  
Kelly Jensen

This issue was sponsored, in part, by the Singapore Internet Research Centre,  
the Department of Radio, TV & Film at the University of Texas at Austin,  
and the Texas Digital Library Consortium.

The Journal of Virtual Worlds Research is owned and published by the  
Virtual Worlds Research Consortium,  
a Texas non-profit corporation.  
(<http://vwrc.org>)

# Journal of • Virtual Worlds Research

jvwresearch.org ISSN: 1941-8477

Vol. 2. No.1

ISSN: 1941-8477

“Pedagogy, Education and Innovation in 3-D Virtual Worlds”

April 2009

## Canadian border simulation at Loyalist College

By Ken Hudson and Kathryn Degast-Kennedy, Loyalist College, Canada

### Abstract

*The aim of this paper is to describe the process and results of a Canadian border simulation run in Second Life for students at Loyalist College. Recent security restrictions at the Canadian border limit access for college students to serve their placement at the actual border, thus eliminating the possibility of first-hand experience. Additionally, in class role-plays designed to practice border interview skills were not adequate to instill the interview process. Using Second Life to simulate the border environment and procedures allows students access to a simulated real life environment and provides them with the sufficient real world practice they require to grasp and retain essential interview skills. The results of this learning experience translated into greater levels of confidence and significantly improved grades.*

**Keywords:** Second Life; Loyalist college; border simulation; applied training.

## **Canadian border simulation at Loyalist College**

By Ken Hudson and Kathryn Degast-Kennedy, Loyalist College, Canada

Loyalist College is a modest-sized, rural, applied learning and technology college located between Toronto and Ottawa in eastern Ontario, Canada. The college has been active in Second Life since the fall of 2006, when it became the first Canadian college to both establish a presence and begin teaching classes in Second Life.

As part of its Justice Studies program, Loyalist offers a customs and immigrations track for students who aim to pursue a career in customs related fields, including those offered by the Canadian Border Services Agency (CBSA). Many graduates of the program join CBSA and train to become Border Service Officers (BSO). The skills essential for a BSO include proficiency in mandatory traveler interviews, the standard screening contact when crossing the border into Canada.

The challenge in teaching interview skills is in creating a suitable practice environment that supports learning outcomes and that also replicates the style of scenario that will typify real life situations. Traditional in-class role-plays angle away from the complexities of real life into a rigid, formulaic, and dry situations, rendering them wholly unrealistic.

Prior to 9-11, CBSA (then Canada Customs) participated in a program whereby students involved in Customs related studies at Loyalist College experienced field placement opportunities at frontier customs ports. This arrangement allowed learners to gain first-hand knowledge of the customs function and operations at points of entry into Canada. Following 9-11, the need to reconsider security related matters at our points of entry resulted in the termination of placement programs. This being the case, learners within the Customs Program at Loyalist lost the opportunity to experience the operations at ports of entry.

In order to address these circumstances and to ensure a continuance of this value added experience, Loyalist College undertook to explore other available options and teaching strategies that would provide the same benefits to the learner. Among these were strategies where the learner was provided with written scenarios that required them to address customs related issues and take action to address these matters. Other strategies included role-plays where learners actually acted out scenarios and thereby developed competency in handling matters that could potentially arise at a port of entry.

Although these strategies were useful in some ways, it was apparent that they were deficient largely because they lacked the element of realism. It was determined that learning through scripted strategies failed to meet the goal of providing the learner with the advantages of first hand experience.

In early 2008, as a result of the continuing effort to reinstate the realistic component into customs studies, a plan to incorporate Second Life into the curriculum emerged. As this plan developed, an entire Customs Port in Second Life took shape. The resultant product was a real to life port that would allow the student user group not only to observe (as was the case pre 9-11) but also to actually become involved in every aspect of travel processing. With Second Life, learners were no longer just observers. Rather, they were virtual BSOs who were expected to

handle all of the duties of both primary and secondary officers and to deal with emergent issues that could reasonably be expected at a port of entry. In effect, the Second Life customs application took student learning beyond what it had been prior to 9-11.

The collaboration between the Virtual World Design Centre and the Customs and Immigration program aimed to create a simulation that would address the challenges of creating realistic role-play experiences set in a true to life environment. While simulated environments for security related role-plays are not new, Loyalist College demonstrated that a relatively small institution with minimal resources can leverage virtual world platforms like Second Life for their own unique purposes. The border simulation innovates in its customizable response to real world pedagogical issues – a response that would have been previously impossible. It points to further innovative contributions by modest institutions in the applications and methodologies in virtual worlds.

The project operated under the working hypothesis that virtual environments provide an adequate replacement to actual environments and that participants learning in these environments experience them as if they were real, or at the very least, realistic. This assumption was confirmed both by noted virtual worlds researcher Jeremy Bailenson of Stanford University who says that, “our virtual identity is not separate from our physical identity,” (Foster 2008) and by the dramatically positive results of this project.

### **Development**

The process of developing a fully functional Canadian border simulation was only realizable with the affordable simulation tools that Second Life provides. The development process was initiated three months prior to launching the simulation and represents an intense collaborative process between faculty, instructional design, 3-D designers, and builders. The border environment, processes, props, and scenarios were verified in authenticity by the faculty lead on this project, an active BSO with CBSA for the past twenty-eight years. The academic content is founded on the mandatory traveler screening questions as defined by standard CBSA practices.

It was determined that the project would utilize the closest border crossing to the college, in Lansdowne, Ontario, just east of Kingston at the Thousand Islands, as the model for the build. Team members were dispatched to the location to photograph the buildings, specifically the BSO booths. The overall layout was viewed by using Google maps, which provided an excellent aerial perspective. It was felt that the simulated border should accurately reflect the real border, and every effort was made to duplicate it faithfully.

Additionally, for the border interview process to have all realistic elements, vehicles were created that could be customized for each scenario. Each vehicle had doors, trunk, and glove box that could be opened for searching. As well, each of those areas had textures that could be changed to display various contraband items. The vehicles also generated a random license plate from a database of images, and that license tag was displayed both on the vehicle and on the computer monitor inside the booth. The booth monitor also provided any vehicle flags in a percentage accurate to actual traveler statistics. Warning holds such as stolen vehicle,

immigration and smuggling issues, and so forth, added realistic data for the BSO who must evaluate all factors throughout the interview.

A crucial element of any border crossing is the evaluation of travel documents. The development team created a range of passports and other identification that would be passed to the BSO for inspection. The travel documents were made in a style indicative of international passports. The key information to be gained from the documents is proof of citizenship.

The final development element was the creation of accurate uniforms for the BSO students to wear. The uniforms were created using real examples brought to the team from faculty members. The uniforms were required for each student participating in the exercise, and added an incredible amount of realism for the roles the students were playing.

### **Instructional design**

Once the environment for the border learning experience had been determined, the next key task for the project was to define how the learning would proceed in the classroom. While role-plays had been conducted in person previously, the new simulation would require a different approach.

Three key groups were identified to participate in the border simulation:

- **Active Student Learners:** Those who are participating hands-on in the simulation. The student BSOs work in the primary inspection lane as well as working on secondary/search duties. Among the significant Second Life benefits is one that is provided to individuals on secondary/search duties in these scenarios. In these cases, the learner encounters situations where contraband is concealed in vehicles arriving at the port for admission into Canada. The learner must recognize the situation and interpret the circumstances. Following these steps, the learner must develop, implement, and assess the effectiveness of an appropriate strategy and make adjustments to that strategy when circumstances so dictate. This process reinstates the element of realism in that the event and all of its related circumstances occur in real time.
- **Passive Student Learners:** Those who are watching the simulation in the classroom. For this group, the Second Life simulation reinstates the benefits of the pre 9-11 model where observation was the primary function of the placement student. Observing the simulation allows these learners the opportunity to discuss decisions made by their peers. This process would spark discussion among the learners, with these discussions leading to further and deeper learning.
- **Volunteer Traveler Participants:** Those who will play the roles of travelers. It is important to point out that these individuals are completely unaware of the questions they will be asked by the active participants. It is this circumstance that once again adds realism to the learning experience because the possibility of scenario-scripting is totally eliminated. What results is a more realistic encounter that provides both active and passive learners with learning opportunities that are sound and that promote retention of information.

In structuring the simulation, it was determined that one to four students would staff the border crossing, in both the primary interview and secondary search zones. The remaining class of students would observe each interview or search and then respond to the role-play during a post-simulation discussion. While both active and passive student participants would be in the same classroom, the third group of travelers would be separated from the students to maintain the element of the unknown. Students would not be aware of who, or what scenario would be run at any given time and therefore would need their full range of observational skills to conduct the interview.

### **Training and technical support**

For a complex simulation like the border experience to run effectively, technical requirements need be addressed at the start of the project. For this exercise, a dedicated computer lab was booked, with the current and updated versions of the Second Life client installed. Each student would have a workstation and computer with headset and microphone. The traveler room was also required to maintain division between the two groups. The technical requirements and set-up were the same as for students.

All participants were registered for Second Life and trained on SL essentials during class training time. The hands-on sessions focused on only those elements of Second Life that would be used for the simulation, ignoring broader tools like building that exist in the client but that were extraneous to the experience. The elements covered in the training were:

- Basic movement, with focus on walking to get into the booth;
- Basic clothing change, to put on BSO uniform;
- How to sit, to enable BSO to sit in booth;
- Camera controls, to enable BSO to view car, occupant, and computer monitor; and
- Voice Chat controls, for communication.

### **Pre-experience interviews**

Prior to the simulation being run for the first time but after initial training, an independent researcher was contracted to interview the students about their attitudes and expectations for the border simulation. While students were receptive to the general idea of using Second Life to augment their experience, a high degree of skepticism as to its value was evident during the interviews.

Questioned about using Second Life as part of their coursework, students responded:

- Skeptical of video games for learning;
- SL not a helpful learning tool yet;
- Nervous;
- Need to take baby steps;
- More tutorials needed;
- Too late in semester to start.

Asked about their expectations for using Second Life for the simulation, students responded:

- Don't think it will be true to life;
- Experimental;
- May be true to life when SL develops further;
- It will be a good experience;
- Just want to get it done;
- Forces you to know course material;
- For now it's an unknown; and
- In other classes instructors are talking, here you are doing it yourself.

The tones of the interviews were skeptical, reluctant, and pushed back against the newness of the experience. Even with this resistance, students were still willing to participate.

### **Running the border simulation**

The running of the border simulation was a highly organized dance of various elements. The classroom was the focus point for students running the simulation, with a secondary room reserved for travelers. Students would each take turns conducting border interviews, while the remaining students observed. The class would pause and discuss each traveler interview, which, because of its realistic complexity, generated significant and topical discussion.

Travelers passing through the border were able to concoct their own scenario from the artifacts provided ( which included identification, avatars, clothing, ethnicity, gender, citizenship, and license plates). Scenarios were intended to be representative of typical border crossings including shopping trips, vacations, business trips, and so forth. For variance, immigration issues and other flag issues such as firearms, smuggling, and vehicular issues were occasionally added to the mix. Additionally, travelers were encouraged to express specific emotional states as a part of their characters such as anger, defensiveness, agitation, overt friendliness, and others.

The student BSO used an interview flow sheet as their initial guide to the process. This process includes a bilingual greeting, a question of citizenship, and for the traveler to specify their place of residence. Once resident status is determined, an interview flow exists for both residents and non-residents. These questions build on traveler responses, with some responses requiring additional questions.

The interview questions revolve around citizenship, length of stay, importing goods, restricted items, and monetary possessions. By asking these questions, BSOs determine if a traveler is eligible to enter Canada, whether they require further questioning or searches, or whether they will be denied entry.

The unknown quality of each crossing initially made the process more difficult for the BSO students, but ultimately led to an accelerated pace in learning the material. Both verbal and visual cues were used by students to analyze each situation. As a result, while training in elementary mandatory interview process, students were also exposed to the more complex analytical approach that the role of BSO carries with it: expectations that will be crucial for their future employment.

### **Post-experience interviews**

Once the class had run the simulation for four class periods, or twelve hours, the simulation was complete, and the students were again interviewed about their opinions on the various elements of the experience. While there was some initial reluctance, in the post-experience interviews all of the students found the simulation to be a valuable part of their coursework.

Role-play experience in Second Life:

- Exceeded expectations;
- Takes the place of traditional role-play but has more benefits;
- More variety as it is more real;
- Helps us to learn because we have to multi-task; and
- More realistic because of the time constraint with other vehicles waiting in line.

What did you enjoy most about the exercise?

- More interactive than in-class role-plays;
- There was pressure but no consequence (rehearsal);
- Learned from watching others;
- Critique of classmate interviews was a great learning experience;
- Good to be able to speak to people in vehicles; and
- Better than traditional role-plays.

Students commented on using virtual worlds as part of workplace training:

- Beneficial;
- Could cut training time;
- Realistic;
- Could train from a distance.

Finally students were asked to sum up their entire learning experience in Second Life:

- Met or exceeded expectations;
- As close as it could be to being true to life;
- Great alternative to traditional role play;
- Advantage over people who have not used Second Life;
- Made the course more interesting; and
- Seeing, hearing, and doing: we were actually there.

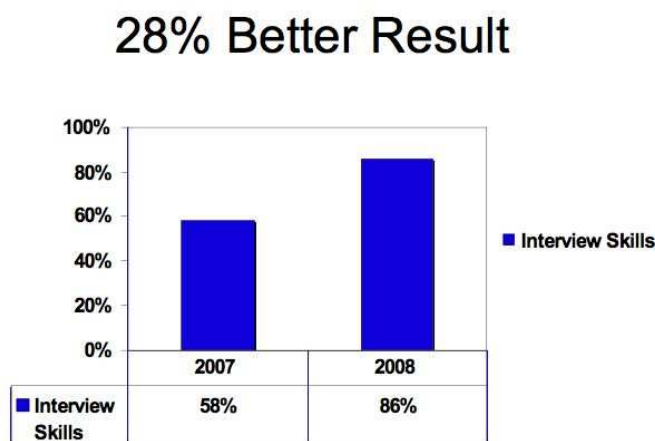
### **Observations and Conclusions**

The Canadian border simulation at Loyalist College demonstrates the potency of virtual worlds for applied training contexts. There was a tremendous excitement and commitment generated throughout the experience, which translated into an exceptional learning experience for the students. While engagement is certainly a valuable component of any learning experience,

faculty and students look to final grade performance as the benchmark for measuring true success of any new learning approach.

Students were evaluated on their interview skills using a standard rubric for mandatory traveler questioning. The evaluation was administered in a live action role-play, using a physical mock-up of a port of entry. Students were graded on their introduction, residency determination, question flow based on residency, mandatory questions, correct interpretation of regulations and guidelines based on traveler response, and professionalism. The evaluation process and content is consistent with CBSA procedures and content for testing within the agency.

The results of this project were both impressive and surprising to everyone involved. Students participating in the Second Life simulation achieve a grade standing 28 percent higher than the previous class who did not utilize virtual worlds.



**Figure 1. Final Grade Result for Interview Skills Comparing Second Life Experience with Previous Year's Results.**

Other than the improvement in interview skills as noted, there were no other divergent trends between the two sample classes. From this, it is concluded that the learner population in 2007 compared equally with that of 2008 on all other facets of the coursework and that the two groups were relatively equal in learner intelligence, academic intellect, and final performance.

Additionally, the confidence level of the entire class increased palatably as they progressed through the experience and is mirrored in many of the student's comments about the experience. The students left the project with a sense of accomplishment and one of having participating in a 'real world' experience. The confidence made them perceive themselves at an advantage in a competitive workplace screening process, where most felt they would outperform those without this type of prior training.

While the assumption was made at the start that students would gain from this experience, several unexpected benefits emerged as the project proceeded. The most dramatic of

these is the number of teachable moments that came from the open-ended nature of the role-plays. By allowing for real world complexity, students were led into scenarios that challenged them to draw together all the information they had learned into applicable examples. The amount of discussion was staggering, and the range of topics broached by this approach was impressive.

The other main unexpected benefit was the speed with which the students were able to commit to memory the interview process. While using crib notes is normal at first, students quickly began using the full range of their observational skills during the interviews, rather than relying on a script. This gave them a much stronger sense of the process at the real border, where observation is the key to a successful job performance. This accelerated learning is also evidenced in the increase in average grades for these students.

While it is beyond the scope of this paper to speculate as to whether this experience had a lasting effect on workplace proficiency, the results have gained the attention of CBSA, who is now working with the Virtual World Design Centre to develop a similar training model for their new recruits. It is anticipated that this Second Life project will also impact the CBSA training processes in a positive manner.

In both cases, the focus of the virtual world border experience is the mandatory interview process. Students at Loyalist College who pursue a career with CBSA will immediately focus on this process as the core of their training. The mandatory interview process will also represent a large portion of their proficiency testing to become accepted as a BSO. The CBSA training facility currently stages live border crossings as an examination method. It is strongly believed that the experience Loyalist College students gain using virtual worlds will positively impact their performance in qualifying for this profession.

The Canadian border simulation at Loyalist College is the most successful project that the college has undertaken in Second Life to date. While initial hypothesis were followed in the course of the project, the outcomes far exceeded the expectations, both from faculty and from the students. The lessons learned from this success will inform all future applied learning experiences in virtual worlds that the college will undertake. The outcomes also reinforce the belief that virtual worlds hold a significant power for shaping the educational landscape of the twenty-first century. If the results from this experience are indicative of the types of results that virtual world training will yield, it is expected that virtual worlds will become the platform of choice for those experiences that are not feasible in real life and for enlivening traditional role-plays with a potent learning approach.

## **Bibliography**

Foster, Andrea L. (2008). What Happens in a Virtual World Has a Real-World Impact, a Scholar Finds. *Chronicle of Higher Education*, April 4, 2008. Retrieved April 21, 2008, from <http://chronicle.com/free/v54/i30/30a01402.htm>