

Reports from the Field: Second Life Community Convention 2007 Education Track Summary

BEST PRACTICES FROM THE SECOND LIFE COMMUNITY CONVENTION EDUCATION TRACK 2007

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Virtual Worlds for Learning

Best Practices from the Second Life Community Convention

Education Track 2007

EXECUTIVE SUMMARY

Common Themes

Virtual worlds, especially Second Life, play an increasingly important role in the development of innovative and effective teaching and learning strategies. As such, educators using Second Life are in a unique position to inform and enlighten others interested in using virtual worlds in instruction and learning environments.

The Second Life Community Conference Education Track, held in August 2007, provided insight into what presenters felt are best practices helpful for educators and trainers wanting to incorporate the use of virtual worlds, and Second Life in particular, into their respective areas of influence. It should be noted that this paper does not reflect a synthesis of all current research in the field.

Despite specific differences in learning audiences and subject matter, several foundational questions must be asked, however, in determining the effective design of a virtual world learning environment. The appropriateness of a virtual world for specific populations of learners, the willingness of both instructors and learners to learn new ways of relating and communicating, and the effectiveness of both old and new strategies of teaching and learning must all be considered.

Best Practices

Specific groups of virtual world learners need tailored instructional solutions. Teens, for example, benefit from being decision-makers in collaborative projects leading to meaningful real world projects delivered to a wide audience. Not only do students learn the subject being studied, but also many 21st century work force skills needed in today's technologically rich global marketplace.

Higher education, too, benefits from the hands-on aspect of a virtual world environment. Moving from more passive methods of learning, such as lectures, towards problem solving involving discipline-related real world applications, students can gain authentic experience under the guidance of real world experts not available in a traditional campus setting.

The lack of real world constraints can also be used to explore concepts that would otherwise be impossible. Students can investigate firsthand the workings of larger-than-life cells, use rapid prototyping in trying out architectural designs, or evaluate social dynamics in a non-threatening manner.

Both learners and educators also benefit from the social culture of virtual worlds. Communities of learning can help connect learners with experts, and educators with experienced mentors from a global community.

Conclusions and Recommendations

In considering the use of virtual worlds in instruction, educators must ask themselves whether they will have the time and resources needed to be successful. The appropriateness of a virtual world as an instructional media choice must also be evaluated in light of the specific knowledge and skills needing to be taught.

As additional virtual world platforms are rapidly developed, further research needs to be done to understand specific ways Multi-User Virtual Environments (MUVES) can best be used in education. In particular, ways of authentically assessing student learning and skill transfer to real world settings must be addressed. Research into effective distance education applications and integration with 2D or "flat web" tools is also needed.

INTRODUCTION

This is a unique time for educators exploring the use of virtual worlds in instruction and learning. While the use of virtual worlds, also known as Multi-User Virtual Environments (MUVEs), still remains at the edge of mainstream adoption as an accepted instructional strategy, the numbers of educational institutions, organizations and individuals using and exploring the use of virtual worlds as innovative and effective learning environments have risen dramatically over the past year.

Nowhere is this more evident than in the growth of a robust educational community using the MUVE Second Life. The Second Life Educator's Listserv (SLED), for example, has gone from around 500 to nearly 3900 members in the last twelve months. Representing higher education, K-12 and corporate instructional efforts, these educators currently work on a diverse array of projects illustrating a wide variety of disciplines and learning communities. Teen Grid projects, designed specifically for learners aged 13-17 years, provide both after school and informal learning opportunities. Higher education projects create environments to explore new research opportunities unavailable in other settings. Professional communities work together on a global level to find 21st century solutions in the sciences and library services. Both public and private institutions also are beginning work in distance skill coaching and development.

In addition, this year has seen the increasing integration of 3D worlds, such as Second Life, with flat web technologies such as wikis and blogs that extend the strengths of each individual platform into an instructional experience richer and more powerful than either alone. This mash-up of technologies holds great promise for instruction as tools, such as Sloodle, a Second Life/Moodle synthesis, are developed and used by non-programming educators.

Perhaps reflecting the unique and collaborative characteristics of the virtual platform itself, the Second Life educational community has distinguished itself as being remarkably collegial and generous in sharing both knowledge and resources with colleagues across boundaries that have traditionally not been crossed. Rather than adopting a silo mentality of research and practice, many educators routinely construct knowledge and discover best practices with colleagues in different disciplines, schools, institutions and countries. A higher education instructor in California may advise a middle school teacher in Saudi Arabia. An independent e-learning professional may offer instructional space to a virtually landless university professor.

This collaborative spirit is reflected in the principles and best practices gleaned from the Education Track at the recent Second Life Community Conference held in Chicago, Illinois in August 2007. A representative cross-section of Teen, Higher Education, Corporate and Government presentations reflected both common instructional strategies in maximizing a virtual world environment, as well as examples of tailoring that environment to best help specific learning populations.

This collective knowledge comes at a critical time for the educational community. As additional accessible virtual world platforms become available in the near future, educators must have the knowledge and tools to discern the appropriateness and effectiveness of virtual worlds for specific instructional situations.

On Methodology

This report reflects a summary of case studies and best practices offered both in written and presentation form as part of the Second Life Community Conference Education Track in August of 2007. Contributors included university faculty from a variety of disciplines, scientists and researchers from both North America and Europe. Yet as this report reflects only the work of conference presenters, it should not be viewed as a comprehensive survey of this topic.

COMMON THEMES

The unique characteristics of virtual worlds, specifically Second Life, require careful consideration of various factors in determining best practices for the design of teaching and learning environments and activities. Many SLCC Education Track presenters indicated broad, overarching questions that must be addressed:

- Who are the learners and how do learner characteristics match up with the characteristics of virtual world environments?
- How must the roles of both teachers and students using virtual worlds evolve and change?
- What types of learning activities best use the strengths of a virtual world environment such as Second Life?

New Learners

Foundational to the effective use of *any* learning environment is a consideration of the specific users who will be using it. In her SLCC Education track Keynote speech, Connie Yowell of the MacArthur Foundation stressed several learner considerations for students who are already technologically astute and computer literate.

Yowell argued that today's learners are proficient multi-taskers, familiar with digital media and comfortable using social medias such as FaceBook, MySpace and other social online applications. One result of these learner characteristics is a steady change in how information is presented. Books are becoming "alive," for example, through the use of hyperlinks, embedded movies and other forms of digital media. She suggested several paradigm shifts and principles to consider when looking at specific learner populations:

- **Education → Learning**

Rather than thinking of education as something one does during “school hours,” where and when is learning happening? Learning is everywhere, all the time. *What are kids doing with their tools outside of school?*

- **Consumption → Participation**

Rather than *pushing* information at a student, how can knowledge be *pulled* by the student? How can individual student interests and passions be leveraged to ultimately increase learning?

- **Individual → Social**

Rather than asking learners to individually construct knowledge, how can social Web 2.0 networks such as MySpace and many others, be used to support learning as students connect with peers and knowledge experts?

Given the fast pace of technology and new ways to communicate, Yowell stressed that virtual worlds are the perfect place to begin to make these shifts.

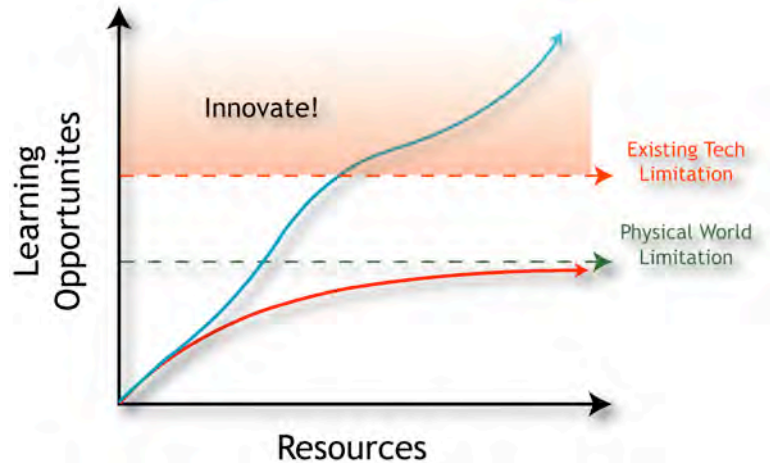
New Learning Environments

A virtual world environment such as Second Life offers some interesting characteristics for learners like those described above. Vicky Suter and Ellen Frazier of Pepperdine University refer to virtual worlds as “possibility spaces” which help learners see both real and imagined worlds as design spaces without rigid constraints limiting imagination and possibility. In her SLCC keynote address, Connie Yowell took that concept one step further in linking imagination with the social aspect of a virtual world environment and describing it as a collective, or *Networked Imagination*.

Virtual World Benefits

- Familiar online environment for gamers & digitally astute learners
- "Possibility spaces" to try out both real and imagined solutions without real world constraints
- A common space to collaboratively create and imagine
- Both a unique virtual space and society
- Image-based content
- Persistent content
- The ability to create and customize content, avatar identity and virtual spaces
- Powerful content creation tools accessible to most learners

Hillary Mason of Johnson & Wales University also stressed the ability to “create experiences that are infeasible or impossible in the real world,” by creating experiential learning opportunities such as Virtual Morocco, a student-built simulation of Moroccan experiences developed in partnership with the Moroccan tourism board. She also argues that leveraging these unique environment characteristics can create experiences that are *superior* to those not offering virtual components:



“Second Life is a powerful environment for experiential learning projects. It is persistent, supports multiple users, has an economy, offers a low barrier-to-entry for content creation, is programmable, and contains an incredible variety of pre-existing content. By using Second Life as a platform for experiential learning, we create a radical expansion of the problems that students are able to address. This increase is in two areas: problems that are infeasible due to a lack of resources, and problems that are impossible because of the limits of the physical world.”

Sarah Robbins of MediaSauce offered additional characteristics applicable to the Second Life virtual world learning environment:

- Virtual worlds offer both place and social characteristics that together make the learning environment unique.
- MUVES by nature are multiple rather than single user experiences, supporting collaborative learning experiences with other users through avatar-based communication.

- Most content is image (rather than text) based.
- The environment is persistent, it can be repeatedly experienced by different users at different times.
- Users have the ability to own, create, and modify content.
- Users have the ability to customize their user identity (Avatar).
- Users have the ability to offer public or restricted access to areas and events.

In addition to its unique position of being the first breakout multi-platform 3D virtual world, Second Life also offers content creation tools accessible to “average” users that are powerful and easy to use. Those with programming backgrounds also have access to the Linden Scripting Language.

However, these new and unique learning environment characteristics suggest adaptations that both instructors and learners must make in order to use them to their fullest extent.

New Roles for Instructors

The virtual world environment can be disorienting for learners *and* instructors. Rather than feeling proficient in the teaching environment, instructors are often thrust into the learner role as they acquire new skills themselves. As fellow learners, many instructors find themselves in more of a collaborative role as they seek help and advice from more seasoned virtual world instructors. Sarah Robbins suggests that Second Life challenges the silo mentality pervasive in many higher education environments. Rather than competing, faculty are pushed towards innovative collaboration across disciplines and national boundaries.

Succeeding as a "Virtual" instructor

- **Adjust your teaching style to the new environment: How can you take advantage of this new type of learning environment?**
- **Be a learner first: Take time to learn the interface and culture**
- **Connect with more experienced educators: Take advantage of the culture of sharing information and tips**

In addition to a new role as a fellow learner, many instructors begin to realize that familiar ways of delivering knowledge and information *may* not be as effective in a 3D multi-user space.

Luis M. Martinez, of the Universidad Iberoamericano in



Mexico City, found that giving a lecture in Second Life ultimately resulted in a lack of student attention and concluded that the lecture could just as easily been recorded and delivered online. His conclusion that more active learning techniques were needed mirrors Larry Johnson's observation that many educators need to first try what they know as part of their own learning process. Johnson, director of the New Media Consortium, says his strategy is to let educators try traditional ways of teaching first, and then move them towards more student-centered pedagogies.

Among these strategies is a redefinition of an instructor's role, from that of an *expert* to a *facilitator*, who helps students direct their own educational experiences. This approach, however, leaves instructors faced with significant challenges in assessing student work and effort. Charles Kinzer of Columbia University questions how one can best figure out how students are spending time; how to build in-world literacy into a structured, limited time course; and how to balance in-world and out-world instructional experiences. One answer, Ruth Martinez suggests, is that teachers must learn how to create greater levels of interactivity between learners, the internet, Web 2.0 tools and virtual worlds.

New Roles for Learners

Learners, too, must approach their educational experience differently. Second Life, like other MUVES is fundamentally a social and collaborative

Succeeding as a "Virtual" learner

- Collaborate! Don't learn alone
- Participate in using your new knowledge
- Experiment with the platform and push it to its limits
- Create a meaningful project with real world implications and share it with others outside of your virtual world

space. It is a participatory *culture*. Kinzer noted research that indicates that students most likely to succeed in a Second Life environment will view it as a *social* environment, rather than an individual, isolated one. Students who are usually more comfortable working alone may find that group projects and presentations become the assignments of choice and will need to adjust in order to succeed.

Students must also be willing to be less *passive* and become *participatory* learners, demonstrating collaboration, critical thinking and reflection that may closely match real-world professional tasks. As Hilary Mason observes, learners in a hands-on virtual world may find themselves facing simulated challenges and problems drawn from the real world that necessitate directing their own educational experiences.

However, different populations of learners may face *different* challenges in adapting to a virtual environment, depending on their prior experiences. Methchild Schmidt from New York University found that her students with gaming experience wanted “rules,” while her 3D graphic arts students were more concerned with the quality of content creation tools.

Despite prior gaming experience or other factors, students must learn *virtual world literacy* - both the virtual world interface *and* the social culture specific to that particular virtual world platform. Ruth Martinez summarizes this concept well in saying, “Players learn through active engagement with software and each other as well.”

Implications for Designing Instruction

Given significant adaptations needed in both teaching and learning, instructors face new challenges in designing appropriate instructional environments and activities that will capitalize on the strengths of multi-user virtual worlds. How can these unique characteristics be effectively used in ways that both engage the learner *and* result in transferable learning? When is the additional time, effort and cost justified? As indicated by many speakers, the answer is dependent on many variables: learner characteristics, instructor capability, technological support, as well as the specific types of knowledge and skills needing to be learned.

In assessing both the virtual world environment *and* instructional strategies, Sarah Robbins summarized concepts all educators must ask in determining when and how to use multi-user virtual environments. She states that, as educators:

“Understanding the qualities of environment that make it what it is allows us to become more informed and critical users of the environments.

As instructors, we’re looking for an environment that will best suit our needs instead of trying to suit our pedagogy to an environment.

By comparing environments based on these traits we are able to see commonalities between the environments that might not have been clear before.”

The task for instructors then, is to learn to use the benefits of virtual worlds to their best advantage and not merely recreate “old ways” of teaching.

Hilary Mason, for example, stresses learning activities, such as those richly supported in a Second Life environment, designed to provide students with “challenging, collaborative, multidisciplinary problems along with the support to meet these challenges.” She suggests that authentic experiential learning must:

1. Have real word relevance.
2. Be ill-defined, requiring students to define the required tasks.
3. Contain complex tasks to be investigated over a sustained period of time.
4. Provide the opportunity for students to examine the task from different perspectives.
5. Provide the opportunity to collaborate.
6. Provide the opportunity to reflect.

7. Be integrated across subject areas.
8. Be seamlessly integrated with assessment.
9. Create polished, valuable products.
10. Allow for competing solutions and a diversity of outcomes.

In addition, Mason stresses that *Second Life* based activities should *also*:

1. Have Second Life relevance.
Can it be done more easily in another application, or does it take advantage of the unique characteristics of the Second Life environment?
2. Involve students in experience design.
Allowing students to research and reflect on design choices that they themselves build fosters learning.
3. Require collaboration.
Second Life is a social space that supports both synchronous (same time) and asynchronous (different time) collaboration.
4. Leverage the Second Life community.
Whether students spontaneously form groups or join established communities, the experience can add a dynamic and unpredictable factor to learning that more closely approximates real world situations.
5. Provide the opportunity to reflect in both new and traditional media.
Using tools within and outside of Second Life allows students to reflect on different aspects of their experience and is a tool for assessment.

EXAMPLES OF BEST PRACTICES

In light of overarching instructional principles and best practices, different learner populations, subject matter and required instructional deliverables will dictate creative and specific instructional solutions. Several projects are highlighted here as examples of best practices for specific educational sub-groups represented at the SLCC 2007 Education Track.

Teen Grid

As a restricted and protected space, the Second Life Teen Grid, for students aged 13-17, offers ground-breaking opportunities for educators wishing to reach a digitally astute



learning population. However, these learner restrictions, along with the specific characteristics of a teen learning audience and constraints commonly faced by middle and high school educators, lead to certain best practices specific to this age group. It is unfortunate that Teen Grid projects such as PacificRim Exchange, Ramapo, Schome Park

and the Eye4You Alliance were not presented in depth at the SLCC proceedings. Projects such as these highlight specific strategies that teach mandated state standards while reaching unique, cross-cultural and alternative school groups. However, the projects of several innovative groups, including the ongoing work of Global Kids, offered field-tested best practices generally applicable across many different content areas.

Now in their second year of virtual world-based education, Global Kids continues to enlighten and empower students throughout the greater New York City area and globally through opportunities to create and deliver meaningful content based on important current human rights and global issues. Their work in both classroom and distance learning environments has resulted in several fundamental principles and best practices for using Second Life and future virtual worlds in real world education.

Fundamental in their approach is to work *with* the virtual environment – not against it. Rather than approximate the classroom, instruction is designed to take advantage of the game-like, open-ended, social environment and adjust to unexpected and often enriching consequences. As safe and somewhat anonymous social connections are fostered in the persistent in-world space, Global Kids Island, learners who might not otherwise participate in real life classrooms are given less-risky opportunities to express opinions and offer suggestions for solutions with real world implications. The ability to change appearance also means students are free to be evaluated based on the quality of their ideas rather than by visual real world constraints and stereotypes.

Teen Grid Tips for success

- Capitalize on what the virtual environment can do that's different from a traditional classroom setting
- Empower the students to make significant decisions in their learning choices
- Encourage student leadership and collaboration
- Be flexible when unexpected learning outcomes arise
- Facilitate, connect and advise students in their learning
- Scale projects realistically
- Always have a plan B when technology fails
- Engage learners in meaningful projects with real world results
- Deliver projects using multiple medias
- Involve all stakeholders for the best results

This form of virtual world social interaction is also leveraged in project-based instruction based on collaborative and cross-functional teams. Rather than requiring learners to become proficient in *all* Second Life skills, students are encouraged to become dependent on each other's talents and strengths to the point of leading and teaching each other. This empowerment model means students are encouraged to take on responsibility and make significant project decisions whenever possible. The skills developed transfer very well to a 21st century job force that values global levels of social networking and teamwork.

One highly successful example of this approach has been the recent after school program, the Virtual Video Project, where learners created movies about important global issues. Using the Second Life tools, participants were able to work together to create custom avatars, build sets, and set up and film shots that were later edited into a short film posted on YouTube and other social computing venues. The film, *A Child's War*, focused on the plight of child soldiers in Northern Uganda and has been nominated for Best Student Machinima at the Machinima Festival, which was awarded in October 2007. In addition to the varied skills gained in this process, students report a strong belief that they are making an important difference for the children of Northern Uganda.

One result of this collaborative learning model is the changing roles of both teachers and students. While students are thrust into a peer mentor role, teachers step back to advise and facilitate, connecting students with each other, helpful information, and rich in-world resources.

However, along with a high level of student engagement and real world transferable skills, comes a realization that not everything can be done as planned. Global Kids is quick to point out that projects must be scaled to available time and resources. Instructors must be careful to guide students in sizing projects that can be reasonably completed in the time allotted.

In fact, because of high student engagement and the nature of the virtual environment, *more* time is planned to complete an activity than anticipated. However, at the same time, there is always the understanding that technology *can and will* fail unexpectedly and back-up plans should always be in place.

In requiring a meaningful end product in all their projects, Global Kids also has sought to integrate the richness of Web 2.0 technologies in delivering final projects to the broadest audience possible. Students blog and develop distributed QuickTime movies, for example, outside of the Second Life environment.

The success of Global Kids in a largely underserved student population serves as a model and inspiration to K-12 educators wishing to incorporate virtual worlds into their instruction. However, other after school groups indicate barriers to success in different learner populations. TechSavvy Girls, which works with a primarily middle class female middle school population, reported that they face a significant lack of support from parents who are reluctant to support computer use at home for their daughters. Future best practices for them may include effective strategies in educating parents as to the advantages of supporting their daughters in the use and mastery of technology associated 21st century job skills.

Higher Education

The uses of Second Life in higher education are as varied as the student populations being served and subjects being taught. The most effective higher education best practices however, offer elegant virtual world solutions tailored to specific instructional challenges.



Depending on the instructional outcome desired, educators must choose to have students participate in either a *pre-built* learning environment or participate in a collaborative effort that will, in and of itself, lead to learning the desired subject.

Pre-built environments may include lecture halls and similar spaces that approximate familiar real world learning environments. While these types of spaces may be discounted as passive

and not taking advantage of some of the unique aspects of a virtual world environment, it should be noted that the presentation of large amounts of material and subsequent reflective discussion can form the backbone of additional work in Second Life. This is especially true when learners and instructors are communicating *from a distance*, rather than as a supplement to or replacement of a campus-based class.

However, the most effective Second Life uses in higher education tend to be centered around project-based assignments that reflect authentic learning, useful end products and transferable real life skills. Elaine Polvinem of Buffalo State College, for example, noticed that virtual worlds were beginning to be embedded into commercial apparel software production. She successfully taught transferable skills to her fashion students by introducing them to the Second Life content creation tools and incorporating assignments that included 3D garment creation as well as industry skills such as planning, publicizing and executing an in-world fashion show. In addition, students developed greater organization, critical thinking, communication and multitasking skills directly applicable to their chosen field. Their project also resulted in meaningful portfolio pieces that demonstrate cutting edge industry skills.

The higher education community has also led the way in understanding how best to use accessible virtual world platforms, such as Second Life, in the development of Serious Games. Students from The Vital Lab at Ohio University have developed and tested effective games on subjects ranging from nutritional food choices to environmental education. Greater game development skills have not been the only major outcome from these assignments. Game-*players* have reported an increase in knowledge and understanding through the use of games. In addition, the environmental education game, Appalachian Tycoon, is now used as a template for high school students studying serious games on the Second Life platform. Additional research has now begun in the form of a three-year middle school science project to understand if and how education using serious games will translate in to real life practices.

Effective problem-based learning activities also incorporate collaboration with experts *beyond* classroom resources. Hilary Mason, of Johnson & Wales, worked with students to virtually

recreate BLAST, a scientific project that featured a balloon that flew over Antarctica. Students worked with scientists to verify accuracy and, in the process, learned to communicate in a virtual world environment. The resultant virtual 2-day fly-by crossed a number of Second Life regions, informally educated a global audience and included a scientific presentation at the International Space Museum.

These types of project-based learning *activities* often result in learning *environments* that remain open to the public. In using *metrics* to measure public attendance patterns, educators can begin to better understand which instructional elements seem most interesting to people, and modify displays appropriately. Virtual Morocco, for example, used metrics data to understand which areas were popular with visitors. Conclusions included a need to redesign a model of an old Moroccan neighborhood for easier use and the realization that displays needed periodic updating with fresh content. For students, these types of transferable experiences are invaluable in preparing them for real world problem solving in the 21st century.

Library Services

As a vibrant and rapidly growing grassroots education group, librarians in both the main and teen grid are finding new and fresh ways to present knowledge and information to a digital learner audience. The library community has excelled over the past year in developing a robust and mutually supportive community of practice that serves as a model for other educational groups within Second Life. In leveraging and generously sharing collective experiences and lessons learned, librarians serve as leaders in supporting educators and others interested in exploring instructional opportunities within Second Life. This spirit of volunteerism has resulted in over 500 self-identified library volunteers and countless creative exhibits, displays and immersive learning environments for the benefit of the general Second Life population.

Of note is Renaissance Island, a region devoted to Elizabethan England. As an immersive learning environment, learners are offered accurate Elizabethan clothing and are able to visit carefully researched buildings, sites and events that have been created with the help and advice of appropriate scholars. An active on-site community dedicated to speaking and

behaving historically accurately add to the overall immersive environment. Historical events



and speakers, such as Henry VIII, are often featured on the island. In this way, librarians are developing some of the most innovative ways to present information in engaging and effective ways in a virtual world environment.

Science and Technology

Like the library services community, scientists are also taking advantage of the global networking capabilities of Second Life to explore how accessible virtual worlds can be used to share knowledge, both with others in the scientific community and with the general public.

SciLands has emerged as a multi-sim continent devoted to science, technology, engineering and mathematical pursuits (STEM). The SciLands governing committee, a global panel of scientists representing many disciplines, oversees an environment that supports serious projects while remaining accessible to the public. By combining the work of museums, national agencies, scientific and research



organizations and educational institutions, SciLands provides a model for both cross-disciplinary and cross-institutional collaboration. NASA Ames CoLab, for example, serves as a virtual space for both national and international collaborative efforts in future space exploration.

In many cases, specific projects are openly shared with the public. Any resident, for example, can visit Dr. Mary Ann Clark's educational island originally created for teaching her students molecular genetics.

Scientific projects have also supported the use of *metrics* in the ongoing design and refinement of their educational experiences. Eric Hackathorn of the National Oceanographic and Atmospheric Administration (NOAA) demonstrated the significance of mapping user patterns of use in the NOAA sim. In analyzing patterns of resident use, he was able to understand which areas and types of displays were of most interest to the general public. The ability to analyze the usability of these informal learning environments holds great promise in the effective design of future learning spaces.

Community and Corporate Training

Corporate and non-profit training increasingly looks to the educational uses of virtual worlds to create and support vital, real world applications. Simulations formerly inaccessible to groups lacking the necessary skills and manpower can now be safely and economically executed in accessible environments such as Second Life. Many organizations now look at virtual worlds to simulate various types of emergency preparedness training.

CeaseFire, an initiative of the Chicago Project for Violence Prevention, has worked with CADE, a team from the



University of Illinois, to develop CeaseFire Island as a way to leverage the strengths of

virtual worlds in expanding their CeaseFire training program. Participants are able to simulate and role-play potentially violent situations in a safe environment that allows for feedback not possible in real life. Experienced “Violence Interrupters” are also able to interact and coach participants at a distance from other cities across the United States.

Various organizations are also using virtual world spaces to support real life training and policies. Known as a *Blended Learning* approach, learners can meet with mentors and coaches in a virtual setting to receive additional training *after* a real world training session. Centrax Island, for example, includes guidance and opportunities to practice interactive 3D computer repair.

Campus Environments

As an increasing number of educational institutions establish a virtual world presence, opinions on best practices in campus design range from recreating real life campus landmarks to eschewing *anything* representative of real life in favor of new and untested visual environments.

The design of *any* campus should optimally be based on effective instructional uses of that space. Both the content being taught and learner characteristics must be considered. Despite widely varied design decisions, Chris Collins and Nancy Jennings of the University of Cincinnati have observed several best practices useful for those planning and improving campus builds in Second Life. While their observations do not cover effective instructional strategies, they *do* indicate several helpful elements to consider for visitors and students visiting a campus space for the first time.



In considering how *easy* a campus will be to find and use, Collins & Jennings suggest that great care be taken in *naming* groups and land parcels associated with the school so that they

are easy to find using the Second Life search feature. By spelling out and using full institutional names, new users will be able to more easily find the virtual campus. Adding contact information to the campus group's charter can also help learners connect with instructors and other students.

Once on the virtual campus, visitors should be quickly oriented to the space. Scripted welcome messages or greeter bots can quickly reassure a new student they are in the right place. Visual clues, such as logos or real landmarks are also helpful and add credibility. Even signs with links to appropriate campus websites can be used to tie this new virtual campus in with the "real" campus.

Just as in real life, students benefit from signs and visual hints telling them where various activities are held. Footpaths, signs and campus maps with teleport systems are effective tools to guide students towards specific learning areas, such as sandboxes, auditoriums, art galleries and office spaces.

While these best practices are helpful in designing effective orientation spaces for first time visitors, much research should be done on effective *uses* of space and the appropriateness of the pedagogical strategies being chosen for instruction happening *in* the virtual space.

CONCLUSIONS AND RECOMMENDATIONS

Considerations

The diversity and creativity of the many educational examples presented at the Second Life Community Convention's Education Track both inspire and motivate. However, educators considering Second Life or *any* future virtual world platform should carefully weigh a number of factors before committing to using MUVes as an instructional strategy.

As demonstrated even during the conference proceedings, hardware and system configuration issues and limitations will work against the most well-intentioned plans. Is there adequate technical support personnel in a computer lab for example? Do school computers support Second Life or other graphics-intensive virtual worlds? Are there firewall issues?

Educators must also realistically assess the time needed, not only to learn a baseline level of Second Life interface skills, but to learn new ways of facilitating learning that make sense in a virtual world environment. A current lack of ready to use Second Life specific curriculum may necessitate additional course development time. However, educators should also remember that they are not alone in this journey. As Connie Yowell so appropriately stated during her SLCC Education Track keynote address, "Second Life's killer app is *community*." An active and generous instructional community exists to help orient

To Consider

- Do you have the technology resources to support instruction in a virtual world platform?
- Do you have the time to devote to learning the interface, social culture and new strategies needed to create authentic learning activities?
- Are you interested in both benefiting from and sharing knowledge with a global community of like-minded educators?
- Will your students benefit from learning in this environment?
- What can you do in a virtual world that you cannot do elsewhere? How does this apply to your instructional objectives?

educators new to Second Life as they learn new and engaging ways of delivering and facilitating knowledge and skills.

Finally, a discerning educator will consider instructional outcomes *before* deciding on the suitability of a virtual world platform. Connie Yowell, in her keynote address, also argued for asking the difficult questions: What do you want to do? Which media *fits*? What are the unintended consequences of designing learning in this environment? As Charles Kinzer stated, “Everybody doesn’t *have* to like Second Life. We need the research that pulls apart the contextualized variables and appropriate uses...”

Looking Ahead

Research, in fact, is what is most needed to understand effective educational uses of Second Life and other, future virtual world platforms. While Second Life is currently the educational virtual world of choice, it is extremely likely that other accessible MUVE platforms will be available in the near future. As virtual world platforms compete for serious and educational users, research *must* be done now to understand both teaching and learning implications. Hillary Mason asks several fundamental questions that can be generalized to apply to both present and future virtual world platforms:

- Can we utilize the unique features of the Second Life environment to provide more powerful assessment tools than are available in the real world?
- Can experiential learning in Second Life be compatible with traditional outcomes assessment processes?
- Do skills learned in Second Life necessarily transfer to the real world?
- How can we use the affordances of Second Life to construct authentic learning experiences that maximize learning?

In addition, careful study needs to be done to understand how the virtual world environment supports known best practices in distance education. How are virtual worlds best used in a

formalized course of instruction – as a replacement or supplement to additional learning opportunities?

New platform features also need to be evaluated for effectiveness. With the addition of voice and the impending move to a Havok 4 physics engine, for example, Second Life now has new capabilities to reach specific learning populations, such as foreign language learners and students interested in basic physics.

Rapid development of 2D web and 3D mash-ups must be carefully looked at and tested. What are the justifications for the additional time and expense of an increased use of cutting-edge technologies in any course of instruction? There is no one “right” answer.

This next year also promises the maturation and evaluation of an increasing number of Teen Grid projects – particularly those dealing with core content subject areas. A careful look at how the most effective projects capitalize on instruction in a virtual world environment will be of great benefit to others looking specifically at how best to motivate and teach students at the K-12 level.

As additional virtual world platforms are rapidly developed, further research needs to be done to understand specific ways Multi-User Virtual Environments (MUVES) can best be used in education. In particular, ways of authentically assessing student learning and skill transfer to real world settings must be addressed. Research into effective distance education applications and the integration with 2D or "flat web" tools is also needed.

APPENDICES

Appendix I: Further Resources

Useful General Resources:

SLCC Education Track Proceedings

<http://cis.paisley.ac.uk/livi-ci0/slccedu2007rev2.doc>

SLED Listserv sign-up

<http://secondlifegrid.net/programs/education#sled>

Simteach.org SLED Wiki

<http://secondlifegrid.net/programs/education#sled>

NMC 2007 Educators in Second Life Survey Results Summary

<http://www.nmc.org/pdf/2007-sl-survey-summary.pdf>

<http://www.nmc.org/pdf/2007-sl-survey-summary-appendix.pdf>

Report Resources:

Persons, projects and institutions highlighted in the report are listed below in order of mention along with relevant SLURLS (Second Life locations) and project specific URLs.

SLoodle

<http://www.sloodle.org/>

Connie Yowell, The MacArthur Foundation

<http://digitalllearning.macfound.org/site/c.enJLKQNiFiG/b.2029199/k.BFC9/Home.htm>

Hilary Mason, Johnson & Wales University

Virtual Morocco

<http://slurl.com/secondlife/Casablanca/135/79/26/>

Virtual BLAST

<http://slurl.com/secondlife/Spaceport%20Alpha/209/75/22/>

<http://www.slideshare.net/hmason/experiential-learning-in-second-life>

Sarah Robbins, MediaSauce

<http://home.intellagirl.com/>

Luis M. Martinez, Universidad Iberoamericano, Mexico City

<http://www.slideshare.net/hipuia/sl-martinez-presentation>

Larry Johnson, New Media Consortium

<http://www.nmc.org/taxonomy/term/50>

Charles Kinzer, Columbia University

Second Life – Teachers College, Columbia

<http://slurl.com/secondlife/TC%20Educator/132/224/27>

Ruth Martinez, e-learning consultant and researcher in 3D Virtual Worlds

<http://educasecondlife.blogspot.com>

Methchild Schmidt, New York University

Second Life – New York University

<http://slurl.com/secondlife/Outreach/30/153/292>

<http://slurl.com/secondlife/Edusland/15/130/29>

Teen Grid and Education in Second Life

<http://teen.secondlife.com/>

<http://secondlifegrid.net/programs/education#teengrid>

PacificRim Exchange

<http://pacificrimx.wordpress.com/>

Ramapo Island

<http://rampoislands.blogspot.com/>

Tour of Ramapo Islands

<http://blip.tv/file/282567>

Schome Park

http://schome.open.ac.uk/wikiworks/index.php/Schome_Park

Eye4You Alliance

<http://eye4youalliance.youthtech.info>

Global Kids and A Child's War

<http://www.globalkids.org>

<http://olp.globalkids.org/>

TechSavvy Girls

<http://sleducation.wikispaces.com>

Elaine Polvinem, Buffalo State College

<http://facstaff.buffalostate.edu/polvinem/SL/SLCC07.htm>

The Vital Lab, Ohio University

http://vital.cs.ohiou.edu/vitalwiki/index.php/Second_Life_Development

Renaissance Island

Tour of Renaissance Island

<http://blip.tv/file/385938/>

<http://slurl.com/secondlife/Renaissance%20Island/203/64/27>

SciLands

<http://scilands.wordpress.com/>

<http://slurl.com/secondlife/SciLands/196/14/23>

Eric Hackathorn, NOAA in Second Life

<http://slurl.com/secondlife/Meteora/177/161/27/>

<http://www.esrl.noaa.gov/outreach/sl/>

NASA Ames CoLab in Second Life

<http://colab.arc.nasa.gov/virtual>

Mary Ann Clark

Genome Island

<http://slur.com/secondlife/Genome/161/85/32>

CeaseFire in Second Life

Chicago Project for Violence Prevention

<http://www.ceasefireillinois.org>

CADE

<http://advancedrealities.com>

Centrax Island

<http://slurl.com/secondlife/CentraxIsland/128/128/0/>

Chris Collins & Nancy Jennings, University of Cincinnati

Campus Best Practices

<http://homepages.uc.edu/secondlife>

About Global Kids

Founded in 1989 and an independent not-for-profit organization since 1993, Global Kids' (GK) mission is to transform urban youth into successful students and global and community leaders by engaging them in socially dynamic, content-rich learning experiences. Through leadership development and academic enrichment programs, Global Kids uses interactive and experiential methods to educate youth about critical international and public policy issues and provides them with opportunities for civic and global engagement.

Over the past sixteen years, Global Kids has reached over 70,000 youth and built strong relationships with the Department of Education and various schools throughout the five boroughs of New York City. In addition, GK's unique work is augmented by strong partnerships with numerous other organizations, including Adelphi University, the Council on Foreign Relations, Ping Chong Theatre Company, The New School, and the NewsHour with Jim Lehrer.

Supported by the John D. and Catherine T. MacArthur Foundation, Global Kids Digital Media Youth Initiative (DMI) was launched in January of 2006. The DMI is a series of interrelated programs designed to support teenagers to think critically about the role of digital media in their lives and document their experiences in various media. These programs will gather youth voices about the role of digital media in the lives of today's young people in order to inform the newly announced MacArthur Series on Digital Media and Learning.

More information is available at www.GlobalKids.org and www.holymeatballs.org

About the MacArthur Foundation's Digital Media and Learning Initiative

The John D. and Catherine T. MacArthur Foundation is a private, independent grant making institution dedicated to helping groups and individuals foster lasting improvement in the human condition. MacArthur's \$50 million digital media and learning initiative aims to help determine how digital technologies are changing the way young people learn, play, socialize, and participate in civic life. More information is available at www.macfound.org or www.digitallearning.macfound.org.

About This Series

The Global Kids Series of Virtual Worlds is part of a grant from the MacArthur Foundation to explore the role of philanthropy within virtual worlds. The first two reports are *Reports from the Field: Second Life Community Convention 2007 Education Track Summary (Fall, 2007)* and *Best Practices for Non-profits in Second Life (Fall, 2007)*.

Glossary

21st Century Skills: Skills, knowledge and expertise students should master to succeed in work and life in the 21st century. Competencies include global literacy, problem solving, collaboration, innovation and creativity.

ActiveWorlds: One of the oldest 3D virtual world platforms. The system was intended to merge 2D web-based surfing with virtual world immersiveness. Users can chat, explore other worlds created using the ActiveWorlds platform, construct buildings, and browse the web. www.activeworlds.com.

Avatar: A visual representation of oneself. One's identity in a virtual environment. Avatars may appear to be two-dimensional or three-dimensional. Most commonly, avatars are represented in human form. Other popular avatar shapes include animals, androids and other fantasy creatures. In some platforms, such as Second Life, users are able to customize and change the appearance of their avatar at will.

Avatar-based Communication: Communicating through the use of avatars. Communication may be chat-based, include the use of voice, and/or non-verbal (i.e.: body language).

Blended Learning: Learning that uses both online and in-person instruction.

Blog: An online journal

Club Penguin: A web-based multiplayer game environment developed by New Horizon Interactive, later acquired by Disney. Using cartoon penguin avatars, players can converse, play minigames, and participate in other activities with one another in an arctic-themed virtual world. The game is intended for children ages six to fourteen. www.clubpenguin.com.

Collaborative Learning Model: A learning model in which learners work together to create and learn content.

Experiential Learning: Learning through experience, either in a real situation, such as a workplace, or in role-play.

Flat Web: First generation websites containing static websites with little interactivity.

Grid (ex: Teen Grid): Slang for the Second Life virtual world and its server network.

Griefer: This term is used to refer to residents or players of online games and virtual worlds who purposely attempt to defy the game's rules or code of conduct or upset other's game experience. This can take the form of harassing behavior against other players or employing annoying tactics and actions.

Habbo Hotel: A virtual community owned and operated by Sulake Corporation. Habbo Hotel is primarily aimed at teenagers, combining elements of an online chat room and online game. www.habbo.com.

Immersive Environment: An interactive artificial computer-created "world" within which a user can immerse themselves. Environments can be either realistic or fantasy-based.

Interactivity: A two-way flow of information between a computer and a user, responding to the user's input.

Kaneva: A social networking and media platform that brings together web and 3D virtual world technologies through shared media that can be collaboratively experienced in a virtual environment. www.kaneva.com.

Linden Dollars: The virtual currency within Second Life. Often simply called just “lindens,” linden dollars can be traded against the US dollar, valued in late 2007 at approximated 275 lindens to the US dollar.

Linden Scripting Language: The programming language used by residents of Second Life. LSL has a syntax similar to C and allows objects to interact with the Second Life world and the Internet via email, XML-RPC and outbound HTTP requests.

Machinima: A form of digital animation filmmaking that employs 3D game or virtual world technologies to create cinematic video. www.machinima.org.

Mash-up: A web application that combines data from more than one source into a single integrated tool.

Massively Multiplayer Online Role Playing Game: Often abbreviated as MMORPG. A persistent online game environment in which hundreds to millions of players can create their own avatars, interact and engage in game play within a shared game plot or quest structure.

Metaplace: A virtual worlds platform designed to "democratize" the virtual world creation market by supplying a suite of tools that both programmers and non-programmers can use to create their own virtual experiences. Developed by Areae, the company established by Ultima Online and Star Wars Galaxies designer Raph Koster. www.metaplace.com.

Moodle: An open source online learning system.

MUVE: Acronym for Multiuser Virtual Environment. MUVes may be platform for online games or used for serious educational and corporate training and instruction.

Networked Imagination: As referenced by Connie Yowell of The MacArthur Foundation, in her keynote speech for the Second Life Community Convention Education Track, August 2007. Networked Imagination refers to the ability to collectively imagine and explore multiple solutions and outcomes in a multi-user virtual space, such as Second Life.

Persistent: The Second Life environment is persistent. Objects and environments persist, or remain, from user log-in to log-in.

Second Life Teen Grid: The Second Life Teen Grid is a protected space in Second Life designed specifically for Teens 13 - 17 years of age. Adults on the Teen Grid must have background checks and are restricted to specific educational and non-profit project areas.

Second Life: Second Life is a massive multiplayer universe (MMU) set in a 3D virtual world created by Linden Lab.

Sim: Shorthand term for “simulator” within Second Life. Each simulator process simulates one 256x256 meter region. As a resident moves through Second Life, he or she is handled off from one simulator to another. It is common for an organization entering Second Life to purchase one or more sims.

Sims Online: A massively multiplayer online game variation on Maxis' highly popular computer game "The Sims." It was published by Electronic Arts and released on December 17, 2002 for Microsoft Windows.

Simulation: An instructional strategy used to teach problem solving and procedures by immersing learners in situations resembling reality. Simulations can provide safe environments for users to practice real-world skills and are important in situations where errors would be dangerous or expensive.

SLoodle: a mash-up combining Moodle and Second Life

There.com: The There virtual world platform is owned and operated by Makena Technologies, Inc. MTV has commissioned the creation of several virtual worlds using the There platform as promotions for their television programming, including Virtual Laguna Beach, Virtual Pimp My Ride and Virtual The Hills. www.there.com.

Virtual World Literacy: Virtual World competencies needed by a learner to successfully interact within a MUVE. Competencies include interface and tool use as well as an understanding of social and community rules and culture.

Virtual World: A virtual world is a computer-based simulated environment, usually featuring multiple users in the form of avatars.

Web 2.0 or "2D": Social networking sites, such as wikis, communication tools, and folksonomies - that allow people to collaborate and share information online in ways previously unavailable.

Wiki: A website or similar online resource which allows users to add and edit content collectively.

World of Warcraft: A massively multiplayer online role-playing game owned and operated by Blizzard Entertainment. It is currently the world's largest MMORPG in terms of monthly subscribers.