

The Case for Education in Virtual Worlds  
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The first day of Harvard's class on Berkman Island in Second Life was also the first day in Second Life for many of our students. We began with some simple orientation games designed to help students acclimate to the environment and to each other. In the game we called "Stand Up, Sit Down" I made statements to the class and they were asked to stand up (by pushing the "stand up" button) if they agreed with the statement and to sit down (by right-clicking on a chair and choosing "sit") if they did not. During that game I posed what I take to be the fundamental question, if a bit flippantly put, that those of us who propose to use virtual worlds in education must convincingly answer in the affirmative: "Is this real?" That question encompasses the main objection to using Second Life and other virtual worlds in education: that virtual worlds, at this stage of development, are really no more than glorified chat rooms, and very computationally expensive ones at that. The physical representation of space and self, the argument continues, offer at best a flashy but substantively irrelevant add-on to the educational experience and at worst a gamelike aura that distracts from the subject matter and detracts from the seriousness of the educational enterprise. Ironically, the first small refutation of the fallacy of these objections came when a student (avatar name: USA Brody) answered my question in the negative:

[18:25] Rebecca Berkman: stand up if you think this is real.

[18:25] Yoyo Mah: What's real??

[18:25] USA Brody: In a limited manner this is real

...

[18:25] USA Brody: Because if you fell from a cloud in life, you would more than likely die...

...

*At this point USA Brody flies into the air to a great height and (intentionally) crashes to the ground. He is unharmed.*

[18:26] Yoyo Mah: lol

USA's use of the contrast between the basic realities of the real and virtual physical spaces was our first demonstration of the potential to use our virtual environment as more than just a playful picture to accompany our discussion.

Yoyo Mah began our conversation by asking, quite appropriately, "What's real?" We carry a strong visceral sense of reality with us that seems to contradict the philosophical perspective that our reality is mediated (and perhaps constructed) by our sensory systems. Devotees of virtual life, by acting and interacting through an avatar, become comfortable with an alternative reality and an alternative set of sensory and expressive capabilities. Although at this stage of development, and perhaps necessarily, these senses and modes of expression are fewer and more rudimentary those we use to access our actual environment, they are not a strict subset. Though deprived of his voice, USA was able to express himself in Second Life in a way that is plainly impossible in his

first life. As educators we can eschew the theoretical discussion of the nature of reality, but in order to realize the potential of our virtual classrooms we must learn the lesson that USA's answer to the question offers. Rather than shying away from and minimizing the points of difference between our realities, we can incorporate them into our teaching. Three principles guide our attempts to do this: 1) use the technology for what it is good for and not for what it does not do well; 2) seek advantages in what appear to be limitations; and 3) where new capabilities are offered, find ways to use them.

In what follows we describe our results from putting these principles into action in one course in Second Life, *CyberOne: Law in the Court of Public Opinion*. Education in virtual worlds is in its nascent stages. The first steps in understanding and method we offer from our short experience is intended to serve as a proof of potential and an argument for educators to apply their creativity and expertise to teaching in virtual environments. This paper will not be a theoretical one, but rather a practical, often ethnographically based, argument for the current value and future potential of virtual worlds in education that attempts to specifically address the concerns and reservations of the many thoughtful educators and observers who are not yet convinced.

In Part 1 we address the very natural use of virtual worlds for education at a distance. We take aim at the criticism that Second Life provides educators only with a fancy, heavyweight chat room. Working from our experience teaching in Second Life we argue that numerous seemingly small differences, often centered on the persistent and physical nature of the space, permit the creation of a class community in a way that has not previously been possible in distance education.

In Part 2 we address the question of how virtual worlds can productively be combined with face-to-face classroom experiences to enhance the student experience. We demonstrate situations in which the virtual world experience provides opportunities for certain kinds of interactions and student work that are difficult to achieve in a traditional classroom environment. This argument dovetails with a more radical proposition that virtual worlds can and should serve as the nexus for offering open access to higher education to the public. We argue that, when structured correctly, freely offering opportunities for participation in higher education classes to the public can both improve the experience of the students enrolled in the face-to-face class as well as enhance the value of the diploma they receive in the eyes of the public.

In Part 3 we address the technological and other needs of the academic community with respect to virtual worlds. Linden Labs has allowed its users to create an immensely complex and interesting society in Second Life. However, as in real life, commercial interests drive its development. As educators, our needs and interests differ from those of Linden Labs in several critical ways. In this part we will first explain the ways in which educators' interests diverge both from Linden Labs and those of the majority of the Second Life resident community. We will then propose a course of action for educational institutions to follow in order to ensure the continuing availability and development of virtual world technologies that successfully serve the education community.

## **Part 1: Virtual Worlds for Distance Education**

Education at a distance is the most obvious educational application for virtual worlds. The typical distance education experience, though often quite valuable, still lags far behind the face-to-face classroom experience. The lack of class community, present almost without effort in face-to-face classroom environments, explains much of the difference in quality of experience. Students have less contact with their instructors, particularly in the informal ways that help to overcome barriers to free communication. Contact with fellow students is limited or nonexistent. The intangible but crucial social quality of a peer group, the opportunity to learn from each other, and the healthy and unhealthy peer pressure and competition that occurs in face-to-face classes is missing. The sense of responsibility and personal accountability engendered by direct personal relationships is weakened.

A lecture video can too easily go unwatched when there is no one to observe the absence. When students venture questions by email to their instructor, answers may take too long to arrive and may not sufficiently address the problem. Without a personal connection to the instructor, students may not feel comfortable asking for the help or extensions they need and instructors find it difficult to evaluate the validity of these requests when they do occur. The social, fun aspects of getting to know fellow students, commiserating with them about difficult assignments, and feeling the camaraderie of the class disappears placing an even heavier burden on the instructor and the material to be sufficiently engaging.

The asynchronous, placeless interaction provided by well-constructed websites, high-quality lecture videos, and interactive but still asynchronous discussion technologies like bulletin boards may adequately cover the substance of a course, but they rarely engender the interpersonal relationships that foster commitment, responsibility, and social stimulation. Synchronous and widely available technologies such as chat rooms briefly appeared to provide a solution by offering the opportunity for real-time interaction between students and their instructors. Yet a simple survey of the syllabi of a sample of distance education courses shows that their use is not widespread. In the remainder of this part we argue that the persistent sense of place provided by 3D virtual worlds such as Second Life encourages the creation of a class community in ways that previous technologies, such as group chat, do not.

Our observations are the product of our own experience teaching in Second Life. We do not hope to draw sweeping conclusions from the experience of a handful of instructors and fewer than a hundred students over the course of a single school year. Rather, we present our work as one among the many nascent educational experiments that are occurring in 3D virtual worlds. As we might say in computer science, we offer this to the reader as “a feature, not a bug.” We made our choices and our observations carefully, yet they are necessarily only first steps and deal primarily with the most basic elements of a classroom experience. A dizzying array of possibilities for education in virtual worlds remain untried. Yet, even these first experiments made believers of us: the advantages of using virtual worlds in distance education are real and substantial. If the advantages can become apparent to the relative novice, we can only imagine what may lie ahead as more educators turn their attention to realizing the potential of virtual worlds in distance education.

**Fancy meeting you here**

The residential college campus provides a persistent community space where students and professors meet formally for classes and informally in libraries, dining halls, quadrangles and dormitories. Simple interactions such as conversations in the minutes before class begins and after it wraps up, walks from one class to the next, and chance meetings in the library and student center are frequently the basis for forming new relationships and sustaining existing ones. The space provides a sense of belonging and a place to go where one can work individually or in a group, but always in the midst of a peer environment. The connection to the college as a place and a community helps students by making them aware that they are part of something bigger than themselves, providing them with reminders that other students are working toward a similar goal, and offering the substantial support membership in a peer group can provide. None of these things bear on the substantive course material of a particular class, but all contribute to the successful experience of an enrolled student.

In most distance education settings the analog of the persistent campus is the course website, which does an excellent job providing most aspects of course content but a very poor job of providing class or campus community. Visitors to a website are usually unaware of the presence of other simultaneous visitors. Even with a sophisticated courseware that allows students to see whether others are logged in, there is no way to know who is actually observing the page and who is off at the water cooler or on the phone. Even worse, the norms of web use reinforce the unlikelihood of one visitor to a page contacting another. A student taking a distance education course may often go through an entire semester without a single interaction with another student in the class.

Students enrolled in distance education classes often have very full lives including day jobs, family commitments, and friends and hobbies. As discussed above, well-intentioned students can easily fall behind without the ties of interpersonal relationships and community to bolster their morale and sense of responsibility. In the website-based distance education course, the connected experience that residential campus life provides is not there to help support the student and strengthen his/her commitment to the educational experience.

A virtual campus that provides a persistent sense of place and a platform for the formation of interpersonal relationships and community pride offers the missing piece in distance education. The elements of a virtual campus that allow it to successfully serve this purpose are still up for debate. Some aspects of the traditional campus, such as classrooms and open spaces for informal gatherings, translate very well into the virtual environment. Others, such as libraries where students might go to do their work, still await changes in the 3D virtual world technology that make it possible and desirable for students to simultaneously exist in a virtual world and work on homework that requires use of other software such as PDF readers, word processors, or web browsers. What is clear is that in order to serve the community building functions we envision, the virtual campus must be an inviting place to which students have both desire and good reason to come.

Berkman Island, Harvard's campus in Second Life, has a distinct campus-like look with beautiful stone classroom buildings and well-maintained outdoor spaces where students congregate. Sun shines on manicured grass and seating areas where groups of students and teachers gather. Stone paths guide the visitor around beautiful buildings and

over the historic Weeks footbridge on the Charles River. It looks and feels like Harvard all dressed up for graduation day. Although the effect of the look is impossible to measure, it does project a message to visitors. The replication of Harvard buildings and landmarks and the idyllic college campus feel makes it easy for visitors to believe that Berkman Island truly does represent Harvard in Second Life. They quickly understand that the project of Berkman Island is the serious attempt to offer some aspects of a Harvard education in a virtual world. This message is part of a broader effort by many to make the case for serious uses of virtual worlds to those who have largely viewed these environments as glorified video games and pornography outlets. By offering real classes in a plausible campus environment in Second Life, Harvard puts itself at least in the camp of those who believe the potential of virtual worlds in education deserves exploration. The look and feel of the island challenges visitors to take it seriously. Much like on the actual Harvard campus, most visitors do: tourists walk around and often take pictures, students congregate and participate in student activities, a few irreverent locals use their free access to the campus as a chance to thumb their noses at the hallowed halls.

We do not argue that virtual campuses should be designed, as Harvard's is, to have the look and feel of the real world university. When building in virtual worlds allows us to defy the rules of physics and engineering to create any space we can imagine, why eliminate opportunities for the creative use of space? Even on Berkman Island, courses rarely take place in the formal classroom in Austin Hall. Rather, students gather in the more comfortable, easy-to-navigate, sunny outdoor amphitheater just outside. Even when maintaining the metaphor of the real life college campus, we adapt to the differences between a virtual and real existence.

The material point is that the design of the space conveys a message to the visitor about the nature of the space and the expectations of how it will be used. That message will be understood in the context of the experience of the visitor. With Berkman Island as most visitors' first encounter with a university in a virtual world, the message of the space critically conveys both the seriousness of the enterprise of education in virtual worlds and one version of the collegiate campus ideal. As virtual world-based education experiences become common for students, a virtual campus designer may no longer feel the need to make the case for respect of the enterprise and may use the design to convey another message.

No matter the beauty and charm of the look of the virtual campus, if students do not have a reason to spend their time there, they will be absent. We use the simplest methods to help draw students to the campus and keep them coming back. First, we hold class meetings and office hours in Second Life on a regular basis. Second, we make course lecture videos and other materials available in Second Life so that students may come to Berkman Island to watch the lectures by themselves or with other students. Third, we assign out-of-class work that requires students to come into Second Life to complete it. For example, this might consist of individual assignments that involve research in Second Life, or construction of presentations that will be made in Second Life. Fourth, we ask students to work in groups in Second Life either on projects or for the purpose of discussion of course materials. Fifth, we maintain a public sandbox—an area where anyone can come to practice building—on the island so that it is unusual to arrive on the island and find oneself alone. Finally, as will be discussed in Part 2, we open as many of our activities as possible to the interested public to help build a group of

Second Life residents who feel a connection to Berkman Island and come to participate in activities, meet their friends, and offer help to students and other newcomers.

Once students are on Berkman Island on a regular basis, the community forms as a matter of course. Throughout Second Life it is common for two avatars who find themselves in close virtual proximity to one another to begin a conversation. Perhaps due to the lack of personal risk in speaking to strangers, it is much more common than in real life. Visual representations of strangers, as well as being able to see to a certain extent what the other person is doing, provide starting points for conversation. Regular visitors to the campus quickly find that they encounter the same people repeatedly and begin to form relationships. The loose network of relationships that develops defines the community. Students cite this feeling of community and having the chance to get to know their classmates outside of the formal classroom setting as a major factor in their enjoyment of and connection to the class experience. It adds both a fun social element and a sense of personal responsibility to the educational experience.

### **How do I look?**

One of the potential advantages of online communities is the absence of bias based on looks that pervades our day-to-day offline existence. Students and instructors in face-to-face classes are subject to the judgments of others on the basis of sex, age, race, accent, the style and quality of our clothing, and so on. In a chat room or on a bulletin board we are freed from these constraints. Identified only by a short handle—say, rn2007—others are constrained to judging us on the basis of what we say. But is this really what we want?

We are well-trained in making judgments about others based on visual and social cues that are hard to represent in a text-only environment. As actors in a face-to-face social setting, we are experts at representing ourselves to our peers (and students) in a way that conveys a message about who we are. We are also astute readers of the signals sent by others. When we enter a chat room we find ourselves stripped of a substantial part of our usual means of communicating our own personalities to others and of understanding who the others are around us. Second Life permits us to regain much of that mode of self-expression in a fanciful way. When a student creates an avatar in Second Life, there is no requirement that it must look like her real life self. She may freely choose an expression of herself that tries to communicate to her peers whatever qualities she seeks to display. Her choices are, of course, not free of the biases that exist in real life. The avatars she encounters all have real people, with all of their biases still intact, behind them. Additionally, she must determine how a particular social cue, now free from the constraints of reality, will be interpreted in this new environment. The value of being tall, thin, young, and pretty is plainly diminished when all it takes is the click of a button to achieve it. However, simple statements such as the choice to wear a Captain America-style suit, to be a robot or animal rather than a sexed human, or to make her avatar resemble her real life self as much as possible communicate quite a lot of information. As in real life, it is dangerous to draw too strong a conclusion based on looks alone, but students are able to get a sense of each other through the look of their avatars and use this information to start to form relationships.

On the first day of class in CyberOne we all met a student in a Captain America-style suit, a fox-like creature on stilts, a small bearded man in a wedding dress, and quite a few cookie cutter avatars that had not yet been modified from their standard look. Students with a different look drew immediate comments. Others wanted to know where they got the outfits, how they put them on, and why they chose them. Even before class had begun, this simple point of conversation had broken the ice and the students had begun to form relationships. As the semester progressed and the students became more comfortable with the Second Life interface nearly every student customized his/her avatar to better express some representation of his/her self. When students arrived with a new look or a new outfit, it was always cause for conversation.

Almost counterintuitively, the fanciful possibilities for personal appearance have a humanizing effect. They invite informal conversation and establishment of personality. The comparatively austere usernames or handles of the chat room environment have no such effect. As is evidenced by the frequent lack of basic courtesy in online forums, the lonely experience of visiting a website also cannot be said to offer a humanizing entrée to social interaction.

### **In the Classroom**

The discussion technology in Second Life is often singled out as one of the major shortcomings of the environment when compared to a face-to-face classroom experience. Although we can likely expect the incorporation of voice in the future, at the present time most communication takes place via a chat or instant message interface. The challenge of leading or participating in a discussion in a chat environment is daunting at first. Because of the time it takes to compose a comment, students and teachers alike offer shorter and often more sketch-like versions of their ideas than they would if they could speak them. Also due to the time it takes to speak, it is too cumbersome to wait for another person to finish speaking before offering one's own ideas. As a result, conversations can appear quite disjointed and usually have several threads that it takes some attention to sort out. The experience is quite overwhelming and can easily be disheartening to student and teacher alike.

Our disorientation comes from more than just the steep learning curve of a new environment. As students and teachers we have become accustomed to a fairly rigid set of classroom behavioral norms that we began to learn in our earliest classroom experiences. For example, students are supposed to wait until recognized by the instructor before they speak. Only one student may speak at a time and interruptions are not allowed. These norms allow us to begin new classes without any explicit instructions on how to behave in class. As noted above, however, they do not work in the text-based discussion environment of Second Life.

As teachers we are tempted to try to replicate the classroom experience we know, but we are challenged by the space to establish new norms of interaction that work better. Some skills that were valuable in a face-to-face classroom, such as lecturing, are no longer feasible or effective. New skills, such as moderating a multi-threaded discussion so that it remains on topic and coherent, must be mastered. The old norms have to be discarded explicitly so that students feel comfortable speaking "out of turn". With a little perseverance, a new form of classroom interaction emerges and the initial discomfort

with leaving the old classroom norms behind is replaced with the surprising realization that in some respects, the new norms are superior.

Anyone who leads discussion sections in face-to-face classrooms is well aware of the challenge presented by two ever-present types of students. First, there are students who rarely, if ever, speak up even with substantial encouragement or cajoling. Second, there are students who rarely, if ever, cede the floor to others. Discussion in a text-based environment quite cleanly addresses both of those problems.

One of the reasons why some students remain quiet in class is the feeling of anxiety produced at the moment at which they are called on speak. Consider a student who never speaks in class who is called on to offer an opinion. All eyes in the classroom turn to focus on him. He is required to produce, in a sense to perform, a fully formed idea in spontaneous speech in front of all his classmates. For many students this pressure is sufficient to silence them. In Second Life, this pressure is removed. Students pre-compose their comments before they enter them into the conversation, giving them the opportunity to think carefully about what they want to say and how they want to say it. They have complete control over when the comment is entered into the discussion. Perhaps most importantly, to the extent that anyone gazes at the speaker, it is his avatar, not his real life self, that is the focus of attention. These and perhaps other factors helped CyberOne to be the most broadly participatory discussion class we have ever offered in a face-to-face or distance environment.

Consider, on the other hand, the student who takes up too much airtime. In a face-to-face classroom this behavior is problematic because of the norm that only one person may speak at a time. By skillful use of language, the speaker may force the teacher to rudely interrupt in order to stop the student's monologue. This is an awkward and unpleasant task for instructors, too often resulting in a student monopolizing the floor for too long. The text-based, multi-threaded discussion environment of Second Life again solves the problem. A student may speak as much as he likes without ever reducing the opportunity for others to chime in. The lack of the social rule prohibiting interruption makes this possible. In addition, it is difficult to speak without pause or monopolize the chat space. Typing is time consuming, and because of the multi-threaded nature of the discussion, every participant must devote a substantial amount of time to reading the comments of others and sorting them into threads. Even when a student does occupy a large part of the chat, it is easy for everyone to sort through the discussion and give at least equal attention to the comments of others.

Despite its advantages, the current Second Life chat environment is not a panacea for virtual world classroom interaction. However, many modifications that could greatly improve it are within reach. For instance, a system for explicitly threading discussions would greatly reduce the overhead of sorting out overlapping comments. The addition of a system for expanding abbreviated text to full sentences would speed up typing and the addition of a spell-checker would reduce the incidence of unseemly typing errors. For one-on-one interactions, for instance student-teacher conferences, a voice-based system would be less cumbersome. We address the future of the technology and educators' influence on its development in Part 3.

## **In the Chat Room**

In the previous section we looked at some of the advantages of text-based discussion. These advantages in theory apply to chat environments as well as Second Life. However, in practice distance educators with readily available chat room technology rarely choose to use it. We conjecture that there is a difference in kind between the Second Life text-based environment and the basic chat room environment that explains our success in Second Life when similarly structured attempts in chat have faltered. This is not to say that the successful class chat room discussion does not exist, but rather that successful class chat room discussions are a sufficiently rare occurrence that most distance education instructors choose not to use them in their classes.

First, the barrier to speaking is not as low as in Second Life. In Second Life the avatars exist in such a rich visual environment that an act of speech does not draw all the attention in the space. In a chat room, in contrast, the text is all there is, so once again students may feel the anxiety about speaking up in front of their peers. As the instructor tries to encourage students to speak, the screen fills with comments from the instructor, counterproductively raising the barrier to speaking even more. Second, the lack of visual representation of the avatars of the participants detracts from the feeling of presence in the conversation. In many chat room applications there is no representation at all of those who are logged in but not speaking. Students may be logged in but have their attention elsewhere, as opposed to Second Life where their avatar will rudely fall asleep if they navigate away from the Second Life window, and the simultaneous running of other applications is too demanding for the typical student computer. Third, the Second Life environment provides integrated, shared access to some materials that may be useful for discussion such as video and audio resources that can help facilitate discussion.

### **Making Use of Computation**

Group collaboration and decision-making is a major challenge in a text-based environment. Students working in groups for CyberOne struggled with it throughout the semester. They found that it took an inordinate amount of time to hear everyone's ideas and that it was difficult to figure out their points of agreement and disagreement. The work of coming to agreement is harder both because of the difficulty of communicating in often non-linear multi-threaded text and because of the lack of other useful cues such as head nodding, eye gaze, and facial expressions. Although these physical cues can be incorporated into Second Life, they are currently awkward to use and they require a level of facility with the interface that one cannot assume all students possess. Making the erroneous assumption that every avatar would be nodding its head if it agreed leads to an even greater difficulty making a decision when some people are not making use of those cues.

David Johnson points out, however, that when we enter the realm of virtual worlds we have the computational power of our computers and the graphical rendering ability of the 3D worlds to help make up for the subtleties of expression that are unavailable to us:

The use of computation to alter the state of a dynamic graphic provides us with a new method for seeing emergent relationships between facts and conclusions and between individuals and groups.<sup>1</sup>

Our computers are good at synthesizing complex data and the graphical environment of Second Life provides many options for representing the synthesis so that it is easily comprehensible to a group. Thoughtfully crafted tools can take advantage of these features of the environment to lessen the burden on groups and decision-making. We offer two examples of tools that can help turn an awkward interaction into a smooth one.

Second Life allows real-time streaming of video, making it possible to offer a live lecture to students in Second Life. However, it does not provide a smooth way for the students viewing the lecture to communicate back to the lecturer or the other students in the face-to-face classroom. It is possible to have a person present in both the face-to-face and Second Life classrooms to relay questions from the Second Life audience back into the class but this method proves cumbersome in several respects. Primarily, it places an odd burden on the person serving as the representative of the online community to either present all questions unfiltered to the lecturer in the classroom or to filter the questions according to some scheme of her own in order to narrow down the pool. The first option is unwieldy both because the number of questions may be too large and because the lecturer may feel bound to recognize all of them even when it cuts too deeply into the time intended for lecture. The second option is not ideal because it places a gatekeeper between the students and the lecturer and often requires quite a bit of negotiation and rephrasing of student questions that may itself hamper students' ability to listen to the lecture or to otherwise discuss the lecture while it progresses. Finally, in some cases the online audience may be very large relative to the face-to-face audience or may be a secondary audience. In these cases the virtual world audience cannot be granted unfettered access to ask questions without disrupting the lecture and the experience of its primary audience.

As a solution to all of these problems we make use of a simple computational tool—called The Question Tool—that functions as a gatekeeper that is regulated by the audience itself.<sup>2</sup> The Question Tool allows any person to pose a question in a text format. Their question is then added to the pool of current questions. Any person may also vote to promote any current question. The questions are then displayed on a page in order of their popularity with the audience. In this way, the audience democratically selects the questions that it most wants the lecturer to address. A lecturer with limited time to address questions may pick among the whole list of questions when choosing what to answer, but she will have the additional information of how popular a given question is when she chooses whether to answer it. The Question Tool also provides the facility for

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<sup>1</sup> David R. Johnson, "The New Visual Literacy: How the Screen Affects the Law," in Jack M. Balkin and Beth Simone Noveck, Eds. *The State of Play: Law, Games and Virtual Worlds*. New York University Press, 2006. Page 248.

<sup>2</sup> The Question Tool is still under active development and does not yet have an explanatory website, freely downloadable code, or installation instructions. However, the reader may find it helpful to visit and try out an installation of the Question Tool at <http://cyber.law.harvard.edu/questions/chooser.php>.

participants to comment on others' questions, so many questions form into mini-discussions or get satisfying answers even before the lecturer stops to address them. The inclusion of this tool avoids the text-based collaboration problem of filtering the questions from the virtual audience by making use of a computation-based tally system to filter the best questions to the top.

Another example proceeds from our experience running mock legal trials in Second Life with juries of avatars asked to deliberate and return a verdict. Using all-volunteer juries (which will be discussed in more detail in Part 2), we could not expect them to commit to deliberate indefinitely until a decision was made. As a result we limited the time of deliberations and accepted a simple majority vote in the verdicts. However, without any tools to aid deliberation, the time constraints proved very difficult. It was hard for the jurors to sufficiently discuss the issues in the case and come to a decision within the time allotted. At the time we had no tool to aid their deliberations, but we are now developing a mechanism within Second Life to aid in the process. Each juror receives an interface with a list of the questions presented to the jury. For each question there is a slider that provides a scale from 1 to 10 indicating the range of possible answers to the question and another slider that indicates the strength of the juror's conviction on that question. The group sees a shared graphical interface that shows the average of all jurors' opinions on each question. In this way the jury is freed from the difficult administrative task of taking straw polls on the questions as the deliberation proceeds. Instead, it may focus on discussion of points of disagreement and watch the group position change over time.

There are many possibilities for extensions to the tools we have presented and for entirely new tools that could aid collaboration and other areas of difficulty in interpersonal interaction in a virtual world. These examples demonstrate how obstacles that appear to detract from the usefulness of virtual worlds as an educational environment can be overcome using the computational and graphical representation strengths of the virtual world environment.

In this part we have offered a glimpse into our experience teaching in Second Life and attempted to show how that brief and experimental experience convinced us of the great future of virtual worlds in distance education. In Section 2 we move to the more challenging case of arguing for the incorporation of virtual world technology into the face-to-face classroom experience.

## **Part 2: Virtual Worlds in the Classroom and the Case for Open Access Higher Ed**

We propose to augment the offer of course materials with a virtual classroom experience, including the opportunity for interaction with instructors and peers. Even when only course materials are being offered, it requires a persuasive argument to demonstrate that the university and its students benefit from its openness. The argument appears to become even more challenging as the experience offered for free to the world at-large becomes closer to that of the enrolled students at the university. In this section we seek to show that this greater openness benefits universities, their professors and students, and the at-large participants who access their courses. Far from devaluing the educational experience and the degrees granted by an institution such as Harvard, adding

at-large participation enriches the student experience, the renown of the professors and their ideas, and the value of the degrees granted.

Last year MIT launched MIT Open Courseware, giving away for free the highly valuable materials for many of its courses. Anyone with an Internet connection and the wherewithal to learn from these high-level course materials may benefit without ever paying MIT or even identifying himself to MIT. Other colleges and universities are free to use courses on MIT Open Courseware as the basis for their own curriculum, and some have already begun to do so. MIT bears the considerable cost of providing this service, employing people to collect and uniformly format the materials, and paying copyright holders for the permission to post copyrighted materials that are used in MIT courses.

At first look, MIT's choice to offer such a remarkable free resources seems odd. There is no direct benefit back to MIT for providing such a service, and it is perhaps arguable that they are even devaluing the MIT degrees that they grant to their enrolled students by making the same education available to the world for free. Yet MIT has been widely lauded for the initiative and Ann Margulies, the director of Open Courseware, frequently explains that it has been a great benefit to the students at MIT. In particular, she notes that a large percentage of the people who use MIT Open Courseware are actually enrolled MIT students. Collecting, digitizing, and making course materials available in a central repository has made it easier for MIT students to gain access to the course materials in their own courses.<sup>3</sup>

The benefits to MIT from offering Open Courseware are broader than just the easier access of MIT students to their own course materials. Opening MIT up to the public with Open Courseware strengthens the connection of MIT and its professors and students to the world at-large. In this part we advocate using virtual world technology to take the idea of openness at institutions of higher education one step further.

### **The Products of University: Educational Experience, Certification, and Knowledge**

If one sees the educational experience of the enrolled students as the primary product of a university, offering Open Courseware seems like a risky move. MIT is giving away its product, and as a result, perhaps reducing the demand for and value of the education that it sells to qualified students for a large sum of money. In addition, it may be making the job market for its graduates much more difficult because others can now compete with MIT graduates and truthfully attest to having taken the same courses. This in turn may further reduce the value of MIT's degrees.

However, key elements of the MIT educational experience are not available to those who access Open Courseware. In particular, MIT Open Courseware does not provide the lectures from its classes or any classroom or lab experience for the Open Courseware students. This key difference could be enough to ensure that the MIT education received by an enrolled student will always be worth sufficiently more than an education received through the MIT Open Courseware website. We remove the option of this argument with the addition of a virtual classroom experience that includes access to lectures and opportunity for discussion with instructors and peers. We seek to make the

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<sup>3</sup> Ann Margulies, personal communication. Offered during a visit to our fall course, "Law in the Court of Public Opinion" at Harvard Law School, Fall 2006.

educational experience of the at-large participant substantially more valuable and comparable to that of the enrolled student. We must therefore demonstrate other bases for the differential in value between the enrolled student and at-large participant experiences that justify a university pursuing a strategy of openness. We offer three such bases. First, we argue that another primary function of universities is to accredit their students with both grades and degrees. This function is much more than a formality in that it conveys trustworthy and easily understandable information about students that serve as invaluable data to potential employers seeking to evaluate them. There is little benefit and great cost to universities in extending this function to the at-large student population, so it remains a clear source of differential value between the enrolled and at-large student experiences. Second, we propose that the at-large student population can serve as an invaluable resource for professors and enrolled students. Creative use of the at-large population can greatly enhance the educational experience for the enrolled students. Third, we argue that the publicity that comes to the professors and their ideas through the wide dissemination of their courses increases their personal prestige and the influence of their thought.

### **Educational Experience**

When we designed the at-large participation component of our course we had several goals in mind. First, we wanted to ensure that the experience of the enrolled students would not be diluted by the addition of at-large participants. To that end, we did not allow at-large participants to view or participate in the lectures in real-time because we wanted to preserve the classroom discussion space for the enrolled students. We felt this was important both because the students felt a justifiable confidence in the caliber of their fellow students that they did not have in the public at-large and because it was already sufficiently challenging to make time for everyone to speak in a class of nearly fifty students without adding many more potential voices.

Second, we wanted the at-large experience to be scalable in the sense that it would be able to support any number of participants without seriously taxing the teaching staff of the course. To date we still do not have an ideal solution for this problem. In practice, we were able to support an at-large audience that grew to nearly three hundred participants over the course of the semester simply by holding regular meeting times when they could gather to talk to each other and to the instructors about the course material as well as providing other online spaces where they could share information and continue discussions. One key to our ability to support such a large number of participants with no additional budget for teachers was that we did not accept or grade work from at-large participants. Instead, we offered forums in which at-large participants could share and discuss their work with their peers.

The goal that we failed to see at the outset was that of designing a relationship between the at-large participants and the enrolled students that would enhance the experience of the enrolled students. We were so focused on not diluting the enrolled student experience that we almost missed a big opportunity. The enrolled students can be seen as sharing something of great value with the at large participants. Traditionally, enrolled students have had exclusive access to the lectures and to their professors and teaching assistants. In this course, that access was suddenly open to anyone in the world.

Both the enrolled students and the at-large participants recognized this change and it left the at-large participants eager to give something back.

We started with a simple but effective exchange. Since we were offering a law course on persuasive argumentation, we assigned the enrolled students to produce a short piece of audio making an argument on a topic of their choice. We graded their assignments traditionally but also offered the students the option to take their argument in front of a live audience. For those enrolled students who elected to participate, we brought an audience of at-large participants together in Second Life and played the audio argument for them. The at-large participants debated the merits of the argument and the enrolled student had the opportunity to discuss their reactions with them. For the enrolled students the exercise provided a ready focus group and some very valuable feedback. For the at-large participants it provided a valuable chance to interact directly with one of the enrolled Harvard Law students and an interesting educational discussion.

We became more ambitious with our second attempt to connect the at-large and enrolled student audiences. This time in a class on Evidence, Harvard Law students were learning the practice of trial law and the rules of evidence by preparing a particular case. Learning trial practice can be very challenging because in a live mock or real trial, things move very quickly. The opportunity to object can come and go before a student even realizes he had a valid objection. It occurred to us that the virtual environment of Second Life could alleviate this problem. Instead of being constrained to working individually, we were able to create teams of enrolled students who could act as a single lawyer through an avatar. In real life these groups could be in different rooms, free to talk and strategize, while in Second Life they met in a single courtroom to present their cases. The text-only environment of Second Life provided both a useful transcript and a merciful slowing of the proceedings to allow each team the necessary time to make sure they had the chance to raise their objections. The at-large participants served in a critical role: they were the jury. The students were able to empanel an impartial jury, argue the case to them, and then nervously wait for and hear their verdict. Again, the text-based environment allowed the jury to deliberate privately while still leaving a transcript that the students could consider after the fact to see which of their arguments had been effective. In real life a volunteer jury is quite hard to come by. For an at-large student group, sitting on the jury was an interesting educational opportunity.

The third example we offer is still in the planning stages but nicely highlights one of the key lessons we learned about the at-large participant audience during CyberOne. Although we initially thought that the at-large participants would be a consistent group of people over the course of the semester, essentially taking the course without having enrolled, this mode of participation was not the norm. There was a core group of at-large participants who participated each week and closely followed the course material. However, even within this core, they were not seeking a simulation of the student experience. With many outside obligations and interests, they were looking for a distilled experience of the course with a clear guide to the most interesting parts of the lectures, key excerpts from the readings, and a chance to meet with other students and an instructor to discuss the material. They wanted to spend a few hours a week on the course, not the ten or more hours expected of an enrolled student. In hindsight, it appears obvious that this would be the case. At-large participants have full lives outside of their participation, they participate as a recreational activity, and they are not receiving credit

for the course. For those who are seeking a more in-depth involvement, it would have been worthwhile to actually enroll in the course through the Harvard Extension School so to receive academic credit in exchange for their hard work. It was fortuitous to discover that even the most committed at-large participants had little interest in even approaching simulating the enrolled student experience.

The committed core of at-large participants was still not the norm for at-large participation. We had hundreds of at-large participants during the course, many of whom participated in only one or two events. Often they were interested in just one topic of the course, or they wanted to see what we were doing Second Life, but they were not interested in making a regular commitment to attend. CyberOne was not ideally structured for these participants because the course material built on itself from week to week. This leads us to our third example, a plan for the future of the Harvard campus in Second Life. When considering how we might engage at-large participants who are seeking a one-time or a la carte experience we came up with the idea of recreating a space on the campus specifically intended to draw the public into campus life: a Harvard Square on the Harvard campus in Second Life. Rather than filling our Harvard Square with banks, cellphone stores, and fast food restaurants, ours will be filled with storefronts in which classes and student groups engage the at-large population in the most interesting facets of what they do. A class might set up a weekly installation of highlights from the lecture and readings, schedule discussions, and use the store as a way to recruit participants for class-related activities. A student group or individual might run a voluntary study in which at-large participants can both learn and help by offering their responses. A board might post projects being undertaken by campus groups, perhaps recruiting builders or designers to participate for compensation or simply out of interest. The public in Second Life loves an interesting social space to visit. Harvard Square in Second Life can provide a fascinating, educational social space while also advertising the university, and providing a large at-large participant support base from which student groups and classes may draw.

These three examples of using an at-large student population to enhance the enrolled student experience were the product of our late-blooming realization of the potential. They only scratch the surface of what is possible with a large, enthusiastic group of volunteers ready to give back to the enrolled students of a class. The more use of this resource educators can make, the clearer it will become that opening up the educational benefits the enrolled students as much as the public at-large.

## **Certification**

Realistically, the educational experience of the students is only one among several important products of a university. The importance of the degrees granted by a university must not be underestimated. Wishing to avoid the appearance of crassness, students often downplay the value of their degrees and grades relative to their educational experience, but the value of these pieces of paper is very real. They are certifications by a trusted authority of the preparedness of the student for the life and job market that follow graduation. Few potential employers are able to look much deeper into the record of a recent graduate than to note the institution that granted her degree and the official record of the grades that she received while enrolled. The degree and grades are only a

shorthand representation, but they provide useful and largely reliable information. They offer the employer a sense of the academic caliber of peers from among which the applicant is drawn as well as how well the applicant was able to compete with her peers.

The at-large participant who takes a full complement of courses may gain a valuable educational experience, but will not receive the accreditation offered to the enrolled student. This is not an artificial limitation on the at-large experience. Rather, it is in some sense inherent in the openness of the model we propose. At-large participation is open to anyone, regardless of background or ability. The diversity of the at-large peer group removes one of the key elements of the value of the degree: the selectivity of the degree-granting institution. Selectivity is not just elitism in disguise, excluding the admittedly unsavory effects of selection based on money, family status, etc. Selectivity provides students with a peer group that can challenge them and provides potential employers or others evaluating the value of a degree with a basic measure of its worth. Without the yardstick provided by the institutional selectivity, it becomes much harder to evaluate the meaning of the grades that are granted. In addition, given the potential size of the at-large student population, simply collecting and grading work can quickly become too costly to be practical.

Without any clear benefit coming to a university by offering for-credit at-large participation, and considering the large cost of offering it, there is little argument for a university to offer it. The at-large participant already accrues a great benefit simply through access to the educational experience at little or no cost. The university additionally maintains a substantial value differential between the enrolled students and the at-large participants that helps allay the concern that it is devaluing its degrees.

## **Ideas**

Academics often lament that the books and articles they write are accessible to such a small audience. They devote their lives to ideas about which they are passionate and yet they are able to communicate them only to a small number of readers and students. The best ideas and work do find their way out in time, although they may never be really understood by more than a handful of people and the thinkers responsible for them are likely to remain largely unknown. For some, this arrangement works very well. They seek no wider readership. The ephemeral nature of their classroom performances provides a certain degree of freedom to try out new ideas without being forever pinned to them. For these scholars, the addition of a larger public audience may be unappealing and is certainly unnecessary.

For others, the ability to speak to a broader audience would relieve the frustration of having ideas about which they are passionate reach so few. Their influence could be increased, both within academia and in the public sphere. They could also protect their claims to the originality of their ideas by being on record with them well before they appear in print. For those for whom academia is an uncomfortably small sphere, the at-large audience can provide an outlet. A university with a strong group of such professors also benefits. These professors spread the name of the university more widely and act as an advertisement for the quality of its education.

In this part we have advocated the opening of higher educational institutions to the public at-large. We argued that virtual worlds provide a locus for offering a valuable classroom or community experience that complements the sharing of course materials while still maintaining an appropriate divide between the enrolled student and at-large student experience. We showed that creative use of the at-large student population can actually enhance the enrolled student experience and that the core function of granting degrees provides a clear differential between the value of what is offered to enrolled and at-large students. Finally, we suggested that professors and their ideas can, at their discretion, benefit from the opportunity for broader public exposure. In the next part we turn to the issue of the technology itself. Can universities safely commit to a virtual world technology such as Second Life without a guarantee of the persistence of the environment or direct influence over its development?

### **Part 3: The Future of Virtual World Technologies for Education**

From a university perspective, Linden Labs—the company that owns and runs Second Life—is without a doubt a very benevolent dictator (or perhaps a just god) in the virtual world environment. They offer substantial discounts to educational institutions that wish to purchase land in Second Life. They provide an entire island devoted to education where educators can use space rent-free for a course and gain access to many useful educational tools and tips for teaching in Second Life. They have at least one full-time staff person devoted to education in Second Life who supports and encourages educational efforts in-world. Students (and everyone else) can download and use the Second Life software for free.

Linden Labs has gone further, making the Second Life viewer open source so that it can be modified for any purpose. For example, as educators we must be concerned about the accessibility of our course material to disabled students. An open source viewer permits modification that can make the content of the screen accessible to a blind user. They have also indicated an intention to make the server technology available for other organizations to run and perhaps to even make that technology open source.

Technologically speaking, Second Life also has much to recommend it to educators and universities. The ability to design and build a space that looks exactly as the university desires permits a customization hardly imaginable in other technological environments. Access controls for land allows administrators to make an entirely private university space for students only or to allow the public on all or parts of the campus. Streaming audio and video make lecture materials easily accessible in-world. A relatively full-featured scripting language makes it possible to create all kinds of teaching technologies and the large community of Second Life residents makes it easy to hire people to do the job.

However, it remains risky for universities to invest substantial time, effort, and money in Second Life. The primary risk is that Second Life could at any time be bought by a company that may choose to run it in a much less educator-friendly manner than Linden Labs has. Or alternatively, that Linden Labs could change course in its administration of the service and begin to exercise its considerable power to discontinue

accounts, remove property, and generally change the way in which the service is run.<sup>4</sup> A subscription fee could be added; a university campus could simply disappear.

Even if we assume that Linden Labs will continue to own and administer Second Life in keeping with the spirit of its past actions, there is still cause for concern. Although their allocation of resources to education in Second Life demonstrates that it is important to Linden Labs, it is reasonable to assume that the rapidly growing and likely much more profitable commercial areas are a higher priority. This leads to software development priorities, community standards, and legal agreements that may not be advantageous for educators. A few examples are illustrative. One of the most useful teaching tools an educator can have is a blackboard where she or her students can freely write or draw. This simple tool, to the best of our understanding, cannot be programmed in Second Life using the Linden Scripting Language. Although it could be a very high priority for educators in Second Life, it is not likely to rank highly in Linden Labs programming priorities. The community standards of Second Life—which, perhaps needless to say, are not based on any poll of the desires of the community—are very strict with respect to the privacy of conversations within Second Life and the degree to which Second Life may be used for research purposes. All participants in a conversation must explicitly agree to the sharing of a transcript of a conversation before it can be shared.<sup>5</sup> A seemingly no longer active Research Ethics in Second Life policy prohibited any human subject research without prior notification to and approval by Linden Labs.<sup>6</sup> The terms of service agreement to which every user, including universities, must agree specifies that Linden Labs is automatically granted a right to use any intellectual property that you place within the service in its own marketing or promotion.<sup>7</sup>

It is not at all unusual for a university to make use of computer software that is owned by a for-profit company and distributed according to a sometimes arbitrary user-license agreement. However, when that software provides the physical environment in which classes are conducted, a university must be much more careful about negotiating an acceptable relationship. Universities have several options open to them with respect to virtual worlds. First, they may try to negotiate a relationship with Linden Labs that ensures sufficient freedom in their own classroom environments to be acceptable. Second, they may try to develop their own alternative virtual world technology over which they can have ownership and control. Third, they may continue in the current relationship with Linden Labs but limit financial development and platform-specific investment such that it remains possible to shift to another virtual world platform if continuing use of Second Life becomes untenable.

In each of these cases, universities will benefit by working together toward a solution. Linden Labs has reason to care about the universities that establish spaces within Second Life. As Linden Labs seeks to promote Second Life as an environment where serious pursuits can flourish, the universities provide an unparalleled locus for

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<sup>4</sup> Second Life Terms of Service, Sections 1.6, 2.5, 2.6, 3.3.

<http://secondlife.com/corporate/tos.php>

<sup>5</sup> Second Life Community Standards, Section 4. <http://secondlife.com/corporate/cs.php>

<sup>6</sup> Linden Labs **still** Hates Academic Freedom and the Free Press, The Second Life Herald, 12/3/2006. [http://www.secondlifeherald.com/slh/2006/12/linden\\_lab\\_stil.html](http://www.secondlifeherald.com/slh/2006/12/linden_lab_stil.html)

<sup>7</sup> Second Life Terms of Service, Section 3.2. <http://secondlife.com/corporate/tos.php>

intellectual and social engagement that provides a much needed counterpoint to the undeniably profitable but very seamy underbelly of Second Life culture. If universities can decide together what guarantees of autonomy and academic freedom are necessary and what features are desirable, Linden Labs is likely to seriously consider and try to accommodate the requests.

Universities have never been great at software development. It is costly and difficult to do in-house and tricky to do by contract. Developing a virtual world environment for education presents a very difficult development project that would probably be an unwise undertaking for any single university. However, the task might be more practically feasible if a group of universities undertook it together. A beginning in this direction has already been made by the Open Croquet project that could greatly benefit by the commitment of additional university resources.<sup>8</sup> For an open source project such as this one a university could have its own developers contribute or could hire a third party development company to work on the project.

Even if universities continue on the current path of using Second Life as Linden Labs offers it, great benefit can come from working together on the development of tools for education. If universities share the burden of development of educational tools and methods for teaching in Second Life, the investment can be limited so as to reduce the loss if Second Life ceases to be usable for university education.

In this part we argued that a virtual world ruled by dictatorship, even a benevolent one, creates a risky environment in which to construct classrooms and hold classes. Universities would benefit from greater assurances of autonomy in their spaces in Second life, greater academic freedom, and fewer compromises with respect to intellectual property and other data that must be shared with the service. Universities can alleviate the risk by working together to develop the relationship they desire with Linden Labs, to create their own alternative virtual world environment, or at the very least to limit their exposure in Second Life in case education in the environment becomes untenable.

## **Conclusion**

In one short year we have matured from newbies in the Second Life environment to advocates for its (already partly realized) enormous potential for use in education. The advent of a persistent, compelling virtual place allowed us to create a class community that has never before been possible for distance education students. The ability to open the course to the public at large in a separate, virtual space gave hundreds of people the chance to participate in our course for free while arguably improving the educational experience of the enrolled students, maintaining the value of their degrees and transcripts, and promoting the ideas of the course beyond the university walls. Although there is cause for worry about universities continuing on the present course in their relationships with Linden Labs, there is also cause for hope if universities work together to negotiate for what they want or build it themselves.

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<sup>8</sup> The Croquet Consortium Website. [http://www.opencroquet.org/index.php/Main\\_Page](http://www.opencroquet.org/index.php/Main_Page)

With each new technology that appears there is a rush to try to incorporate it into recreation, communication, business, and even education. There are always those who argue that the new technology is a fad and those who regard it as a panacea, using it in every situation in which it can be made to work. Virtual worlds are no exception to this rule. Real world pastry shops see fit to open a Second Life outpost even though our avatars can no more appreciate a virtual pastry than we can.<sup>9</sup> First time visitors declare Second Life unsuitable for classroom discussions because they flow so differently from real life classroom discussions. Virtual worlds have too much promise and demonstrated utility—at the very least for the games that are played in them by millions worldwide—to succumb to the doubts of the naysayers. However, to putting them to good use business, education, and other fields cannot be accomplished simply by transplanting real life norms and modes of interaction into the virtual. With attention to the particular qualities of virtual spaces and modes of interaction and creative and open minds, we can avoid the pitfalls of clumsy applications of the technology and use it to move beyond the limitations of the real world constraints of space and physics.

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<sup>9</sup> Peter Meehan, “Pastry Chefs, Refusing to be Sweet”, *New York Times*, June 20, 2007, Section F, page 1.