

2010

# Adoption decisions and perceptions of college personnel concerning diffusion of "Second Life" in higher education

Samuel Sevidal Berbano  
*Iowa State University*

Follow this and additional works at: <https://lib.dr.iastate.edu/etd>

 Part of the [Communication Commons](#)

## Recommended Citation

Berbano, Samuel Sevidal, "Adoption decisions and perceptions of college personnel concerning diffusion of "Second Life" in higher education" (2010). *Graduate Theses and Dissertations*. 11364.  
<https://lib.dr.iastate.edu/etd/11364>

This Thesis is brought to you for free and open access by the Iowa State University Capstones, Theses and Dissertations at Iowa State University Digital Repository. It has been accepted for inclusion in Graduate Theses and Dissertations by an authorized administrator of Iowa State University Digital Repository. For more information, please contact [digirep@iastate.edu](mailto:digirep@iastate.edu).

**Adoption decisions and perceptions of college personnel  
concerning diffusion of “Second Life” in higher education**

by

**Samuel Sevidal Berbano**

A thesis submitted to the graduate faculty  
in partial fulfillment of the requirements for the degree of  
**MASTER OF SCIENCE**

Major: Journalism and Mass Communication

Program of Study Committee:  
Eric A. Abbott, Major Professor  
Jeffrey L. Blevins  
Anthony M. Townsend

Iowa State University

Ames, Iowa

2010

Copyright © Samuel Sevidal Berbano, 2010. All rights reserved.

## TABLE OF CONTENTS

ABSTRACT	iv
CHAPTER 1. PROBLEM STATEMENT	1
CHAPTER 2. LITERATURE REVIEW	8
New Media Theory	8
Diffusion of Innovations	10
Appealing Learning Environment	12
Interactive Learning Environment	14
Cost-effective Environment	17
Diffusion of Innovations and Institutional Characteristics	20
Individual Factors	25
Summary	26
CHAPTER 3. METHODOLOGY	28
Environmental Context	28
Case Study Information	30
Case Study Procedure	31
Interviews	32
Methodological Problems	33
Data Analysis	34
Summary	35
CHAPTER 4. SECOND LIFE AT IOWA STATE UNIVERSITY	36
History	36
The Social System	36
Innovators and Early Adopters	37
Barriers to Adoption	39
Champions	40
Negative Waves of Coverage	41
Innovation Paradigms	43
Second Life in Learning Design	43
Second Life in Language Learning	45
Second Life in Entrepreneurship	47
Second Life in Design	49
Second Life in Webcasting	50
Second Life in IT	51
The Three Motives Reconsidered	52
Graphical Richness	52
Richness of Response	54
Cost	56
Summary	59

CHAPTER 5. ISU AND THE BROADER SOCIAL SYSTEM	63
Harassment	64
Language Instruction	71
Economic Impact	72
Conclusion	74
CHAPTER 6. SUMMARY AND CONCLUSIONS	76
Lessons from the ISU Experience	76
Study Strengths and “Known Unknowns”	78
Directions for Future Research	81
Conclusion	83
APPENDIX A. INTERVIEW CODING SHEET	85
APPENDIX B. SOCIOGRAMS	89
APPENDIX C. SECOND LIFE ISLANDS	91
APPENDIX D. EMERGING SECOND LIFE RESEARCH AREAS	95
ACKNOWLEDGMENTS	96
WORKS CITED	97
VITA	123

**ABSTRACT**

Virtual world technology in higher education captured the popular imagination with promises of engagement and economy. This work considers a large public institution which did not mandate the adoption of Second Life or other virtual worlds. Using a qualitative case study primarily focused on in-depth elite interviews, archival documents, we describe individual decision making processes, the state of the innovation within the institution, and the institution's influence on the broader debate on virtual worlds in the collegiate setting. Of key importance to the diffusion process was the Department of Curriculum and Instruction, whose graduate students and alumni work in many departments around campus and have helped them adapt the technology to educational contexts. Three pedagogical motives of richness of content, complexity of student response, and cost savings are identified in literature, conversations with university personnel, and by their subsequent discussion at presentations, panels, and symposia.

## Chapter 1

### Problem Statement

The intersection of technology and education is contentious and has many stakeholders. Teachers seek to prepare students for their future roles in a world of political and economic uncertainty. Private industry develops technologies to improve connectivity, interactivity, and profits. Policymakers consider societal changes stemming from the use of these new devices. Students wonder whether the skills they learn will help them find employment in a difficult job market. Institutions adapt to new technology's differences from traditional forms of instruction and their effects on student learning. Academics from Ancient Greece onward ask whether technologies only offer reflections of learning without providing substance.

One technology at issue is online virtual worlds. These web-based environments are “systems that offer users visual, auditory and tactile information about an environment which exists as data in a computer system rather than as physical objects and locations” (Reid, 1994). The history of the virtual world runs almost parallel to the Internet itself: the first Multiuser Dungeon (MUD) was invented in 1978 (“The MMO is 30-years-old,” 2008). Since then, online virtual worlds have grown in sophistication and user base to become part of the cultural lexicon. Consider the recent inclusion of the virtual world term “MMORPG” in the Meriam-Webster Dictionary as evidence of the growing public consciousness of a second, online, virtual world. This virtual world exists as a “second life,” for gamers, fantasists, and educators.

For within this issue, many conflicting claims emerge. While some educators conclude online learning outcomes are inferior to face-to-face instruction (Shieh, 2009),

advocates claim that online learning opens new vistas online (Lester, 2008). One virtual world reputed to be particularly effective is Second Life, an online virtual world “gone mainstream” (Ludlow & Wallace, 2007, p. 1). Second Life allows user-created characters to own in-world property, make in-world creations, and interact with other users in those environments. If adapted to higher education, such features would be useful for a system plagued with budget reversions and other offline funding issues.

Second Life’s creator Linden Lab claims academic uses for these capabilities. They say students without the ability to study abroad could log on to Second Life. Their avatars could tour buildings filled with virtual art from around the world (Linden Research, Inc., 2009b). Classes meet in-world, eliciting new degrees of student interactivity and response. Students see the expanses of stellar phenomena or microscopic cellular processes more vividly than in classroom lectures (Foster, 2007b; Lester, 2008). Iowa State’s own pioneers in the field attest to Second Life’s ability to recreate “all the facets of the real world,” allowing students to “observe business” (Ferlazzo, 2007a). As an institution on Second-Life, Iowa State University joins a group of prestigious schools like Harvard University, Princeton University, New York University, and Stanford University (Linden Research, Inc., 2009a).

Second Life also has critics who criticize online spending in an age of offline budget cuts, investigate online-harassment and misconduct, and bemoan institutional entanglement with “corporate-service terms that bestow anonymity and disavow liability” (Bugeja, 2007b). University staff question who owns the data archived on the “islands” schools purchase on Second Life, how Linden Labs can provision a safe environment for the university’s students, whether faculty ought to enter into a terms-of-service contract,

and whether the university will be legally liable for the consequences of online misdeeds (Ferlazzo, 2007b).

While institutions can “purchase” virtual spaces, user conduct and data remain subject to Linden Labs’ policies and guidelines, chiefly the Terms of Service and Community Standards (Linden Research, Inc., 2010a, 2010f). The recent deletion of one school’s accounts left “colleges wondering whether they are in control of their virtual campuses” (Foster, 2007a, p. A22). University legal counsels question whether Second Life’s reluctance to reveal user information conflicts with an institution’s obligation to investigate student misconduct and harassment (Bugeja, 2007a). In the meantime, educators struggled with what to do about “rogue incidents,” such as a “virtual gunman” shooting avatars at Ohio University’s campus on Second Life (Carnevale, 2007) while representatives for Linden Labs argues that “virtual assault...cannot cause physical harm” (Bugeja, 2007a, p. A31).

At Iowa State University, these debates have taken place within organizations, between professors, and with the wider academic community. So as the debate ensues about the impact of Second Life on education, it is important to study the process of its use, discontinuance, or rejection – and the relationship between one organizational decision and others. Under what strengths, in spite of which weaknesses, and under whose auspices was it adopted? Do instructors perceive drawbacks, and if so, how were they controlled and compensated for? Whose input was solicited as part of the adoption process? What dimensions of Second Life did those people find the most compelling? Are there other aspects of it that they believe need improvement?



Iowa State's role in the overall discussion seems worthy of study. Its news service says that the university sits at the "front lines of the Second Life debate," (Ferlazzo, 2007b), seemingly on the reputation of a notable user in Brian Mennecke and a notable critic in Michael Bugeja. But the completeness of the picture is at issue without understanding who the other actors are at the university and how they have changed the debate at Iowa State and on Second Life in general. These are questions that have not been raised or addressed by others.

A study of this topic is both timely and relevant (Bainbridge, 2007), with ample conjecture existing in the popular press, from individual commentators, and in scholarly literature. While the adoption of new technology has been the subject of academic research, a study of the individual actors, their rationality and the procedures underlying Second Life's adoption present a new context for investigation. The Diffusion of Innovations theory (Rogers, 2003) posits a very rational process based on the characteristics of innovations and the characteristics of the potential adopters. In this framework, potential adopters follow a known sequence of actions before arriving at a decision. But this theory might not conform to the peculiarities of an organization's decision-making. Could it be that the process follows a much less regimented pattern?

Thus a case study of Iowa State University's experience with Second Life is in order. This issue has implications for the general public, the academic community, and for public policy because theorists suggest that diffusion has social implications (Rogers, 2003). Deciding whether or not to adopt a particular innovation takes into account the potential for beneficial or detrimental results for each of these stakeholders.

In a climate where the allocation of society's resources is driven by scarcity (Smith, 1839) and state-supported higher education is becoming “state-assisted” (Mason, 1995), Second Life might give taxpayers an alternative to other forms of instruction. Perhaps the use of Second Life could advance the causes of austerity and education in making content both more vivid and more accessible. Conversely, taxpayers might balk at expanding educational involvement in Second Life if examinations of its existing use show inconsistent reasons for adoption and benefits at variance with hoped-for ones.

In that case, investing in virtual land in times of real scarcity would be darkly ironic, since Iowa State currently struggles with midyear budget cuts and appropriation levels from the 1990s (Geoffroy, 2009). Although an evaluation of Second Life is outside the scope of this study, gaining more information about Second Life’s adoption process at one institution of higher education will aid other educational users in their own adoption investigations.

The results of this study will also be of value to policymakers outside of higher education. In the present circumstances of shrinking budgets and mid-year reductions, it behooves state governments to place the greatest consideration on their educational investments. Consider, for example, the Iowa Communications Network (ICN), a multi-million dollar initiative launched in the 1990s. Its goal was to wire the state with the latest in optical fiber technology (Yepsen, 2004, p. 7A) with the idea that State would benefit in bringing distance-learning classes to faraway schools.

But there was little interest, and information technology scholars later likened the ICN to a “railroad with no locomotives” (J. Oliver, personal communication, February 3, 2009). Indeed, the popular press reported that “schools [had not] made as much use of

the interactive video system as expected” (Roos & Vinluan, 2004, p. 1A). Educational institutions re-invented the ICN as a tool for high-speed Internet access, prompting media commentators to call the ICN “a Cadillac we didn’t need [and] couldn’t afford” (Yepsen, 2004, p. 7A). Iowa even considered selling it to private vendors in 2004 (Ibid.).

While risks are present in all political decisions, this study’s data could illuminate to what degree Second Life might be a priority. Political theorists (Arendt, 1998; Fairlie, 1977) conclude that politicians and the world of political action exist in a state of *imponderabilia*—an uncertainty toward the future caused by the uncertain interactions of people and events. The true politician, far from “leading” or “following” the crowd, “knows” the crowd by way of artfulness and intuition. But in the course of this leadership, a subject like Second Life might induce more perplexity than others, making a course of action harder to determine. Multiple layers of decision-making might complicate the identification of key issues. An item at controversy might encourage altered recollections. Different motives might be imputed to past decisions. Thus individual perspectives might leave out information on how individual actions in one departmental area influence others or miss the interaction process between macro and micro; objective and subjective levels of reality.

Thus this study attempts to understand how Iowa State University became introduced to Second Life, by whose criteria they adopted it, what the criteria were, and how that knowledge was communicated with others. Doing so implicates a body of theory concerning innovations and how they are diffused through a social system. It is expected that the results of this case study might clear some of this *imponderabilia* which

has accumulated in the intervening years, shedding light on the many individual decisions composing Iowa State University's experience with Second Life.

## Chapter 2

### Literature Review

The purpose of this study is to examine Iowa State University's experience considering Second Life. After having discussed the emergence of virtual worlds in modern affairs, Second Life's applications in higher education, as well as the conflicting perspectives over its effects on the educational system in general and on learning in particular, an analysis of the relevant theory is in order. Doing this will situate the technology within the correct set of Mass Communication theory.

### New Media Theory

Second Life lies first in the category of "new media." It is a technology that possesses a combination of the capabilities of a traditional, "old" medium, like print, with the capabilities of digital technology. In this system, "Media and computer...merge into one. All existing media are translated into numerical data accessible for the computer...In short, media become new media. This meeting changes both the identity of media and the computer itself" (Manovich, 2007, p. 25).

Theories make different predictions about the effects of New Media on society. For one school of new media thought, Second Life inaugurates a new age of instruction, blending technological sophistication with educational themes to fulfill McLuhan's promise that "dialogue supersedes the lecture [and] the greatest dignitaries hobnob with youth" (1964, pp. 255-256). For other theorists in new media, Second Life continues a disturbing trend of entertainment motives being confused for educational ones. Thinkers as ancient as Plato recognized the potential of the new medium of writing. However, Plato wondered whether the new technology would distort learning by allowing people to

repeat thoughts without actually understanding them, becoming arrogant in the process (Plato, 1972). Plato's successors in the academy charge new media with presenting the illusion of learning without its substance. Education, religion, and all other human affairs are being transformed into merely "amusing activit[ies]," ones which we find difficult to think with the depth and profundity needed to achieve full understanding (Postman, 2005).

But New Media has itself changed with time. Platforms boast greater capability in terms of programming functionality, user collaboration, and user freedom (Graham, 2005). Consider the capabilities of Google, a company founded to "organize the world's information" (Google, 2010a). Although its initial venture was as a search engine, Google's product offerings have grown in functionality, collaboration, and freedom, mirroring the traits of what Levinson coined "New New Media" (2009) – encompassing "your phone, your e-mail, your computer, and your entire digital life" (*The beast file: Google*, 2010)

Advances in computer code have allowed new capabilities like instant messaging within a Gmail window on a browser and on mobile devices running Google's Android operating system (Google, 2010b). Similar advances allow for multiple users to edit the same document in real-time. Additionally, Google's wide family of products like Picasa (photos) and Buzz (online content), allow online users to manipulate diverse kinds of content under a single sign-in to Google's single family of sites (Ibid.). Google is but one example of many websites which demonstrate greater levels of programming functionality, user collaboration, and user freedom – a marked contrast from older forms of "new media" where information existed scattered between sites or in a plethora of

versions. Consider the new media of e-mail and how limited its functionality was, with little capacity to search. Rather, Google and similar sites index information in a single, automatically-organized and instantaneously-updated source (Graham, 2005). This type of new media is called “Web 2.0” (Ibid.) or “New New Media” (Levinson, 2009) and shares those traits with the persistent, collaborative world of Second Life.

### **Diffusion of Innovations**

This chapter considers Diffusion of Innovations, a theory applicable to Second Life. An analysis of the relevant literature reveals three pedagogical motives: (1) the attraction of a learner’s attention, (2) the eliciting of responses, and (3) the control of costs. Attention to the subject matter is a necessary condition for the learning of any educational material, and Second Life presumably immerses students in a more appealing and attractive learning environment. The learner may be immersed in the world, but his or her response to course content must exceed mere factual recall. Second Life’s open-world gameplay allegedly allows for additional opportunities for cognitive engagement and learning. Additionally, using Second Life in education is said to be more financially efficient than other methods of instruction.

We have laid out three pedagogical motives: graphical richness, complexity of student responses, and cost as potential factors guiding the Second Life adoption decision. These three motives require some justification, because Rogers (2003) presents a longer list of attributes which help to distinguish one innovation from another. We consider these five traits relative to Second Life. The innovation compares favorably on three of Rogers’ five marks, confirming the use of these three motives. Second Life is

presumably stronger in its observability, compatibility, and comparative advantage but weaker in its trialability and complexity.

Better innovations are more easily observed than their counterparts. Second Life fits this description in many dimensions. Potential adopters may log in to the website, create an account, and observe the environment for themselves. Interpersonal communication may be possible by corresponding with users from other institutions, and the popular press supplies many potential sources for this purpose. Linden Lab's own efforts increased observability. By hiring an "evangelist" and sending him to academic conferences and panel discussions ("John Lester," 2010), Linden Lab increased the opportunities for potential adopters to observe the innovation.

Better innovations are compatible with values, other innovations, or adopter needs. Second Life fits this description because of the presence of electronic media in instruction. Second Life is compatible with existing computers and internet connections at Iowa State. Technology is pervasive in the life of the millennial generation and has been a part of its education. Distance education is a part of higher education's social system and is nearly a century old at Iowa State. Second Life's use as a component of instruction matches traditional ways of teaching with technology: as one component of a larger, already-established, instruction scheme.

Lastly, better innovations are more advantageous than their competition: they possess comparative advantage (Rogers, 2003). The literature demonstrates this by comparing virtual worlds to other types of classroom instruction and, at times, has treated Second Life favorably. Three pedagogical motives align with this assessment: that



Second Life is more graphically immersive, produces better student responses, and realizes a cost savings. In each of these motives, potential adopters compare Second Life to existing methods of instruction. In terms of trialability and complexity, Second Life receives lower marks because of its associated learning curve. These two traits are not reflected in the three pedagogical motives, which are addressed below.

**Appealing learning environment.** Attractive learning environments have their roots in early American pedagogical thinking. According to Sands (1869):

The true teacher does not seek to teach by simply putting books into the child's hand, and bidding it to learn; he addresses himself to those faculties and powers of the child, which bring it in relation with the world in which it lives. Sight, hearing, touch, taste, smell, and thence observation, judgment, perception, reason, memory, hope, imagination, and the love of the beautiful are appealed to..." (1869, p. 13).

Mediated instruction predates new new media or even the Internet, but echoes Sands' call to sensory richness. Volker's research found that even early forms of instructional technology can create an environment with "increased favorable student attitude" provided that "media substitution of these real objects [is] as real as possible" (1970, p. 35). More recent theorists agree with these sentiments. Roblyer argues that technology's ability to appeal to the learners' senses is the first step in the teaching process. "Practitioners say that technology can motivate students by gaining their attention...teachers say technology's visual and interactive qualities can direct students' attention toward learning tasks" (2006, p. 15).

This assertion is also grounded in rhetorical theory, for an audience cannot be persuaded or instructed if it is not first attentive to the speaker and the topic being discussed (Pattee, 1909, p. 8). The educational topic might attract considerable attention

if “anyone who opens an account and creates an avatar (a virtual person)—can explore a replica of the Sistine Chapel, walk into Van Gogh paintings and travel through a human heart” (Goolsby, 2008, p. 1A) as they can in Second Life. If time, financial, or physical limitations render subjects of instruction unreachable, a mediated reality environment like Second Life could appeal to the senses in ways that transcend older forms of instructional media or the conventional lecturing format.

The potential for immersion is there. But does Second Life exploit it? A case study by Linden Research concluded in the affirmative. It considered an IBM meeting conducted in Second Life:

Katz acknowledged there were, initially, avowed skeptics of Second Life. ..He recounted a conversation with a colleague who said, “I don’t understand how this [virtual world technology] is going to make it.” Katz responded: “Well we’re in Second Life holding this conversation.” His colleague paused, and said, “You’re right, I’ve been here for two hours.” Katz said, “See? It really does work. We changed hard skeptics into critics and skeptics into true believers.” (2010b, p. 7)

According to the case study, IBM team members remained immersed in the virtual environment even after the conference had ended. “In fact, the space felt so real that Martin received a phone call...from an Academy member asking if she could use the meeting space at the end of the day to go and relax in a hammock” (*Ibid.*).

This assessment has proliferated through Second Life’s portrayal in the popular press, which overflows with similar anecdotes. Sands’ old call for environments that stimulate the senses might be fulfilled by Second Life, which portrays the faraway and the fantastic in a single online platform. Even so, Second Life’s usefulness to education extends beyond richly portraying environments into allowing students to dynamically

affect the environment. Doing this amplifies its educational effect by interesting learners and allowing them to respond to the rich content.

**Interactive learning environment.** An attractive environment is only a part of the teaching equation. Though the student’s attention might be captivated, learning has yet to take place. Indeed, a free-flowing online world might provide an environment rife with distractions to learning rather than portals toward it. According to Broudy, “Education is the process or product of a deliberate attempt to fashion experience by the direction and control of learning” (1961, p. 8).

Even if the environment is attractive, it must also direct the learner towards some developed experience. One who has learned a concept should be able to manifest that understanding beyond merely recalling information – a theory called Bloom’s “taxonomy of learning domains” (Krathwohl, Bloom, & Masia, 1964). In order of sophistication, the six tasks are “knowledge, comprehension, application, analysis, synthesis, and evaluation” (Krathwohl, 2002, p. 212). In this model, increasingly greater mastery of the material is demonstrated by performing increasingly difficult tasks, which are accomplished through increasingly more complex responses.

America’s armed forces echo the need for mastery of the material through the tasks and responses elicited. They emphasize virtual worlds’ interactivity as a catalyst to learning. “‘The reason we started funding the development of these [virtual world] games was to teach soldiers,’ Dr. Macedonia told the website Gamespot... ‘Our thing is not making people shoot better; it’s making people think better’” (2007, p. 196). In such high-stakes modes of instruction, a learner’s thinking-response is the key – a thinking response which Second Life and other virtual simulations purport to enhance.

Showing comprehension by way of responses is demonstrated by the classic Socratic Method. Instructors discuss the material by continually asking questions of the student, exploring the weaknesses of every answer, including the correct ones and directing students' thinking towards precisely defining the theme to be learned (Nails, 2009). Other historical methods of provoking responses include the multiple-choice exam, the essay or short-answer exam, and other methods generally labeled as "assessment" (Roblyer, 2006).

Educators find that Second Life improves upon these traditional methods. Some of the earliest reports in the popular press report instructors' enthusiasm. One such teacher reports that "the space worked just as he had hoped, first fostering a group discussion in the central, circular chamber, and later one-on-one exchanges in the alcoves he had built expressly for the purpose—a kind of direct feedback not available with drawings restricted to pencil and paper" (Todras-Whitehill, 2005, p. 8). Indeed, increasing students' involvement in academia to the level of other aspects of their "participatory culture" is one of the MacArthur Foundation's goals for "media education for the 21<sup>st</sup> century" (Jenkins, Clinton, Robinson, & Weigel, 2006).

Teachers also use Second Life for its features of instant-message or voice chat communication. "Educators like the fact that it provides common meeting spaces. Moving your avatar around and seeing other people's avatars is more engaging than a conference call or just reading lines of text on a screen" (James, 2007, p. A1). But while Second Life provides for older forms of assessment with abilities like avatar-to-avatar text chat and voice communication, its open-world environment allows for additional

possibilities. Students could take an instructor's virtual world and reinvent elements of it according to new assessment guidelines.

In this context, a response extends beyond traditional assessment techniques – something which the popular press has enthusiastically reported (Bugeja, 2008e). Media accounts abound of how “rather than assigning book reports, [teachers] can ask students to design sets for Shakespearean plays. Teens can experiment with building cars or composing, and even selling, original music” (Radcliffe, 2008, p. 1). Failing in this attempt, a virtual world can give students feedback and as many opportunities as necessary to perfect these replies. According to Meadows (2008), “Avatars can give us an alternative, a break from daily hardships, and a space to practice for another try” (2008, p. 86).

Second Life's environments also allow for more complicated simulation and more dimensions of student response. ““You can take risks that aren't safe in the real world and teach more complex subjects in three dimensions,” said Colleen Lin, DCCCD's Web site content developer” (Goolsby, 2008, p. A1). And the vividness of instruction is further reinforced by the vividness of the environment. “When you're resuscitating a dummy in real life, it looks like a dummy. But you can program an avatar to look like it's choking or having a heart attack, and it looks more real to the student responsible for resuscitating it” (*Ibid.*).

These enhanced modes of communication and assessment are alleged to lead to greater levels of student engagement. Once again, Sands' (1869) work foreshadows the gratifications stemming from Second Life. He complains that in certain maladaptive learning environments, “the teacher is looked upon as a task-master, sometimes even as a

spy; the tasks set to be shirked as much as possible, the observation of the teacher to be eluded and deceived” (1869, p. 19).

Changing these environments might change the relationship between teacher and student. As a virtual world, Second Life is advanced as a way of changing the setting. Collaborating on projects and on other forms of assessment could displace Sands’ complained-of environments where the teacher is a “task-master” or “spy” by making the teacher a co-creator with the student. Engagement with an attractive learning environment displaces old media. This new medium promises to replace students’ wariness with openness, to replace dreaded exams with innovative projects, and replace the simplicity of the multiple-choice test with an immersive environment for in-depth responses.

**Cost-effective environment.** Could Second Life also help solve the budget crisis in higher education? Recent budget downturns have posed considerable challenges and necessitated many attempts to save money. In 2009, Iowa State University faced a \$41 million shortfall (Olson, 2009) and a mid-year budget cut (Geoffroy, 2009). Meanwhile, its students also struggle with an average debt load at twice the national average (Heldt, 2008b). These data continue a trend noticed in the mid-1990s where state support of higher education gradually downgraded to “state-assisted” (Mason, 1995). The resulting budget issues leave universities looking for other opportunities that will create more economic efficiency, like the “Live Green!” initiative at Iowa State (Iowa State University, 2009a).

The use of Second Life might save money by educating students using the money that a school has already dedicated to information technology. This notion of sunk cost,

or “costs that are...irrevocably committed” (Wang & Yang, 2001), refers to money invested in information technology infrastructure like internet bandwidth and computer hardware. Using Second Life, funds could be redirected toward developing virtual campuses or online content, while saving money that might be spent to heat, light, or otherwise maintain the university’s physical plant. In fact, Second Life’s communication advantages and money-saving potential were noticed when it was used in distance education, blurring the line between “online learning” and “real classroom experience,” according to (Tahmincioglu, 2008a):

Because of the Internet, distance learning in higher education has come a long way since correspondence courses were sent through the mail. And technology like Web streaming has made online learning more like a real classroom experience. Robert Vernon, a professor of social work at the Indiana University School of Social Work, holds seminars with his students in the virtual world called Second Life where computer-simulated people, called avatars, interact” (p.18)

The economic advantage of using Second Life extends beyond money-saving ability. Second Life is being implemented by business schools to form a model for future corporate exchanges and collaborations. ““It represents an opportunity to...provide [professional] education at a lower cost and at a greater scope and scale,’ said John Cady,” an IT professional. “The virtual campus will let a company’s employees work on group projects, even though they may be scattered all over the globe” (M. Rodriguez, 2008). Instruction in Second Life might serve current economic constraints but also introduce students to a future paradigm of learning and work which is emerging even outside of the university context. Even so, cost-effectiveness extends beyond saving money on the physical classroom setup. Phenomena that would be difficult to model can be recreated infinitely on Second Life. ““You can build something that’s impossible or

very expensive to build in the real world, then look at it and interact with it” (Goolsby, 2008, p. 1A).

Students could also benefit outside the classroom with other kinds of training for business. “In the virtual world, teachers can attend professional development sessions without costly registration fees or travel expenses” (James, 2007, p. A1). Students, too, might take advantage of more instructional opportunities at conferences or other gatherings on Second Life, becoming acquainted with not only conference content, but also in operating the media used to deliver it – useful knowledge for future work.

Is investing in Second Life worth the expense? Linden Research (Linden Research, Inc., 2010b) and the IBM case study suggest that it is. ““Second Life provided an opportunity for us to have a positive social and technical exchange, addressing most of our collaboration objectives...at about one fifth the cost and without a single case of jet lag”” (p. 6). To cost-conscious students, they claim that deploying Second Life allows for a way to experience faraway places, oversubscribed courses, group collaboration, or even academic conferences without incurring expenses besides already-invested information technology assets.

The educational uses of Second Life documented in the popular press seem to suggest that it is able to address the theoretical, pedagogical, and financial motives for educational purposes. The virtual construction of stellar phenomena or cellular processes fulfills a longstanding desire to create a learning environment that appeals to the learner’s senses. Its ability to elicit student interactions, innovative in-world creations, and creative work makes it a useful tool for evaluating comprehension in dimensions beyond traditional classroom evaluation. And, in an age of growing student debt and institutional



budget crises, Second Life appeals to the need to provide cost-effective services by leveraging existing investments.

But these conclusions carry an important caveat: these reasons are all generally positive ones and all are attributed to satisfied customers in academe or promoted by Linden Lab itself. These might not be correct. Hoopla theory (Abbott & Yarbrough, 1999) suggests that the mass media follows “waves of coverage” when reporting about a new innovation: negatively-valenced articles following early positive ones. A similar phenomenon exists, called the “hype cycle” (Gartner, n.d.).

### **Diffusion of Innovations and Institutional Characteristics.**

These three motives may be convincing, but they might not be sufficient cause for adoption. Although “teachers often use media because they intuitively feel that students will learn more, or that their interest level will be higher,” (Volker, 1970, p. 12) there may be intervening factors within the social organization. Even if an instructor is set on a particular course, he or she might find those plans constrained by other decision-makers. A study of Iowa State’s many committees shows many points at which Second Life might have been reviewed.

The norm for institutions like Iowa State is against rule by individual fiat. Rather, educational institutions rely on the norm of separate institutions sharing power. This notion of “shared governance” most often is manifested in committees that consider major decisions like personnel and instruction (Bugeja, 2008a, pp. 1-2). Such an approach might be more cautious than concentrating decision-making in an individual person’s hands, but it shows a decreased tolerance for risk and a willingness to place

decision-making in the hands of many across its departments, schools, and staff members.

While drawing on that collective expertise may lessen the risk of adopting an unsuitable innovation, such groups may promote maladaptive processes, like “groupthink,” the failure of an overly cohesive group to use its full inquisitive powers (Janis, 1983). Even with that information to the contrary, it is generally accepted that evaluating new technologies in education is a way of moderating excesses of exuberance and skepticism (Ellis, 2005, p. 12) or when “various forms of commercial media...may be chosen by the teacher simply because of personal bias, and not because of a sound rationale” (Volker, 1970, p. 12)

But this statement begs the question when it assumes that Second Life was worthy of some attention by university administrative groups. Not all of an individual’s innovation decisions are reviewed by others in the social system (Rogers, 2003). So what sort of change did Iowa State perceive in the adoption of Second Life? Some innovations pass unnoticed while others might face several layers of scrutiny. Educators might place Second Life at any spot on this continuum. This new teaching method might be as much of a judgment call as a teacher’s choice of the technologies of the marker-board or the overhead. Or Second Life might have been perceived as a paradigm shift for education and placed on the other side of the continuum for greater review.

Furthermore, if Second Life was an issue serious enough to merit consideration, which committees analyzed it? Examining the roles of academic, student affairs, and technology committees shows many intersections with aspects of Second Life and with

the characteristics of an innovation: relative advantage, compatibility, complexity, trialability, and observability (Rogers, 2003).

First are academic committees, whose oversight area includes “instructional policies, honors programs, and the academic calendar” (Iowa State University, 2009b). Second Life could present these groups with questions of curriculum, pedagogy, and cost. Such questions would be discussed at many different levels from the Office of the Provost to individual department, major, or classification-specific committees.

Next are student affairs committees, whose province includes the university experience and overall climate. A poor online climate could distract from instruction and create feelings of discomfort and harassment among students. On Second Life, avatar malfeasance has taken the form of “an attack of unwanted, self-replicating” parts of the male anatomy (Linden Research, Inc., 2010c; Miller, 2006), “combat,” “weapons fire,” “abuse” coming “verbally through voice,” (Ibid.), “avatar rape” (Bugeja, 2010) and other kinds of “adult content” (Linden Research, Inc., 2010a) in areas and islands where it is not permitted. All of these, save the first, have been addressed by student affairs professionals in higher education after their real-world occurrences.

In the real world, these issues are referred to ISU committees like the Student Affairs Advisory Board and Student Affairs Advisory Committee. Such groups advise student affairs professionals about improving “students’ experiences” (Iowa State University, 2009c) and “maintain[ing] discipline within the student body” (Iowa State University, 2009d). Did instructors feel that students’ interactions in Second Life might adversely affect student discipline or the student experience, or that the consequences might be unpleasant? If so, what role did Student Affairs play?

Last are technology committees, whose funding outlays make Information Technology expenses possible. Educational content is delivered on “islands” on Second Life. These pieces of virtual territory must be purchased and provisions about allowable content, avatars, and scripts must be accepted. Such individual islands presently start at \$700 with a \$147.50 monthly maintenance fee (Linden Research, Inc., 2010d). But the land is not instantly ready for instruction. Customizing and developing territory in Second Life is an additional endeavor. Costs are associated with developing and customizing a school’s online campus (Bowling Green State University, n.d.). Migrating or creating instructional content specific to the Second Life world requires additional effort, adding to the development cost.

But other expenses are sunk costs: computer labs already exist for the students without machines. They have ample hardware to run Second Life (J. Davis, personal communication, January 25, 2010). Bandwidth already connects campus users to the Internet. It is sufficient for the traffic that Second Life demands (J. Davis, 2010). Students will require support services, but those, too, exist to troubleshoot students’ issues (J. Davis, Personal Communication, January 25, 2010). Money for these services comes from regular allocations and student fees (Iowa State University, 2009e), with the Computer Advisory Council recommending appropriate expenses (Iowa State University, 2009f) and individual units within the university maintaining discretion over their own computing budgets. Which groups were consulted before the adoption decision was made? Was funding solicited at the university level or at the department-level?

Technology committees also provide instruction and support during the adoption process. At Iowa State, assistance is available to instructors through Just-in-Time

Educational Technology Support, IT Services, and the Center for Excellence in Learning and Teaching (Iowa State University Center for Excellence in Learning and Teaching, 2009). Were these offices consulted after an instructor's Second Life adoption decision? How did these units arrive at the decision to support Second Life instead of other information technologies? Yet norms of governance and procedure constrain an individual's control over the entire adoption process (Rogers, 1971). Institutional fiefdoms might aggressively promote change or unwaveringly resist it. So how much control does the individual have over the adoption decision?

In sum, Second Life as a new innovation might involve many constituencies within the University. Each supports the University's mission to "becoming the best" by improving statistical indicators like national rankings and external funding (Iowa State University, 2007). But many approaches might be used across the university to achieve these goals. Perhaps some groups might see Iowa State University as an institution whose aggressive trial of new ideas keeps it ahead of the competition. This might put Second Life in a more desirable light. Another group might see Iowa State's success stemming from preserving enduring educational constructs rather than embracing passing fancies. In contrast, this might make it more conservative and cautious in evaluating Second Life. Although the popular press takes great pains to depict higher education as a rather conservative, stuffy, and change-resistant entity, research from Rogers (2003) and Harper (1993) suggests that large institutions are actually more friendly towards innovation than their smaller counterparts.

How did the change take place? Theory suggests that Second Life's adoption happened either dramatically, under "large-scale and risk-taking frameworks" and

“governmental undertakings commanding major shares of the budget” (Schulman, 1975, p. 1975) or “through a succession of incremental changes” to “avoid serious lasting mistakes” (Lindblom, 1959, p. 86). The latter understanding predominates here. This concept of incrementalism views Second Life not as “a final resolution of a problem” but as “one step...that if successful can quickly be followed with another” (*Ibid.*). An analysis of the data will illuminate one theory.

### **Individual Factors**

Rogers states that adopters approach from either a voluntary or forced perspective. So how did individual instructors’ preferences interact with those of others who influenced the Second Life adoption decision?

Individual factors, like a particularly influential individual, would also affect the adoption process. Innovations first come to a small number of early adopters but are advocated by “champions...charismatic individuals [putting their] weight behind an innovation” (Rogers, 2003, p. 414). For example, “it is the patient rather than the doctor who pays for a new drug, although it is the doctor who makes the innovation-decision” (p.67). Since “usually, however, an innovator does not serve as advocate for his own invention or discovery,” (LaPiere, 1965, p. 141) how much control did instructors perceive? The possibilities range on a continuum from complete autonomy to complete subordination.

Even though college professors have greater latitude than other professions or other types of teachers, some constraints are possible. Some particularly large-lecture courses at Iowa State standardize their examinations and coordinate student work through

Course Information Offices (Dark, Gentile, & Cross, 2009). If any courses of comparable size are on Second Life, how did departmental policies interact with instructors' preferences? Were all the adoption decisions voluntary or not?

These theoretical predictions are impressive, but in what respects are they borne out by the experience of Iowa State? Which levels relied more on individual initiative, and which levels were more constrained by the decisions of others? Do these predictions accurately explain both the macro-level institutional and micro-level individual levels of reality, or do these theories produce only "a highly limited and cumbersomely qualified account of social action" (Waggoner & Roark, 2006, p. 3)?

### **Summary**

Second Life's many aspects make it a fruitful topic for investigation. Investigation into the mass communication theories of Uses and Gratifications and Diffusion of Innovations show different ways by which Second Life could have been considered by the Iowa State community. Innovation-related factors relate to Second Life's impact on ISU's educational mission, organizational factors relate to group influences on the adoption decision, and personal factors relate to an individual's ability to adopt or reject Second Life innovation. A case study methodology can view each of these pieces in context of one another.

As a newer technology, Second Life is not fully understood especially in its deployment as a teaching and learning technology (Bainbridge, 2007). Because of its newness as an academic research subject, studies are needed to bridge the gap between a great surplus of qualitative data in the popular press and infrequent amounts of

quantitative data in the scholarly press. The “wheel of science” (Shoemaker, Tankard, & Lasorsa, 2003) begins with a measurement of concepts before testing them quantitatively.

At present, few studies occupy that area. What is available at present is a spate of news reports, feature stories, or opinion pieces in the popular or trade press discussing different groups’ reactions to this innovation. Most literature features commentaries from technologically savvy columnists or those who are first to experiment with new technology. But what of those who first considered the new technology? What of those who did not adopt or discontinued the technology? What of those outside the information technology or instructional technology fields?

Little is known of those who did not offer their experiences as sources in the mass media. What issues did they discuss? Which ones were salient? What of the broader context of these debates? Answering these questions requires more sources and types of data beyond popular press or commercial accounts. The following chapter will suggest a possible mode of analysis.



### Chapter 3

#### Methodology

The purpose of this study is to consider Iowa State University's innovation-adoption decisions on Second Life technology and their interaction with the broader debate on technology in higher education. Existing literature suggests a set of uses and gratifications for the use of Second Life in higher education, but how prevalent are these gratifications among our population? An investigation of Iowa State's many committees suggests a wide range of possible organizational review, but how many of these groups were actually contacted? Existing literature suggests a wide range of possibilities for individual control over an adoption decision. Who were the key individuals and how did they affect the diffusion process?

#### Environmental Context

Iowa State University makes for an appropriate source of study because it is involved in science and technology research and does national and international research in virtual reality (Iowa State University Virtual Reality Applications Center, 2007a). Iowa State is also involved in the debate over Second Life, having hosted a Second Life symposium (R. Boettcher, 2007d) with participants from the scholarly, legal, human resources, administrative, and technical perspectives (Ferlazzo, 2007b). While notable proponents include College of Business faculty member Brian Mennecke and notable critics include Greenlee School director Michael Bugeja (Rossi, 2007), other contributors work outside the scope of the popular press and have thus been absent from our present

understanding of Second Life at ISU. They must be located and interviewed in order to investigate the issue more fully.

Social reality is formed by interaction of a variety of factors, not from the will of any single social actor or perspective (Ritzer, 1965; Waggoner & Roark, 2006). Thus the means of explaining reality must account for macro and micro level; objective and subjective levels (Ritzer & Bell, 1981). The chosen methodology is qualitative, which is flexible enough to branch off from predetermined sources to follow new avenues of inquiry, emergent themes, or the relationship of one piece of data to another.

A correct view of social reality must locate it on two continua between microscopic and macroscopic lenses and a second continuum of objective and subjective factors. Since “social reality encompass[es] the macro-objective (anatomical or morphological social facts), macro-subjective (norms, beliefs and practices, and stable social currents) and micro-subjective and micro-objective (the transitory outbreaks in an assembly of people),” (Ritzer & Bell, 1981, p. 971) a description of the Second Life debate takes each of these dimensions into account. Sources about Iowa State’s experience will provide information about rules, norms, and individual practices.

Case study research is becoming more prevalent in higher education (Tellis, 1997a), particularly when one “seeks to study phenomena in their contexts, rather than independent of context.” We opt for a case study from several sources of data. This chapter will explain the procedure behind conducting a case study that is grounded in theory, comprehensive in scope, and rigorous in analyzing the consideration of Second Life at Iowa State and its effects on the larger debate about Second Life in higher

education. Opinions that were overlooked during the adoption process might come out in the case study format, yielding valuable data for analysis.

### **Case Study Information**

Yin's work on case study research identifies five components: "a study's questions; its propositions, if any; its unit(s) of analysis; the logic linking the data to the propositions; and the criteria for interpreting the findings" (1984, p. 27). These first four items are part of the two earlier chapters. He defines the case study as:

"an empirical inquiry that investigates a contemporary phenomenon in depth and within its real-life context, especially when the boundaries between phenomenon and context are not clearly evident...The case study inquiry copes with the technically distinctive situation in which there will be many more variables of interest than data points, and as one result relies on multiple sources of evidence, with data needing to converge in a triangulating fashion, and as another result benefits from the prior development of theoretical propositions to guide data collection and analysis" (p. 18)

He adds that "sometimes a case study can be about an exemplary 'project' -- such as a research effort or a federally funded activity" (p. 82). Second Life is such a research effort and presents a unique challenge. At Iowa State, adoption decisions about Second Life were not made within one single office. In contrast to universities with a single office coordinating a single presence on Second Life (Ohio University, n.d.), Iowa State has many different context and offices in which Second Life is employed. This is advantageous since these differences create other cases within the larger case and strengthen the inquiry. Within this framework, "multiple cases strengthen the results by replicating the pattern-matching, thus increasing confidence in the robustness of the theory" (Tellis, 1997b).

Despite the strength derived from the sub-cases, the situation also presents a distinct challenge. Higher education has many layers of shared governance, putting a decision between curricular, administrative, and personal layers (Bugeja, 2008a). This means there are numerous potential decision-makers. Pressman and Wildavsky's study of a governmental body found that "to implement one public works program required a total of 70 sequential decisions—project approvals, negotiation of leases, letting of contracts, and so on" (Yin, 1984, p. 105). Such an inquiry could prove problematic for this case if significant attention is not given to the case study procedure.

### **Case Study Procedure**

Case studies require certain procedures. Yin (*Ibid.*) cites the need for:

"Field procedures (credentials and access to the case study 'sites,' general sources of information, and procedural reminders...Case study questions (the specific questions that the case study investigator must keep in mind in collecting data, 'table shells' for specific arrays of data, and the potential sources of information for answering each question)...A guide for the case study report (outline, format for the narrative, and specification of any bibliographical information and other documentation)" (pp.64-65).

The general sources of information include the aforementioned offices' and committees, documents concerning Second Life along with individual interviews. Case study questions are derived from the Literature Review and center around the individual's experience with the three important factors branching off from Diffusion of Innovations – graphical detail, richness of response, and cost. Data arrays can be found in Appendix A. The Program of Study Committee has set guidelines for the case study narrative, bibliographical information, and other documentation: the narrative will be structured in two chapters, first a case study of Second Life's adoption and use within the ISU campus

and, in the second, a case study history of ISU's involvement in a larger discussion about Second Life in higher education.

Gathering data for the case study has taken place since summer 2008 because of the author's ongoing affiliation with Second Life research. "Evidence for case studies may come from six sources: documents, archival records, interviews, direct observation, participant-observation, and physical artifacts. The use of these six sources calls for slightly different skills and methodological procedures" (Yin, 1984, p. 78). All these sources were used in the analysis.

All IRB precautions for Human Subjects interviews were followed. Approval was solicited and the project was designated exempt.

### **Interviews**

Another source of data comes from in-depth interviews. Interviewing from an open-ended perspective allows more flexibility than more closed-ended methods like questionnaires. Interviewers need to "ask good questions, be a good listener, be adaptive and flexible, have a firm grasp on the issues being studied, [and] be unbiased by preconceived notions" (Yin, 1984, p. 56). A combination of those traits and the interviewing method means a more full and dynamic investigation of the subject matter. The author holds several years of interviewing experience from working as a Staff Writer with the *Iowa State Daily*, freelancing for the *Ames Tribune*, interning with the BBC World Service and the United Methodist Church.

Initial respondents were selected using a snowball sampling technique. A list of initial sources was obtained by an analysis of news articles about Iowa State and Second Life from the *Iowa State Daily*, the *Des Moines Register*, and the Iowa State University

News Service. Interviews were conducted with the sources mentioned in the articles, most employees of ISU's Center for Excellence in Learning and Teaching. Those individuals were asked to name other potential respondents, who were solicited by e-mail and interviewed. The process was ongoing until respondents only offered other subjects who had already been interviewed.

Conversations were documented with pen-and-paper notes and audio recordings, with all direct quotes being transcribed verbatim from audio recordings. Follow-up E-mails were made after the interviews to thank sources and clarify points. But the interview method is not infallible. Occasionally, conflicting data points arose when interviewees presented conflicting recollections of the Second Life adoption process. These inconsistencies were resolved by consulting other pieces of data.

### **Methodological Problems**

One of the concerns in qualitative research is in strengthening validity with the accuracy of self-reported data (P. Podsakoff, MacKenzie, J. Lee, & N. Podsakoff, 2003, p. 883). A common technique to check on the veracity of responses is to ask follow-up questions or prompts to get participants to clarify or add more detail to points made (Vaughn, Schumm, & Sinagub, 1996, p. 45). The open-ended methodology permits the investigator to ascertain a subject's response by repeating or adapting a question or asking it at a different point in time. Gibbert, Ruigrok, and Wicki (2008) have suggested three other steps which this study has accounted for:

“Three measures have been proposed to enhance internal validity. First, case study researchers should formulate a clear research framework, which demonstrates that variable x leads to outcome y, and that y was not caused spuriously by a third variable z. Second, through pattern matching, researchers

should compare empirically observed patterns with either predicted ones or patterns established in previous studies and in different contexts. Third, theory triangulation enables a researcher to verify findings by adopting multiple perspectives.” (p. 1466)

### **Data Analysis.**

Data gathered from interviews was analyzed with the “cut and sort” method.

Researchers argue that a useful qualitative data output is “a report...[that] features patterns formed by words, called themes or perspectives” (Grudens-Schuck, Allen, & Larson, 2004, p. 3). Bickman and Rog (2008) echo this recommendation, calling the “cut and sort” technique a possible mode of analysis:

“The cut-and-sort technique is...readily carried out on any computer with a word processing program. Regardless of whether scissors or a personal computer is employed, this method yields a set of sorted materials that provides the basis for the development of a summary report. Each topic is treated, in turn, with a brief introduction. The various pieces of interview transcription are used as supporting materials and incorporated within an interpretive analysis.” (p. 604)

This cut-and-sort analysis is centered on participants’ responses to the research questions and closely approximates both the academic discipline of ethnomethodology as well as a journalistic approach. Ethnomethodology refers to “a sociological analysis of how individuals construct their common-sense knowledge of the world in social contexts” (Bettcher, 2009). Such a common-sense inquiry is created with journalistic methods like quotes and “various pieces of interview transcription,” and the appropriate background information and “interpretive analysis” (*Ibid.*). Topics that may not be included in the pre-determined questionnaire emerged with individual subjects. Those lines of inquiry were explored during the interview, incorporated into future discussions, and addressed during the analysis. Digests of the data are included in the appendices.

## Summary

The state of Second Life at Iowa State University is unclear. Without a central authority to force adoption throughout the social system, each potential adopter underwent a distinct process subject to different factors. Some adopters' stories are well known to the others on campus by way of their engagement with popular media and campus-wide discussions. Other potential adopters' stories did not reach such venues and are yet unknown. However, they still merit documentation with a flexible, open-ended method and publication in this work.

We have selected the case study method and document analysis and in-depth interviews as the primary methods of gathering data. With this decision, the researcher gains maximum flexibility in describing social reality and a more dynamic exploration of sources and questions. Even so, the case study's main drawbacks are the wide variety of data and the possibility that the investigator's interpretations of the data will be mistaken.

To ensure that the benefits of this method outweigh the costs, the reliability of each assertion must be maximized. Data from multiple sources allowed for triangulation and greater accuracy. After data gathering, the following narrative final report encompasses both the micro and macro levels of social reality by addressing both the individual adoption decisions and those who attempted to impact the larger social system.



## Chapter 4

### Second Life at Iowa State University

#### History of the Innovation

With the preceding chapters, we have outlined the role of virtual worlds in modern culture and higher education. Diffusion of Innovations makes theoretical predictions on Second Life's adoption, and the case study presents an appropriate method for studying the issue. The purpose of this chapter is to outline the consideration and use of Second Life at Iowa State. Second Life appears to play a relatively minor role here despite its name implying an all-encompassing vision of reality. Classes on Second Life had other Iowa educators fawning over a "quantum leap" in educational capability (Rossi, 2007), yet Second Life's current uses are outgrowths of existing work in teacher education, language learning, and business.

**The Social System.** Understanding the social system is crucial, for "individuals do not exist outside society or prior to society, and therefore cannot...be treated as the yardstick" (Ritzer, 2006, p. 679). Individual perceptions of Second Life must be seen in a societal context; the organizations, their histories, their cultures, and their budgets. Since late 2006, the consideration of Second Life has taken place upon a backdrop of added innovation across the University and its strategic plan, the arrival of the tech-savvy Millennial generation to college (Germain, 2007), and the historical commitments of Iowa State to teach liberal and practical subjects. Iowa State's strategic plan during those years emphasized "innovation" and "putting science and technology to work" (Iowa State University, 2005). The system was favorable to the consideration of Second Life.

Commentators on the diffusion of innovations claim “an innovation will not come into being until the cultural base is sufficiently developed to permit its occurrence” (Harper, 1993, p. 123). At this institution, we contend that this cultural base has existed for some time. In the 1930s and 1940s, ISU scientists created the first electronic digital computer (Iowa State University Department of Computer Science, 2004). That technological tradition continues today, as “information technology is infused into all aspects of everyday life at Iowa State University, including learning and teaching, research and creative endeavors, outreach, administration, and student life” (Iowa State University Office of Institutional Research, 2009, p. 21). The university continues to develop, evaluate, and reward technological innovation in learning, teaching, and scholarship (Sullivan, 2000) and it remains a facet of the current strategic plan. The overall social system consists of seven colleges, approximately 28,000 undergraduates and over \$167 million of research expenditures (Iowa State University Office of Institutional Research, 2009, pp. vii, 117).

Although the earliest media mentions of Iowa State and Second Life are in mid-2007, Second Life’s capabilities had been independently explored before its adoption by faculty in other groups. This environment has yielded several individual sub-cases where the technology was considered. We now address the historical progress of Second Life at Iowa State.

**Innovators and Early Adopters.** The studied faculty members were keen of the academic pressures to increase one’s own importance within the field and, by extension, to the university. Second Life was a new arena for faculty to “get in on the ground floor...” (Mennecke, personal communication, March 25, 2010) and expand their

research portfolios. Their existing sources of information within their professional journals, popular press, and interpersonal connections informed them about Second Life.

One faculty member had noticed Second Life initially “since it opened” (S. Herrnstadt, personal communication, March 29, 2010). His adoption-decision process consisted of investigating other universities’ teaching environments in Second Life. “In weighing whether to adopt the innovation, I logged into the University of Kansas’ campus. I attended some courses and was curious about studio [courses] and using it as a show-and-tell venue” (S. Herrnstadt, personal communication, March 29, 2010). After getting an account, exploring in-world, and conversing with another faculty member, he elected not to adopt Second Life but to monitor the technology instead.

Other faculty became aware of Second Life through connections in their subject matter or from colleagues in their field. Libraries had maintained an in-world presence for educational reasons, so there were resources to help her consider Second Life by “direct experiences inworld, learning how to navigate, script, build” using “the same ‘learning the rules / learning how things work’ types of experiences” (Vega-Garcia, 2010) and decided to simulcast an online seminar on Second Life. Colleagues in commercial design noticed the technology’s development; the fashion industry decided that it would be useful to respond to changes in global markets and the rest of the field took notice (Y. Lee, personal communication, April 14, 2010).

Most of the key individuals at Iowa State were former graduate students in the Department of Curriculum and Instruction. An initial enthusiasm among the student population grew into collaboration with faculty in the department and the university. In some cases, the university retained their expertise by employing them in instructional

design. In that manner, Second Life was tested, implemented, and even expanded. For CI instructors who would be inclined to use the technology, support came through graduate student work: “Our mentor program has been a pretty popular way for faculty who are interested in Second Life to experience it and also to have support as they first get started with it” (A. Thompson, personal communication, April 21, 2010). This collaboration proved key in helping students develop Second Life expertise.

**Barriers to Adoption.** Some committees played a minor role in the adoption process. While Second Life was considered by student affairs professionals (T. Hill, personal communication, January 20, 2010), it was monitored through academic platforms like the *Chronicle of Higher Education* and other publications in the field. Second Life grew out of teachers’ existing courses rather than a separate course proposal (Iowa State University Office of the Registrar, 2008), there was “no approval needed” (Mennecke, 2010b) to modify those existing offerings with a Second Life component.

The committees that saw the most consideration of Second Life were within Information Technology because the largest constraining factor on involvement was funding. One does not have to pay for a Second Life account and computer access is readily available. Thus, with these free items and the purchase of a digital island, start-up costs are fairly low. “No funds are involved” (Correia, 2010) with some research projects, and others can be supported through departmental grant money (Y. Lee, personal communication, April 14, 2010). However, as Second Life began to become a more established subject, costs to expand in-world expertise become more expensive.

For that, potential adopters sought resources from university-level committees like the Computer Advisory Council (CAC). For example, an application for a CAC grant for “Teaching Design and Interaction in Virtual Space” called for between \$43,595 and \$58,595 (Chan, Satterfield, & Call, n.d.). This proposal was rejected. One other project related to Second Life had a slightly longer lifespan, but it, too, was constrained by want of funds.

For two years, CELT used a grant from CAC to provide just-in-time technology support to ISU faculty. This JETS program announced its ability to develop content on social platforms like Second Life (Iowa State University Center for Excellence in Learning and Teaching, 2009). The full report of its activities, though, contained no such reference to instructional support in Second Life (Wortmann, 2008). Indeed, the majority of professors seeking assistance did so with regard to WebCT or clicker systems (*Ibid.*). Faculty testimonials also did not reference Second Life (Iowa State University Center for Excellence in Learning and Teaching, n.d.). Meanwhile, the JETS received \$47,900 and \$52,640 grants from the Computer Advisory Council in 2008-2009 and 2009-2010, respectively (Iowa State University Information Technology, 2009a, 2009b). The program was funded for the maximum two years that CAC rules permit. Attempts to find a permanent source of funding failed and the program ended in July 2010 (Good, 2010).

**Champions.** One key group of champions was not located on the Iowa State campus. SLED, Linden Lab’s email listserv for Second Life educators, was a source of many key pieces of information to ISU’s adopters. This enabled ISU’s adopters to correspond with other individuals and exchange information about the new innovation

and its capability to address issues at Iowa State (McKiernan, 2008c, 2008d; J. Rodriguez, 2009a; Silva, 2008). SLED discussed the experiences of an ISU professor who rejected the innovation (FitzGerald, 2007; Heer, 2007b, 2007d; Kemp, 2007; Long, 2007; Loon, 2007a, 2007c, 2007b; Shah-Nelson, 2007; Trevena, 2007; Tucker, 2007), provided feedback on projects and schools on Second Life (Heer, 2007e, 2009b, 2009d, 2009e, 2009f), answered technical questions (Hassall, 2007a, 2007b, 2008; Heer, 2009c), and opined about teaching pedagogy (Heer, 2007c, 2009e, 2009g).

Within Iowa State, the champions appear to be within ISU's Center for Excellence in Learning and Teaching. Although CELT Learning Technologies does not see itself as a "promoter" of Second Life or of any specific technology (R. Heer, personal communication, February 2, 2010), it is a relatively high-profile group that is well-connected to potential adopters and to the academic unit of Curriculum and Instruction. CELT did produce information about "helping faculty pick what is more appropriate, and getting them to 'find their path'" with resources in Second Life (R. Heer, personal communication, February 2, 2010).

**Negative Waves of Coverage.** When Second Life's adopters went "public" with its use, an early period of optimism yielded to a longer, continuing period of pessimism. Hoopla theory predicts differing waves of coverage with differing valence (Abbott & Yarbrough, 1999). Early on, a new technology's potential is well-known while its flaws are not. The resulting positive wave of coverage is swept out by later developments. The same technology's potential becomes old news while its flaws are the current, newly-discovered potential. This occurred in descriptions of Iowa State in the popular press.

Initially the news value of currency meant that overviews of Second Life and its potential featured in an initial wave of coverage (R. Boettcher, 2007b; KCCI, 2007). However, the next wave of coverage centered on the criticism of Second Life and its shortcomings. This first wave died down in approximately two months, and the second wave crested in late-2007 and early-2008. In late-2007, a would-be adopter also anticipated this cycle. “Look at a peak of technology adoption...this is what happens: you bomb out. So, is Second Life going to make it through this chasm? Maybe, maybe not. But are virtual worlds going to away. Absolutely not” (Iowa State University Virtual Reality Applications Center, 2007b). The past six months have seen only one cursory mention of Second Life in campus media (C. Davis, 2009).

This prediction is quite similar to an allied topic. CELT personnel referenced the Gartner Hype Cycle (Gartner, n.d.). In these models, an innovation is initially treated with “a frenzy of publicity” creating a “peak of inflated expectations.” The technology’s flaws then become apparent and it becomes “unfashionable.” Gartner’s theory claims that some individuals will persist in using the technology and investigate its “enlightened” uses. Those limited uses will “plateau” and become generally accepted (*Ibid.*).

Yet as popular attention waned, the technology continues to be investigated and adapted to uses in entrepreneurship, language education, and elsewhere. Though the idea of a virtual world seems to imply that all facets of life are migrated online, this is not the case in instruction. Second Life is used in “blended” classes, or mixtures of conventional in-class or online instruction and with scheduled appointments in Second Life. Thus the

technology closely resembles a visual aid rather than a wholesale replacement of instruction. The following section describes those uses.

### **Innovation Paradigms**

Individuals affiliated with Iowa State explored several paradigms for Second Life.

According to Ritzer (1965):

“A paradigm is a fundamental image of the subject matter within a science. It serves to define what should be studied, what questions should be asked, how they should be asked, and what rules should be followed in interpreting the answer obtained. The paradigm is the broadest unit of consensus within a science and serves to differentiate one scientific community (or sub-community) from another. It subsumes, defines and inter-relates the exemplars, theories, methods, and instruments that exist within it” (Ritzer, 1965, p. 157)

**Second Life in Learning Design.** This paradigm studies the use of Second Life in the Department of Curriculum and Instruction (CI) and the Center for Excellence in Learning and Teaching (CELT). It asks whether Second Life has “useful and compelling applications” (A. Thompson, personal communication, April 21, 2010) within higher education. Second Life was used in a variety of contexts, but the focus of these groups seems to be in supporting faculty teaching. These groups’ helped determine where Second Life might be useful and in creating that in-world content. “Typically with technology you can always think of reasons not to do it, and generally people who prefer not to work with the technology are pretty good at [it]. We tend to take the opposite approach” (*Ibid.*). Second Life has been employed in several contexts.

CTLT is an extension of a 1968 federal grant to establish a technology center (Thompson, 2010). Originally called the Instructional Resources Center, CTLT instructs teacher education students in technologies with “educational applications that make



students more active and help them participate.” (Iowa State University College of Human Sciences, 2010). And this information is spread to all students in the curriculum because “at least one technology course is required for all teacher education students” at Iowa State (Iowa State University, 2010). The Center is frequented by students doing homework or class projects with the lab’s specialized software like Second Life. Roger Volker had lead the CTLT from its founding until his retirement in 1997 (*Ibid.*). During those years, many former Curriculum and Instruction students joined the ISU faculty or became employed at other departments of the university (Thompson, 2010). This trend appears to continue with the adoption of Second Life, as CI students seem to play the role of change agent in many contexts. One former CI student, Cynthia Garrety, hosts the CTLT islands on her virtual land (A. Thompson, personal communication, April 21, 2010).

CELT reports to the Office of the Provost. Its Instructional Technologies division evaluates new technologies and assists ISU faculty instruction. Other programs and supported technology include the TouchPoint clicker response system, WebCT course management software, and “associated integrated technologies” like a separate course management software system for the English Department’s first-year composition programs (Iowa State University Center for Excellence in Learning and Teaching, 2010a, p. 1). It developed tutorials, informational documents, workshops, and “show and tell” presentations about Second Life (Heer, 2008a, 2008b, 2008c, 2009a; Heer & Sanborn, 2009; Iowa State University Center for Excellence in Learning and Teaching, 2010b). This series of documents helped maintain a Second Life interest group between 2008 and

2009 (K. Good, personal communication, February 2, 2010). Good said that the group “was spawned from a Curriculum and Instruction class and featured with one hour-long session per month. “There were about 10 people moving to two as ‘super-users’ gained proficiency or others discontinued the innovation” (*Ibid.*).

**Second Life in Language Learning.** This paradigm studies Second Life in the Department of World Languages and Cultures. Lower-division Spanish courses are taught in Second Life, and some of the individuals studied in the previous paradigm appear here as graduate students assisting in the courses and as an administrator directing a technology resource center in the department. Language learning suffers a heightened danger that it will be perceived as stale and uninteresting. Books may not immerse the learner as well as the sights and sounds of a foreign country, and the halting rhythms of beginner classmates may not create the enthusiasm to respond as a real-world situation might. In contrast, “living” in a virtual space could stimulate greater interest and engagement in the subject matter. This paradigm asks how to present a virtual world in a way that enhances language instruction and answered it by offering introductory level Spanish courses with a component in Second Life and interpreting student feedback and instructor perceptions in determining the results.

Key members include Dr. Julio Rodriguez, a former Curriculum and Instruction student, along with CI graduate students Jacob Larsen and Karina Silva, World Languages and Cultures graduate student Adolfo Carillo-Cabello, and Dr. Cristina Pardo-Ballester, assistant professor of Spanish.

As the literature review pointed out, the general idea that course content should be interesting has origins far earlier than the idea of new media. At Iowa State, the antecedents are very clearly seen in a series of conferences on language learning which took place in the mid-2000s. TSLL, the Conference on Technology for Second Language Learning, has been hosted at Iowa State since its inception in 2003. Iowa State University would offer an experimental class in Spanish language instruction in Fall 2008. In spring 2009, Rodriguez wrote that “SL is currently being used in blended-learning mode combined with face-to-face contact hours in an experimental Spanish language course in our department” (J. Rodriguez, 2009). The approach continues in current blended class offerings.

In the spring 2010 semester, students spent two class sessions per week meeting face-to-face and spent one 25-minute session in the free public areas of Second Life (Carillo-Cabello, 2010; Sheldahl, 2010). There were no outlays to Linden Lab (J. Rodriguez, 2009b). Similar to the model employed by Curriculum and Instruction, a partnership between WLLC graduate students and faculty was key in advancing the course. Regarding collaboration in-world, Pardo-Ballester observed an improvement in the about Second Life. Students who were quiet in-class were suddenly more vocal on the Internet, eager to share and converse despite being subdued off line.

The process had some technical difficulties. Students unintentionally appeared as ghostly figures in some classes, were unable to change their appearance, or log in as an avatar wearing clothing. They were also occasionally unable to use the audio chat or communicate in-world (C. Pardo-Ballester, personal communication, March 25, 2010).

However, Second Life was part of the course's participation grade and no concessions were extended to those who had technical difficulties. Several measures were taken on the departmental side, like advising students to attend the Language Studies Resource Center, where Second Life was installed on the computers and support was available.

**Second Life in Entrepreneurship.** This paradigm studies Second Life in commercial contexts. In the offline world, businesses market to consumers, employees collaborate, and government taxes the earnings. The online world has analogues for this behavior. Iowa State considered commercial presences on Second Life, collaboration and teamwork with remote colleagues, and even the relationship of virtual earnings in the real world. Faculty members involved in this research were Brian Mennecke and Anthony Townsend, along with other colleagues in other institutions. It was connected to CELT through Karly Good, and to Engineering Distance Education through Hiro Iino. Both Good and Iino are affiliated with the Curriculum and Instruction graduate program

Mennecke's class, MIS 534: Electronic Commerce, was an elective, MBA-level class offered through Engineering Distance Education (EDE) (Iowa State University Human Computer Interaction Graduate Program, 2007). EDE is a branch of the College of Engineering and has provided continuing education to engineers since 1913. In fall 2006, Iino and Good assisted Mennecke in evaluating how MIS 534 could be offered in Second Life through EDE. After that decision was made, Mennecke received a grant to buy the in-world island (Iowa State University Information Technology, 2009c), collaborated with EDE to build in-world assets, helped introduce prospective students to Second Life, and connected with College of Design faculty on Human Computer

Interaction to see if the college had uses for an island in Second Life (Iowa State University Human Computer Interaction Graduate Program, 2007).

After with a pilot study with a more unstructured Second Life experience, Mennecke opted for a structured experience for his class (Scopes, 2009). First, Mennecke mailed students to explain what Second Life was, along with why and how it would be used in class. “Prior to class, we e-mailed [students] and asked, ‘were you able to get in, were you able to access it, were you able to create an account?’” Most students overcame the initial difficulties, as “the learning curve is high in the very beginning [but] it gets better...” (H. Iino, personal communication, March 24, 2010). The technology was part of an orientation to Second Life and used in two areas of the curriculum. “The class was all-day Saturday,” he said, “so...we met in the morning face-to-face, and then we had guest speakers come in various times of the week using Second Life” (Iowa State University Extension, 2007). Additionally, “students set up free Second Life accounts to assess potential entrepreneurial opportunities within the virtual world, then developed models for their fictional businesses” (Germain, 2007).

Mennecke had other course content in-world for other MIS courses, but his teaching grew to encompass another course with a Second Life component. This class, HCI 594x: Organizational Applications of Collaborative Technologies and Social Media, began in Summer 2008. In this course, ISU students were paired with others from Wright State and the University of Nebraska, Lincoln to design products. Using virtual tools and Second Life’s in-world communication system, they met on Second Life on Nebraska and Wright State islands (S. Schiller, personal communication, June 8, 2010).

**Second Life in Design.** This paradigm studies Second Life in the rendering of complex phenomena. With the ability to visualize objects in three dimensions, the process of designing new products can improve. Costs can be cut by collaborating electronically and instantaneously. Feedback can be based on a more dynamic object than before, and the nature of the Internet allows input from as many individuals as the creator can solicit. Thus the questions this paradigm asks are related to Second Life's fidelity to the real world and the things that it models, to the ability of its users to collaborate and offer comments on designs, and to its compatibility with other computer modeling and design tools. The questions are answered by trial of the in-world tools and interpreted by comparing the results to existing modeling software.

Dr. Young-A Lee, assistant professor of AESHM, studies the optimization of clothing, technology in clothing design, and the relationship of Second Life's avatars in identity formation (Ferlazzo, 2009b). She became interested in the technology for the potential to model clothing designs on various body types and between geographically-distant business units. Although her investigations began as investigations of self-identity and Second Life avatars (Y. Lee, 2008), she has more recently investigated Second Life's use in fashion design courses (Y. Lee, personal communication, April 14, 2010) and in apparel design (Y. Lee & Hwang, 2009). Accurate modeling of fashions could be used to test garment designs with American audiences. European designers would make alterations based on market feedback, and send them to overseas textile factories. Lee's students explore this idea in her classes.

**Second Life in Webcasting.** This paradigm studies Second Life in providing online audio and video content. Technology alters the boundaries of space and time (Bugeja, 2005) and is thus useful in conveying educational content across those boundaries. Second Life's use in this capacity is a logical extension of other electronic media like audiotapes or streaming video. It was used to webcast a seminar in the Parks Library Instruction Department in 2010 and is being investigated for its potential for future "library instruction and outreach" (Vega-Garcia, 2010). Susan Vega-Garcia, Head of Instruction at Parks Library, "came inworld about 2 years ago because [she] was curious to see how SL might be used for teaching and learning" (Vega-Garcia, 2010). ISU's 2.5 million volume library has been offering online course content since 2001. Presently, 234 courses post content on the online e-library (Iowa State University Parks Library, 2010).

While Vega-Garcia had operated in Second Life before at conferences and seminars, this was her first experience migrating seminar content in-world. This was an initial effort, as she "did not have time to publicize this SL event in advance." Vega-Garcia wrote that she "merely invited a few ISU folks [she] know[s]...to come inworld and help...test there: Rex Heer and Lesya Hassall from CELT" (2010). As a result of those said that the system would continue to be investigated, opting to "continue with my investigations on how we can leverage the system for library instruction & outreach, including online seminars, workshops, professional networking & committee work, and so on" (*Ibid.*).

**Second Life in Information Technology.** Using Second Life implicates two information technology issues. First is the capacity of the university's Internet connection to handle large-scale traffic to Second Life and the operational capacity of Second Life servers. Jim Davis, ISU's Chief Information Officer, said that the university's bandwidth does not present an issue for Second Life use. Currently, the network traffic is divided into two categories: the first for research purposes and the second for so-called "commodity" Internet. Second Life traffic belongs in the latter category which is ample. While the "commodity" Internet currently handles a gigabyte of data every 10 seconds (J. Davis, 2010), the reliability of Linden's servers is at issue. Indeed, "using [Linden's] private servers, we couldn't rely 100% that things would be up and running and that there would be no maintenance" (H. Iino, personal communication, March 24, 2010).

The second issue is the capacity of students' computers to meet the performance demands of Second Life. In 2007, when the technology was first being implemented at Iowa State, Mennecke said "there are technology considerations...a number of people who couldn't get it to run on their machines...Vista wouldn't run it, low-end machines wouldn't run it" (Iowa State University Virtual Reality Applications Center, 2007b). Iino concurred, saying that older computers were especially ill-suited. That presented some problems for students who had to seek other ways of connecting to the course island. "Nobody could ask Second Life during work hours, and on the campus level nobody wanted to install Second Life back then because it was constantly being updated" (H. Iino, personal communication, March 24, 2010). In those days, a high-end computer like Heer's MacBook Pro was sufficient to run Second Life (Heer, 2007a). In the intervening



years, technology has advanced while Second Life can still be run with hardware from preceding years (Heer, 2009c).

### **The Three Motives Reconsidered**

**Graphical Richness.** As the “only show on the block” of virtual worlds and education (A. Schmidt, personal communication, February 2, 2010), Second Life’s was favorably compared with other technologies. Even so, the attractiveness of the graphics was seldom cited as the most important motive. Designers said that a key difficulty with Second Life is in adapting teaching methods to fit its capabilities. “It needs to have really structured lesson plans for the learning environment; otherwise, it’s just another gimmick” (H. Iino, personal communication, March 24, 2010). Good (2009) agreed, writing that “a number of instructional design theories suggest that you cannot choose the technology before you know the pedagogy and content. Once you understand the ‘what’ (content) and ‘how’ (pedagogy), you can find the tools to match.”

The tool that was most often compared with Second Life was Adobe Connect. This is a videoconferencing platform for many of ISU’s online, distance-education courses (H. Iino, personal communication, March 24, 2010). This software has many of the characteristics of Second Life and allows transmission of video files, audio files, and user chat but differs because Adobe Connect users do not interact in 3-D, but with a standard messaging interface with a window for video. Another weakness of Adobe Connect was its inability to manipulate dynamic content – content like a PowerPoint presentation could not be remade in-world or on-the-fly (Iowa State University Virtual Reality Applications Center, 2007b).

Mennecke's experience on Second Life was described as one which "initially mesmerized students" as "the Second Life platform facilitates innovation in terms of environmental aesthetics...one can remove the physical trappings of the classroom such as walls and ceilings transforming the classroom into an open space" (Scopes, 2009, pp. 55-56). That type of free-form instruction was said to remove mental barriers as well – resulting in a more favorable session (A. Correia, personal communication, April 7, 2010). But graphical richness extends not only to the classroom environment, but the realism of things modeled. While Second Life provides users with the ability to model complicated phenomena like clothing design (Dillavou, 2008), it is unintuitive and the end product does not compare favorably to other graphical options.

A professor who rejected the innovation is the Chair of Art and Design. Steve Herrnstadt teaches ISU's game design courses and spoke of being unimpressed by the graphics because of his extensive computer gaming experience. "I play a lot of first-person shooters and...get sucked into games. I played on three clans on CounterStrike. When my computer works, I play Fallout 3" (S. Herrnstadt, personal communication, March 29, 2010). Second Life might be a more detailed three-dimensional world because of its institutions and connections to the offline world. However, its graphics are not at the level of its gaming rivals. Consider that both of the aforementioned games are also three-dimensional environments and require a graphics card to run. In contrast, Second Life can be run without any of this hardware on most computers (Linden Research, Inc., 2010e). Other non-adopters compared the technology to video games and found it

wanting and “pretty crummy” (Iowa State University Virtual Reality Applications Center, 2007b).

**Richness of Response.** The technology’s potential for collaboration was notable. One of Mennecke’s students wrote that “Second Life really allowed us to create a sense of team, something that develops fairly naturally in...face-to-face class meetings” (Iowa State University Virtual Reality Applications Center, 2007b). Oftentimes, “students were impressed by the potential of Second Life to connect people from all over the world, something unlikely to occur in real life” (Scopes, 2009, p. 55). Second Life was also useful for foreign language instruction for “the opportunity to communicate with Spanish-speaking people from all over the world” (Iowa State University Center for Excellence in Learning and Teaching, 2010d) as well as for one unexpected reason: it raised the quality of student preparation.

Because of the preparation needed to participate online, students were generally better-prepared. Pardo-Ballester said that since Second Life homework demanded more involvement before class than conventional tasks like filling out a worksheet, students put more time into their work. Because all students in the section participated in Second Life activities, students who were not prepared slowed down the rest of the class (C. Pardo-Ballester, personal communication, March 25, 2010).

But one major stumbling block in this area is the technology’s low collaborative potential with other design applications. Designers and professors alike complain that Second Life’s proprietary systems make it difficult to migrate information from one platform to another. Whether between programs like Photoshop, data inputs like the

College of Human Sciences' body scanner, or between institutions like Iowa State and other schools in Second Life, creating and content is a significant hurdle. Good says that "making content is a hassle. [It's difficult to] take others' buildings and teaching tools for cheap construction and development" (K. Good, personal communication, February 2, 2010). From the design perspective, although "Second Life would allow you to create objects as intricate as others in the real world...navigation tools are clumsy and not intuitive precisely because they don't follow video game conventions," (S. Herrnstadt, personal communication, March 29, 2010). Every function which fails to operate as expected requires "tweaking" in order to fully match the instructor's expectations, and "Second Life is not something I want to spend tweaking for [Linden Lab]" (*Ibid.*). And even then, "it's clunky. If only you could take stuff from AutoCAD [or other art tools], it'd be easier to build on-site" (*Ibid.*)

Indeed, rendering high quality content in Second Life is difficult. "Creating awesome stuff takes time; last minute things [are not possible]," (K. Good, personal communication, February 2, 2010), nor is it a technology that teachers can discover and quickly turn-around into a component of their course (A. Thompson, personal communication, April 21, 2010). While Schmidt's wish for Second Life is that it "becomes as easy as PowerPoint," the reality is that modeling and creating items in-world is not intuitive (A. Schmidt, personal communication, February 2, 2010). This difficulty offsets some of the advantages of "awesome," vivid content, and, for some potential adopters, was one of the reasons that kept them from adopting Second Life.

There are other barriers to eliciting a learned response. Jim Twetten, ISU's Information Technology Services director, said he found it difficult to believe that the innovation could find widespread use in education because of the complexity of the technology involved. "If technologically-adept students find Second Life difficult, then how would it be possible for a [presumably-older] professor to effectively utilize it?" (J. Twetten, personal communication, January 27, 2010). One professor mentioned that he was interested in using Second life for his "course in Coastal Policy" where "NOAA...has an airplane that allows you to fly through a hurricane...It didn't take off one time [and] yesterday, I unfortunately ejected myself from the plane" (Iowa State University Virtual Reality Applications Center, 2007b).

Last of the factors on the topic is that Second Life's user base is more limited than what Linden Lab claims (Association for Education in Journalism and Mass Communication, 2009). "I'm the only one there [in Second Life]," said one prospective adopter. "People think there's millions of residents, but there's only about 40,000 there at any one time" (Iowa State University Virtual Reality Applications Center, 2007b). In order to sidestep this difficulty, classes meet during specified times in Second Life. This attempts to combine the technology, the student, and the environment temporally.

**Cost.** Much attention was paid to the issue of cost in Second Life despite its most extreme implications not having materialized. The potential for legal liability exists, although it has not materialized in terms of lawsuits against ISU (P. Tanaka, personal communication, March 15, 2010), nor in terms of complaints to the Dean of Students office (M. Boettcher, 2010). Barring any pending expenses, Iowa State's financial

disbursements to Linden Lab for Second Life remain minor. The current blended Spanish class does not meet on purchased islands (J. Rodriguez, 2009b) and Iowa State pays for two islands, one for CELT and the other for EDE. Those expenses remain relatively small when compared to the college units' expenses for supplies and services and institutional budgets (Iowa State University, 2009g) and in comparison to other institutions' outlays to the makers of Second Life. For purposes of comparison, an Iowa community college spends \$1,800 a year to rent server space (Heldt, 2008a) while ISU's CELT island is leased from the New Media Consortium "in the neighborhood of \$300 per year" (A. Schmidt, personal communication, February 2, 2010). CELT makes no additional expenses on buying clothing, pre-designed buildings, and other in-world objects. (*Ibid.*) There is some evidence to suggest some cost savings as a result of the investment:

"The International Society for Technology in Education has a pretty active presence in Second Life, and we also have some conference opportunities to go and hear speakers and talk. In terms of professional development, there are some pretty nice possibilities there as budgets shrink and we don't have as much travel money. It certainly is a good way to listen to a speaker with your colleagues and talk with your colleagues or other people." (A. Thompson, personal communication, April 21, 2010)

Sunk costs are leveraged, especially technical support. Students required assistance through the instruction process, for virtual worlds are unlike other technological innovations they have come to use. During the initial classes, Iino and other EDE members logged on to the island and provided support online (H. Iino, personal communication, March 24, 2010). Technical support is needed during all phases of Second Life's use because "the biggest complaints are technological problems and frequent server crashes" (Heldt, 2008a). But without the sharing of expenses, Iino said

that the technology is “tough to sustain. Especially a large public university with budget cuts, the last thing they would want to do is, you know, purchase a virtual island. But other universities like Ohio [University] spent a fortune building things online” (H. Iino, personal communication, March 24, 2010).

Thompson said that she is “not so keen on the money piece” of CTLT in Second Life (A. Thompson, personal communication, April 21, 2010). Although the island is free, developing content for it demands resources, and “buying things for our educational environment isn't an appealing characteristic” (*Ibid.*) Corly Brooke was CELT director during the years that Second Life was initially being considered. Since then, she has been named Associate Dean of the College of Human Sciences. When asked about the cost factor of Second Life, Brooke said that “we eventually decide which we want to recommend [to faculty]” and that technological investment is “worth [the] effort if it enhances learning and engagement in a large classroom. Students have grown up with technology.” Furthermore, use of technology is subject to student feedback. “[ISU shouldn't] continue doing it if it didn't [get positive reviews]” (C. Brooke, personal communication, February 2, 2010).

While the amount outlaid to Linden Lab is small in comparison, sunk costs are greater and harder to measure. Yet sunk cost into existing hardware, existing bandwidth, and existing personnel is not the complete picture. Other expenses for Second Life are harder to quantify, like additional technical support time spent supporting users, the faculty time spent adapting to the technology's learning curve or the opportunity cost of using Second Life to the detriment of other possible technologies and teaching methods.

In issues of expense and enthusiasm, Schmidt said that “finance seemed like one of the misconceptions.” (*Ibid.*) In responding to the perception that technology funding operates on overly enthusiastic, “hoopla-dite” assumptions (Bugeja, 2008e), Schmidt said that “the locus of funding is the CIO and Provost, not the CAC. There is more than one thumbs-up, thumbs-down and the Provost’s fund allocation is driven by students” (A. Schmidt, personal communication, February 2, 2010). When asked about CELT’s perceived over-eagerness to promote new technologies and then move on to other ones, Schmidt answered that CELT’s purpose is “to evaluate new technologies. Therefore we seek out and play around with new technologies” (*Ibid.*)

This process, Schmidt said, saves the university more money in the long run. “We’ll play around so that for every one technology we recommend, we reject 10. By the time we spend on something, we’ve sorted through [the technologies with potential]” (*Ibid.*). While some claim that “teaching excellence centers...act as brand managers for companies,” (Bugeja, 2008g) Schmidt contends that CELT “tell[s] potential Second Life adopters] no just as much as we tell them yes” (A. Schmidt, personal communication, February 2, 2010).

### **Summary**

This definition sets out many of the distinctions within Iowa State with respect to the use of Second Life. ISU faculty and staff studied different aspects of the phenomenon, asked different sorts of questions, and concluded vastly different things. Yet the goal of this work is not to conclude the truth of one perspective relative to another, but simply to describe the paradigms themselves. But within these paradigms, or



conceptions of Second Life, we see not only the three pedagogical motives of graphical richness, student response, and cost, but also the emerging themes like legal liability and the linkages between actors.

The course of the phenomenon at Iowa State suggests hoopla theory (Abbott & Yarbrough, 1999) or a similar phenomenon, the Gartner research firm's "Hype Cycle" (Gartner, n.d.). has been observed at Iowa State (A. Schmidt, personal communication, February 2, 2010; J. Twetten, personal communication, January 27, 2010), for Second Life is used in certain niches rather than in the whole educational enterprise.

Lindblom praises this process because it is not "a prodigious inquiry into values held by members of society and an equally prodigious set of calculations" but rather, it consisted of "small policy steps to predict the consequence of similar steps extended into the future" (1959, p. 79). In contrast, he derides the dramatic step as "a futile attempt at superhuman comprehensiveness" (*Ibid.*). Iowa State's adoption is thus commendable because rather than attempt wholesale changes, the process of "successive limited comparisons" caused evolutionary, not revolutionary change and "avoids serious lasting mistakes" (*Ibid.*). The result was a muddling through, not a "quantum leap" (Rossi, 2007).

The interviewees echoed a refrain found in Lindblom (1959, p. 86). Second Life is not "a final resolution of a problem" (*Ibid.*) of finding graphically rich content able to elicit student response at an economical cost. New technology and other methods may emerge. Other virtual worlds may topple Second Life for graphical fidelity. More intuitive and compatible ways of modeling the world could be found. Hopes for an open-

source, education-only virtual world may also displace Second Life (Iowa State University Virtual Reality Applications Center, 2007b).

The future of Second Life at Iowa State is contingent upon a number of factors. Even now that the phenomenon has emerged, there is no guarantee that it will not be swept aside by other technologies or developments in the social system. Mennecke's original class in Second Life will be taught by another instructor who does not use Second Life (2010a). His current collaborative effort with Wright State and the University of Nebraska is subject to the scheduling demands of other professors, their classes, and their institutions (S. Schiller, personal communication, June 8, 2010). Some non-adopters are waiting for a version of Second Life that fits their specific needs, (Iowa State University Virtual Reality Applications Center, 2007b) or are dedicated to previous instructional technology like WebCT's course management software (Meyers, 2010).

“In a few years, we'll be looking at the Second Life we're using right now, and I think we'll find it awkward and clunky in terms of the startup time. And the need, for example, if you're working with a class, and they need avatars...we'll still have the same idea of these virtual environments but my guess is it'll be a whole lot easier to operate, which makes it even more important to be working with it now, because we are developing ideas and applications that make sense in terms of student involvement and certainly just because it's a virtual environment doesn't make it useful, and I said I think one instructor lecturing to a hundred students who have to get dressed, go in, sit down, and listen, if there's no opportunity for them to do anything else...it's just like real life” (A. Thompson, personal communication, April 21, 2010)

A “muddling through” has allowed for uses of Second Life that are extensions of existing practices. Studies of online entrepreneurship, collaboration, and language learning were extended to applications in-world. For now, engaging with virtual worlds is but “one step...that if successful can quickly be followed with another” (Lindblom,

1959, p. 86), not a “large-scale governmental undertaking...commanding major shares of the public budget” (Schulman, 1975, p. 1975). What the social system will do with Second Life is still uncertain. However, a process of incremental change has characterized past conduct at Iowa State.

## CHAPTER 5

### SECOND LIFE IN THE BROADER SETTING

“Knowledge is continually flowing, coming from all kinds of sources and going through all sorts of agencies for its farther outflowing” (Berbano, 1930, p. ix). While “Iowa State has been on the front lines of the Second Life debate,” (Ferlazzo, 2007b) the development of the issue’s full dimensions was informed by dialectic, a series of linkages between decision makers at micro and macro-levels informed by both objective and subjective pieces of data. Users’ contentions were forwarded, discussed, and even spun-off into other discussions. All of the individuals’ experiences are referenced in the previous chapter, leaving the linkages in the social system yet to be quantified. To answer these questions, this chapter addresses three general thematic areas: (1) the mass media coverage from local to international media outlets, (2) the scholarly works produced about Second Life, (3) the discussions carried out as a result of the coverage or as panels and presentations.

Iowa State University’s work on Second Life affected the broader social system. We discuss it in terms of paradigms, which “develop on the basis of exemplary work that makes sense to an increasing number of later scientists” (Ritzer, 1981, p. 206). To that end, we have identified several exemplars for Iowa State’s involvement in the larger discussion about Second Life. We outline a process where ISU personnel are first consulted for being potential media sources as newsmakers or as experts in technology, culture, and ethics. These articles in the popular press were first in the Iowa State news service or the *Iowa State Daily* and then moved towards national and international

outlets. Scholarly publications about the issues followed, along with the opportunity to discuss them at conferences, presentations, and symposia. Multiple roles were possible for any given individual and gave them a chance to interact with the broader social system.

While any individual can impact the social system (Waggoner, 2010), we center on the individuals who have impacted the social system in ways which closely align with the three pedagogical motives. If the three motives are indeed the most compelling factors to use Second Life, then their discussion is instrumental for faculty intending to influence the social system. The first interchange of views works from the first motive. Even though the online world is graphically rich, is distraction and explicit content the predominating mode? Here, ISU's primary player is Bugeja, although Mennecke and Heer appear in this section. The second theme centers on the techniques used to overcome the key problem of designing learning environments in Second Life. Individuals involved here are Rodriguez, Pardo-Ballester, Silva, and Larsen. The third theme works from the question of cost by asking about the technology's business implications. Mennecke appears as the main player.

**Harassment.** This paradigm studies Second Life in university administration. Second Life may have ground breaking implications for the classroom, but what effect will it have on the educational institution as a whole? These individuals' attention was primarily on the risks to students along with the philosophical and legal commitments involved with the university presence in Second Life. The locus for this research is the Greenlee School of Journalism and Communication. Its faculty study media effects and

mass communication theories. Questions of new media connect to departmental research in media ethics, the role of big business as content provider, and an enthusiastic mass media's role in diffusing that technology.

Michael Bugeja is the director and researches the “Interpersonal Divide,” a synthesis of Ellul, Postman, and Arendt. From Ellul (Bugeja, 2008b) comes the idea that technology is autonomous, changing things without much being altered itself. From Arendt (1998) comes the notion of world alienation, a condition of technology disengaging man from the natural environment. Bugeja also advances Postman's (2005) contention that technology entertains rather than instructs. Greenlee School associate director Barbara Mack is an attorney who researches the legal implications of mass communication. She opined about Second Life in Iowa State's 2007 panel discussion. This consideration of Second Life extended into panel membership in mass communication conferences, stories in higher education newspapers, ongoing research with other faculty, and references to the themes of Ellul, Postman, and Arendt in other works.

To Bugeja, the nascent technology of virtual worlds had costs outweighing its benefits. Among their objections were the expenses involved in constructing content in-world, teaching students how to use it, and in dealing with any undesirable technological “cross-over” into the real world (The Lantern, 2009). Bugeja traced his interest in preventing harassment to a career as an ethicist and an administrator. The potential for virtual assault was discussed in some of his classes in the 1990s (Bugeja, 2007a) but connected to Second Life because of a 2006 article detailing commercialized sexual assault (“Second Life: Rape for sale,” 2006). He began to investigate the technology in

that year (Iowa State University Virtual Reality Applications Center, 2007b). In the coming years, the media would provide many opportunities to shape the debate as a source on the intersection of mass media and culture.

The philosophical issue notes that Second Life “is a platform set up primarily for purposes other than education” (Iowa State University Extension, 2007), and asks whether this is a reasonable tool to adapt to educational use. The mediated world of Second Life or other online tools existed prior to its use as an educational platform, and still possesses a strong impetus towards commercial values and the buying and selling of goods and services (Bugeja, 2005). These values’ presence in academe is unwelcome, whether simply as an undesirable intrusion (Bugeja, 2008f) or as a corrupting influence.

While the former of these issues with Second Life have been explored by the social system, the latter is the *cause célèbre*. The legal implications of Second Life have generated great discussion throughout the social system. In Bugeja’s first piece on the topic in 2007, he wrote of Second Life as a “virtual world whose service terms bestow anonymity and disavow liability” (2007a, p. C1). His question of institutional legal liability and the likelihood of student harm in Second Life set off a series of responses, exchanges, panel discussions, and follow-up pieces which are yet-ongoing. Second Life is a new frontier, “a whole new world developing, starting up. It's like the Wild West.” (H. Iino, personal communication, March 24, 2010). However, professors and university personnel disagree on whether the situation produces normless behavior or not.

A strong viewpoint on online content was offered by CELT, who contend that “Second Life is not as dangerous as people think. It is not full of grievers,” (A. Schmidt,

personal communication, February 2, 2010). Regarding behavior like the virtual rape alleged in Bugeja's essay, users "have to seek it out" (K. Good, personal communication, February 2, 2010), and, if accosted by other users, the student's experience may even be preferable to real life: "you can't [hit] 'quit' out of the alley" (A. Schmidt, personal communication, February 2, 2010). Thompson said that "since we're dealing with adults [or] semi-adults in a university community, it isn't that big a worry to us" (A. Thompson, personal communication, April 21, 2010).

The question of online distraction and adult content continued to spur on additional coverage by campus media (R. Boettcher, 2007a, 2007b, 2007c). His stance of Second Life would later be profiled in other regional news outlets, (Rossi, 2008; Stegmeir, 2008), and the Associated Press (Irvine, 2007). During this time period, Bugeja was preparing his own piece on the issues of Second Life and attempted to contact Linden Lab without response. His September story in the *Chronicle of Higher Education* raised issues of harassment, liability, and "motives versus morals" (Bugeja, 2007a), calling upon readers to "send a copy of this article to your campus lawyer, equity officer, accountant, human-resources supervisor, teaching-center director, network administrator, and ombudsman, requesting their opinions" about the questions implicated by Second Life's use (*Ibid.*)

That desire became the catalyst to further discussion in panels and symposia. ISU's College of Liberal Arts and Sciences followed Bugeja's suggestion for an interdisciplinary approach to considering Second Life. Two months after his first article in the *Chronicle*, ISU hosted a symposium about the issues raised by university



involvement in Second Life (Ferlazzo, 2007b). The symposium occurred (Iowa State University Extension, 2007) with follow-up coverage from the *Iowa State Daily*, featuring its own discussion of sex in virtual worlds (Merrill, 2007), event coverage (R. Boettcher, 2007d), and a follow-up editorial (Jefferson, 2007). The symposium was posted online (Iowa State University Extension, 2007) and linked to users on SLED (Heer, 2007d) but only one reply was forthcoming. One user contrasted one user's "exciting applications that might be possible if he plugged the bleeding-edge visualization tools...with Second Life's powerful tools for collaboration" with Bugeja's "slam[ming] his colleague's laptop shut" (Kemp, 2007).

A second major debate occurred thanks to *The Economist*, a London-based international publication. The debate pit Bugeja against the National Adviser on Learning and Technology Futures for the government-funded organization Learning and Teaching Scotland. Bugeja's position denied the utility of "social networking tools...in a formal classroom setting" ("Economist debates: Social networking," 2008). The debate attracted comments from around the world and from other notable social networking researchers like Danah Boyd (2008) and from Parks' McKiernan and his technology blog (2008b). It passed without mention on SLED. Although Bugeja's proposition lost with a margin of 37% to 63%, the moderator did thank Bugeja for raising the "moral issue" associated with technology adoption ("Economist debates: Social networking," 2008). Another panel connected Bugeja to the social system by way of Linden Lab's "chief evangelist" John Lester. In August 2008, Bugeja attended a panel discussion with the

Association for Education in Journalism and Mass Communication about legal liability in Second Life (Bugeja, 2008d).

Despite the decreasing attention paid to Second Life in the popular press, Bugeja continued to publish on the implications of Second Life. This past spring saw an article about “avatar rape” in Second Life (Bugeja, 2010). The 20 comments posted thereafter followed predictable patterns: one side declaring the article to be “utter nonsense,” “insane,” and requiring “far more research before writing something such as this” while the other insisting that the issue was present (*Ibid.*)

The blogosphere “erupted” with a “considerable response” and here we see another component of interaction with the social system. Other ISU actors helped in the diffusion of news via e-mail. For information about “best practices and support” (Bugeja, 2007b), Linden Lab’s maintains a Second Life Educators email list (SLED). This resource was used inform others of Iowa State’s debate. Bugeja’s comments were held up to scorn within four days of his first comment to the press, with which he supposedly perpetuated “the classic ‘virtual = not real’ misconception” (FitzGerald, 2007). Others claimed “he obviously did no research” (Trevena, 2007) on the full scope of Second Life.

News of “Second thoughts about Second Life” spread even more quickly, causing a letter to the *Chronicle* (Karon, 2007) and continued e-mails through the SLED list questioning Bugeja’s conclusions. Some users were incredulous that users would stay logged into Second Life while harassment was taking place and “NOT simply hit QUIT” (Shah-Nelson, 2007). Others defended some of the article’s points. “Hitting QUIT may

solve an immediate problem, but may leave other, larger issues,” like cyber-stalking and “other scenarios...untouched” (Loon, 2007b; Tucker, 2007).

The discussion on these issues would continue on SLED for a greater length of time by users continuing to scorn these comments. More wide-ranging SLED criticisms were made by other users. According to one writer, Bugeja was an alarmist who, “without any citation of scholarly evidence whatsoever...skillfully manages to capitalize on and manipulate an older generation's intuitive, gut-reaction to the younger generation” saying that Buegja hints that “a worldwide catastrophe” is “the only way to save humankind” (Heer, 2007b). This response was praised for bringing data “[while] others bring opinions” (Long, 2007). Oddly enough, there is no documented contact between Bugeja and Heer, despite both of them working for Iowa State.

Bugeja’s writings were echoed on many blogs, including some within the academic community of instructional technology, pedagogy, and communications (Boyd, 2008; Davidson, 2007; Fairs, 2008; McKiernan, 2008a). That brought him into contact with Ira Socol, a graduate student and blogger at Michigan State University, which he would reference in two later articles (Bugeja, 2008c, 2008g). Other Bugeja pieces branched off to address other aspects of the initial *Chronicle* story. Exploring virtual assault, legal liability, and the uses of Second Life put him into contact with sources from the Missouri School of Journalism, USC's Center for the Digital Future, the Women’s Studies director at Oklahoma State University, and the Linden Lab vice-president (Bugeja, 2007a, 2007b, 2010).

The questions of legal liability on Second Life also drew out responses from the legal community. Paul Tanaka, ISU’s general counsel, argued that users’ assent to Terms

of Service would only bind the individual users and not the university. When a user installs a new program on a university computer lab, Tanaka said, this process binds the user alone to those programs' agreements. With the example of a new installation of Adobe Acrobat, the user alone has covenanted with the company. Thus, this defense would be legally colorable if litigation arose over the terms of service (P. Tanaka, personal communication, March 15, 2010).

From here, we see that this issue has four elements. First, Bugeja influenced the social system as a source in many publications. Second, he authored works which were very critical of Second Life which were heavily discussed and scrutinized. Third, he furthered that discussion in panels, symposia, and other outreach. Fourth, news of these activities spread to Second Life advocates through the SLED list.

**Language Instruction.** Without any publicity, this area's effect on the social system is measured by papers published and in presentations. The social system's basis for technology-aided language study is arguably present in the many TSSL conferences (J. Rodriguez & Pardo-Ballester, 2008) and connections to Curriculum and Instruction. Over the years, Iowa State has featured several presenters in the conference with Second Life topics. According to Thompson, individuals in this group influenced the social system by being early adopters for Second Life in language learning. "Jacob is one who's done a Second Life workshop two years in a row...at a national conference. Julio Rodriguez is also another former student of mine who's done some interesting things with Second Life" (A. Thompson, personal communication, April 21, 2010).

This process began when two CI graduate students looked for sources on SLED. Silva and Larsen emailed the SLED list soliciting data about language instruction in February 2008 (Silva, 2008), intending to gather data for a presentation about the possibility of Second Life in language education (Larsen & Silva, 2008; Silva & Larsen, 2008). Since there were no recorded responses on the listserv to that e-mail, and, overall, responses were minimal (Larsen, 2010), this indicated an opportunity to explore the issue at Iowa State. In 2008, these students presented on the potential of Second Life in language learning in two conferences (Larsen & Silva, 2008; Silva & Larsen, 2008), opining that “SL and other types of online interactive environments and games have strong, though often untapped or not easily utilized, potential for language learning” (“Virtual worlds and language learning,” 2009).

After the Spanish courses began, a series of papers were produced about how barriers to Second Life education were addressed. The mentoring relationship between faculty and graduate students was documented and offered as a (Silva, Correia, & Pardo-Ballester, 2009; Silva & Pardo-Ballester, 2009) and observations about the teachers’ experience within Second Life (J. Rodriguez & Pardo-Ballester, 2008; J. Rodriguez, Silva, Larsen, & Sadler, 2010). Harassment and inappropriate behavior was addressed in the syllabus with this statement: “Just as in the real world, if you encounter an uncomfortable situation in SL, feel free to leave that location at any time. Above all, don’t forget that SL is not real life--keep a sense of humor and an open mind, and explore” (Carillo-Cabello, 2010).

**Economic Impact.** Mennecke's work on entrepreneurship, collaboration, and finances in Second Life also affected the social system. As the first professor to use the technology in a class at Iowa State (Iowa State University Virtual Reality Applications Center, 2007b), his work attracted the attention of ISU's News Service (Ferlazzo, 2007a), *Prospectus*, a magazine of ISU's College of Business (Iowa State University College of Business, 2008), local media (R. Boettcher, 2007b; KCCI, 2007), and national media in the form of *Bloomberg Businessweek* (Tahmincioglu, 2008b) and *Input/Output* magazine (Thilmany, 2008).

His presentations within Second Life brought him into contact with Shu Schiller, a professor at Wright State, and Fiona Nah, a professor at Nebraska-Lincoln. The fruits of their discussion were not only the classroom collaborations, but also data for a paper on complexity within Second Life (Nah, Mennecke, & Schiller, 2009). While he presented at several workshops and paper presentations (Mennecke, n.d.), two panels were particularly important. First, the "Second Thoughts" panel connected Mennecke and Bugeja (Iowa State University Virtual Reality Applications Center, 2007b). Second, a panel and subsequent research paper detailed emerging research fields in Second Life connected Mennecke and Townsend and with Linden Lab's John Lester (Mennecke et al., 2007). His work was the subject of another thesis comparing the (Scopes, 2009).

Another issue resulted from Mennecke's work was about taxation policy in Second Life with professors in the College of Business (Mennecke, Terando, Janvrin, & Dilla, 2007). This article asked how virtual income would be measured, reported, and taxed. Curiously, this issue only received national attention the following year, when it

was reported first by the News Service, the Omaha World-Herald, and then by Forbes Magazine (Ebeling, 2008; Ferlazzo, 2008; Ruff, 2008). Mennecke's other theories consider the user experience in Second Life with Hassall, Triplett, CELT's Rex Heer, and Human-Computer Interaction student Zayira Conde (Mennecke, Triplett, Hassall, Heer, & Conde, 2008), a story not addressed by News Service until the following year (Ferlazzo, 2009a).

### **Conclusion**

Iowa State University's involvement in the Second Life debate is expansive in several areas. Many differing opinions about the technology have been disseminated in a variety of contexts, whether in the popular press, scholarly journals, or interpersonal contacts. Although Iowa State's operations in Second Life are not as expansive or unified as on other campuses, this university has made key contributions to the debate on Second Life in higher education. The work of Bugeja and Mennecke has attracted a great deal of controversy and media coverage, but the work of other university units has been growing outside the eye of the popular press. Iowa State's role in this process is evidenced by the presence of strong, vocal advocates on all sides of the issue. Their influence on other social actors ranges across national and international areas by assisting and training potential adopters of Second Life, promoting their viewpoint in scholarly literature, or responding to feedback from other individuals. These discussions again revolved around the themes of student engagement in graphics, student engagement in quality of responses, and costs to the institution.

In researching Second Life, ISU faculty members have confronted three major issues: (1) the technology's effect on society: whether one's engagement with the virtual world ultimately enhances, detracts from, or is independent of an association with the "real world;" (2) the technology's effect on pedagogy: whether Second Life adequately reflects the values of education while minimizing incidental values like salaciousness and commercialism; (3) the technology's effect on finances: whether Second Life's benefit justifies its cost, along with the other tax and liability implications of a virtual world presence.

The many paradigms intersect with the theory of diffusion of innovations and the three pedagogical motives. Furthermore, they are contingent on individual actors' values, experiences, and perceptions. Iowa State's faculty currently shares its findings within the university, the mass media, and the broader scholarly community. Certain niches like particular conferences, newspapers, and journals and causes, like legal liability, teaching applications, and foreign language instruction, are the province of particular units. Notable examples include the College of Business' taxation research, the courses and conference papers produced between CTLT and the Spanish department, or the cultural and legal criticism from the Greenlee School. Other niches are much less present in the public eye.



## CHAPTER 6

### SUMMARY AND CONCLUSIONS

The purpose of the study was to conduct a two-pronged case study of Second Life at Iowa State. First, the state of Second Life at Iowa State was derived from press accounts, elite interviews, online artifacts, and other data. Second, Iowa State's influence on the wider debate was determined from published accounts in the popular press, the scholarly press, and the Internet. This chapter summarizes the novel points of the study, critiques its weaknesses, and assesses the study's relevance to the continued discussion on Second Life's adoption in higher education.

#### **Lessons from the ISU Experience**

The literature review treated "student response" as a more monolithic, two-dimensional construct. Either a technology was able to elicit that higher-order response, or not. In fact, it is a more nuanced concept, not a single uninterrupted measure and a chain of many dependent factors. One necessary antecedent to student response is making the environments themselves. It is difficult to create these immersive environments in the first place. Modeling objects in Second Life takes place with in-world dialogues rather than with tools used in the professional design world, and Second Life cannot simply import a file from another computer-aided design program. As a result, expertise in design for Second Life is limited, and acquiring such expertise is difficult.

Even if a suitable environment is designed, barriers to eliciting the response exist. Second Life offers more possibilities for student response along with more possibilities of

supplying incorrect or inappropriate answers. Inappropriate answers can be the product of malicious, “griefing” behaviors intended to disrupt the educational process. If the inclination is there to give the correct response, a misunderstanding of a complex, unintuitive control interface could interfere.

Another observation from the experience is the failure of news media to report a more comprehensive picture of Iowa State in Second Life. There have been no articles in the popular press about adopters in the LSRC. And although Spanish in Second Life has consistently been increasing its offerings, coverage in the local media is nowhere to be found. Certainly, some ISU figures contributed a great deal to the overall discussions about Second Life. They were featured in many media outlets. However, the *Daily*'s stories focused first on the news values of currency (Bishop, 2008; R. Boettcher, 2007b) and then conflict (R. Boettcher, 2007a, 2007d; Jefferson, 2007), culminating by holding the technology up to scorn (R. Boettcher, 2007c; C. Davis, 2009; Iowa State Daily Editorial Board, 2009; Merrill, 2007; Prell, 2009).

In the News Service's coverage of other technological issues, Second Life makes a single, brief appearance (Dillavou, 2008) and the *Iowa State Daily* has had but cursory references to the technology after discussing and largely dismissing it between 2007 and 2008 (C. Davis, 2009; Prell, 2009). This suggests that research in other higher education institutions ought to use popular press accounts as but one source of data rather than a representation of the picture as a whole – or as a starting point for a sample.

Another question is that of Iowa State's leadership on the Second Life debate. To that, we respond that it varies according to the sub-issues raised. We can say that at

certain points, discussions at the university preceded discussions within the social system, like the work of the College of Business' faculty on taxation in *Second Life*, or of the panel and presentation on future directions in *Second Life*. Another instance where the university has influenced the debate was with Bugeja's first article in the *Chronicle of Higher Education*, spawning the subsequent discussions of harassment and liability. There was a debate on the issue at Iowa State concurrent in time to the disputes online.

At other points, the university discussion lags behind the social system. Bugeja's own work shows an example of Iowa State as ahead and behind the curve. His latest article on "Avatar rape" (2010) surveyed 43 individuals in IT administration and Women's Studies on the issue of in-world harassment, but only one individual responded to this query. She was not a member of the faculty at Iowa State. This suggests that other themes are emerging outside of the university.

### **Study Strengths and "Known Unknowns"**

This section will state the weaknesses of the case study method and defend the method as the best option for the present situation. This study has presented a generally fractured view of the adoption process. It stands in contrast to Wrong's (1961) contention that "much of our current theory presents an oversocialized view of man...and an over-integrated view of society." Skepticism surrounds "simple, elegant, and inclusive hypotheses" of the social world (Perrow, 1981, p. 1). They arise when "social scientists try to explain events that are the result of happenstance, accidents...misunderstandings and even random, unmotivated behavior".

The result of this process is reification and a study of a researcher's notions of reality rather than the underlying reality itself (Waggoner & Roark, 2006). With so little known about the full extent of Second Life at Iowa State, the investigation employed a more qualitative methodology to lay the groundwork for concepts to be measured quantitatively (Shoemaker et al., 2003). This is one important factor because it lowers the danger of reification.

The next advantage of the case study method was its flexible format. When a new use of Second Life was identified, it could be explored by triangulating data from all the materials that were available. The case study unearthed the linkages between levels of reality and individual actors, increasing our understanding beyond coverage in the popular press. However, using a "wide variety of empirical materials...presents analytical problems" (Hamel, 1993, p. 45). This was an advantage during the case study, as data was often sparse or incomplete. Consider the Realists' charge that decisions are a function of ephemeral factors like "what the judge had for breakfast" (Schauer, 2009, p. 129). When one data source was deficient, others supplied the information to triangulate and address the issue. But some sources of data were lacking. While participant observation was attempted, there were no avatars which claimed to be affiliated with Iowa State when the researcher logged onto Second Life. Without participant observation, a host of inferences have been made, for "basically, a case study involves an inference every time an event cannot be directly observed" (Yin, 1984, p. 35). Yet there are difficulties. According to Rumsfeld in BBC News (2003):

“As we know, there are known knowns; there are things we know we know. We also know there are known unknowns; that is to say we know there are some things we do not know. But there are also unknown unknowns - the ones we don't know we don't know.”

Having addressed the “known knowns,” we move to the potential “known unknowns.” First is generalizability. We can make no guarantee that an identical combination of factors would yield an identical effect. This institution is not representative of the whole of higher education, and, even if it were, the cultural, financial, and individual circumstances of this particular time will never again combine in the way that this study has attempted to document. But this is acceptable.

Even with a generalizable study, if the study is individuals, all human behavior is ultimately tentative (Waggoner, 2010). As with any social science theory, “results offer probabilistic descriptions, not proof, and not certainties, whether they are arguably 70%, 85%, or 99% accurate” (Waggoner & Roark, 2006, p. 2). Regarding the validity of the study’s concepts, case study literature has a ready rebuttal. “Internal validity is only a concern for causal (or explanatory) case studies, in which an investigator is trying to determine whether event x lead to event y” (Yin, 1984, p. 35). But this task is not what this work aims to do. We merely describe: making causal connections is beyond the scope of this study.

It is hoped that future research can be conducted on the faculty members who refused to be interviewed despite numerous attempts to contact them via email, telephone, and in-person. Their response is typified by two of the graduate students involved with foreign language education, who say “[we] don't find that we will have anything substantial to tell you” (Larsen, 2010). Their interaction within Second Life has

been inferred through a search of academic records and accounts from their colleagues, but an actual interview may unearth new information

Rather than offering explanations or conclusions, these qualitative methods have only described the state of things, offering “sensitizing principles” to guide future research (Marx & Muschert, 2008). These are the societal, pedagogical, and financial variables which emerged in the case study. This process lays the groundwork for future study and the higher sociological goals of explaining, predicting, and controlling human behavior (Waggoner, 2010). Without sufficient effort given to unearthing the concepts in this stage of scholarly inquiry, subsequent studies would reap a lesser benefit.

### **Directions for Future Research**

There are several new research questions suggested by this work. First, there are a series of potential comparative studies that emerge from this study’s findings. How does a social system like Iowa State’s compare to other systems? Iowa State has a graduate program in Curriculum and Instruction, but some institutions of higher education are at the undergraduate or junior college level. The change agents and champions at other schools thus might occupy other positions than the studied individuals at this institution. Faculty adoption of Second Life was not mandated, but some schools might have done otherwise. Second Life was not used to teach subjects, like mathematics or engineering. The importance of the motives may vary among subjects. Thus this study’s findings may be different elsewhere in any number of possible ways.

Another research field emerges from Iowa State’s discussion of Second Life: the development of in-world ethics. Bugeja’s discussion of harassment has shed attention on the issue. Though nothing in the way of “sexual misconduct, harassment and/or stalking

behaviors” have been reported to the university’s judicial officer (M. Boettcher, 2010), an absence of reports does not prove an absence of the issue. So, who teaches right behavior to ISU’s Second Life users? Here, the result is something of a “tragedy of the commons” approach. All of the individuals interviewed mentioned the possibility of indecency and harassment in Second Life, and most called for standards of right behavior to be imposed. Others contended that this was impossible, given the university’s lack of control in the medium. Objectively, though, there has been no new policy work on the subject since Second Life emerged as a topic of instruction. ISU’s Computer Ethics policy from 2007 predates the University’s involvement in Second Life for purposes of teaching (Iowa State University Office of the CIO, 2007).

Consider a pending restatement of the computer codes, which neither mentions virtual world technology nor any special standards of behavior or acceptable in-world conduct (Iowa State University Information Technology Services, 2010). Without an authority to teach computer ethics and without an explanation of virtual worlds in Iowa State’s codified rules, more work could be done to further appropriate in-world behavior. Future research will build from Bugeja’s work on perceptions of Second Life harassment (2010) by asking instructors about acceptable behavior online. Understanding what these expectations are could be tied into ethical principles, thus serving as a basis for new higher education policy in this emerging area.

Another area concerns the use of online tools in the diffusion of Second Life. Previous Web 2.0 technologies were touted for their “vision of innovation and engagement” (Bugeja, 2008e) and might have also been promoted on the basis of their strength in the three pedagogical motives. Where are those tools in the current adoption

process? CELT blog entries about Second Life only date back to August 2009 – after the studied sample had made its adoption decisions (Iowa State University Center for Excellence in Learning and Teaching, 2010c). Given the value of other new media, there seem to be few wiki pages, podcasts, or blogs about the potential adopters’ experiences. Perhaps an extension can be drawn to this current form of “new new media” – how relevant will Second Life be in the discussion of the next developments in higher education technology?

The last area for future research concerns visual framing (Messaris & Abraham, 2001). Our research has lead us to many depictions of Second Life in the popular press. At times, these articles contained graphics and other visuals – a smiling faculty member with his Second Life avatar in the background (Rossi, 2007) or screenshots of an in-world environment. Despite the passage of time, these articles appeared to use the same sorts of graphics. A future study could consider visuals from across national mass media’s coverage of Second Life. Using that data, it could suggest a sample statistic on the number of Second Life articles with graphics, a typology of what the graphics were, how the graphics might have varied with the passage of time or the valence of an individual article, and whether the graphics suggest the three pedagogical motives or possibly other motives.

### **Conclusion**

The use of Second Life at Iowa State University was difficult to determine because accounts in the popular press did not accurately reflect the state of the innovation or even the adopters in question. Using a qualitative case study with in-depth elite interviews, archival documents, we described individual decision making processes, the



state of the innovation within the institution, and the institution's influence on the broader debate on virtual worlds in the collegiate setting. Three pedagogical motives of richness of content, richness of student response, and cost savings are identified in literature, conversations with university personnel, and by their subsequent discussion at presentations, panels, and symposia. Of key importance to the diffusion process was the Department of Curriculum and Instruction, whose graduate students and alumni work in many departments around campus and have helped them adapt the technology to educational contexts.

The process suggests a model of incremental change, or "muddling through" (Lindblom, 1959). Such a process uncovered maladaptive issues before the institution was greatly committed to Second Life while allowing applications like language learning to be gradually adopted and expanded over time. In order for Second Life's theoretical potential to be realized – and to keep threats like legal liability from materializing – further research is needed. Iowa State has advanced this goal with a "discussion...that incorporates not just this campus, but all our peers that cherish learning and who want to help us truly seize the day and move forward" (Iowa State University Extension, 2007).

**APPENDIX A**  
**INTERVIEW CODING SHEET**

**Coding Sheet**

This list of questions contains demographic information, individual-level uses and gratifications, and group-level adoption factors. It was used to craft the final case study report.

---

What is the date?

Who is being interviewed?

What is their position?

When did they first hear of Second Life?

How did they conceptualize it?

- Education
- Leisure
- Business
- Other?

When did they consider Second Life's use as a potential

What courses did they use it in?

- ?
- ?
- ?
- ?
- ?

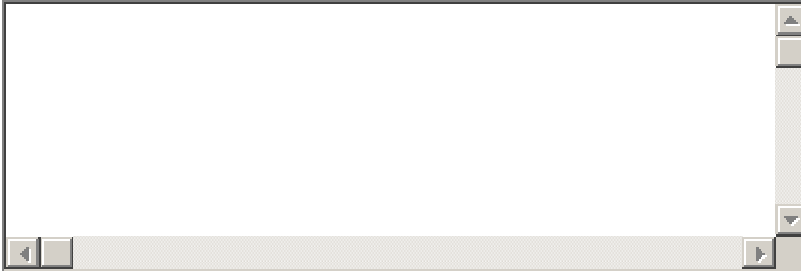
Why did they use it?

- Communication with Distant Sources
- Vivid Content
- Cost Factors
- Engagement
- Novelty
- Eliciting Responses
- Other

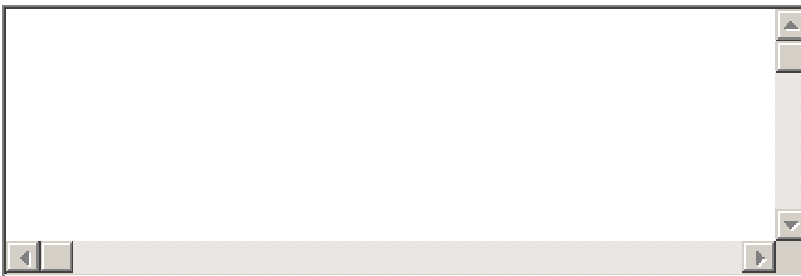
What drawbacks were there to Second Life?

- Cost
- Harassment
- Student Distraction
- Other

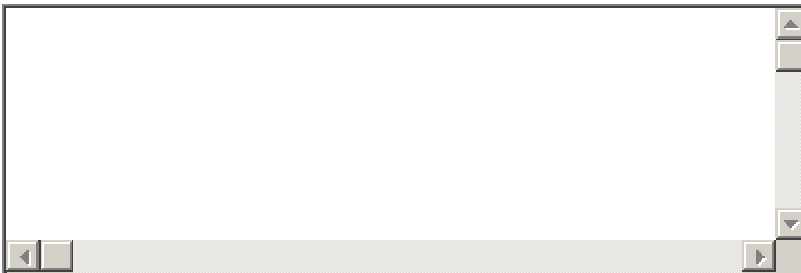
What organizations did they speak with about their decision?

An empty rectangular text box with a light gray background and a thin black border. It features a vertical scrollbar on the right side and a horizontal scrollbar at the bottom, both with standard arrow and track icons.


What was their feedback?

An empty rectangular text box with a light gray background and a thin black border. It features a vertical scrollbar on the right side and a horizontal scrollbar at the bottom, both with standard arrow and track icons.

Was their feedback binding? To what extent?

An empty rectangular text box with a light gray background and a thin black border. It features a vertical scrollbar on the right side and a horizontal scrollbar at the bottom, both with standard arrow and track icons.

How did they share their opinions with others in academe?

An empty rectangular text box with a light gray background and a thin black border. It features a vertical scrollbar on the right side and a horizontal scrollbar at the bottom, both with standard arrow and track icons.

What is the current state of their activities in Second Life?

Is there anything else they'd like to add?

Powered by [Google Docs](#) [Report Abuse](#) - [Terms of Service](#) - [Additional Terms](#)

Appendix B

Sociograms

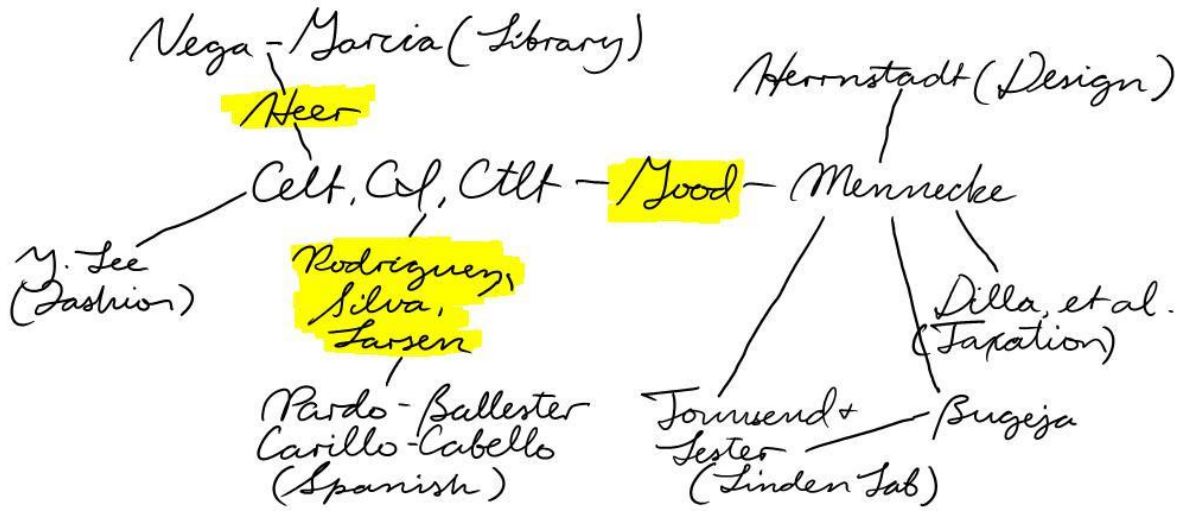


Figure 1. Placeholder

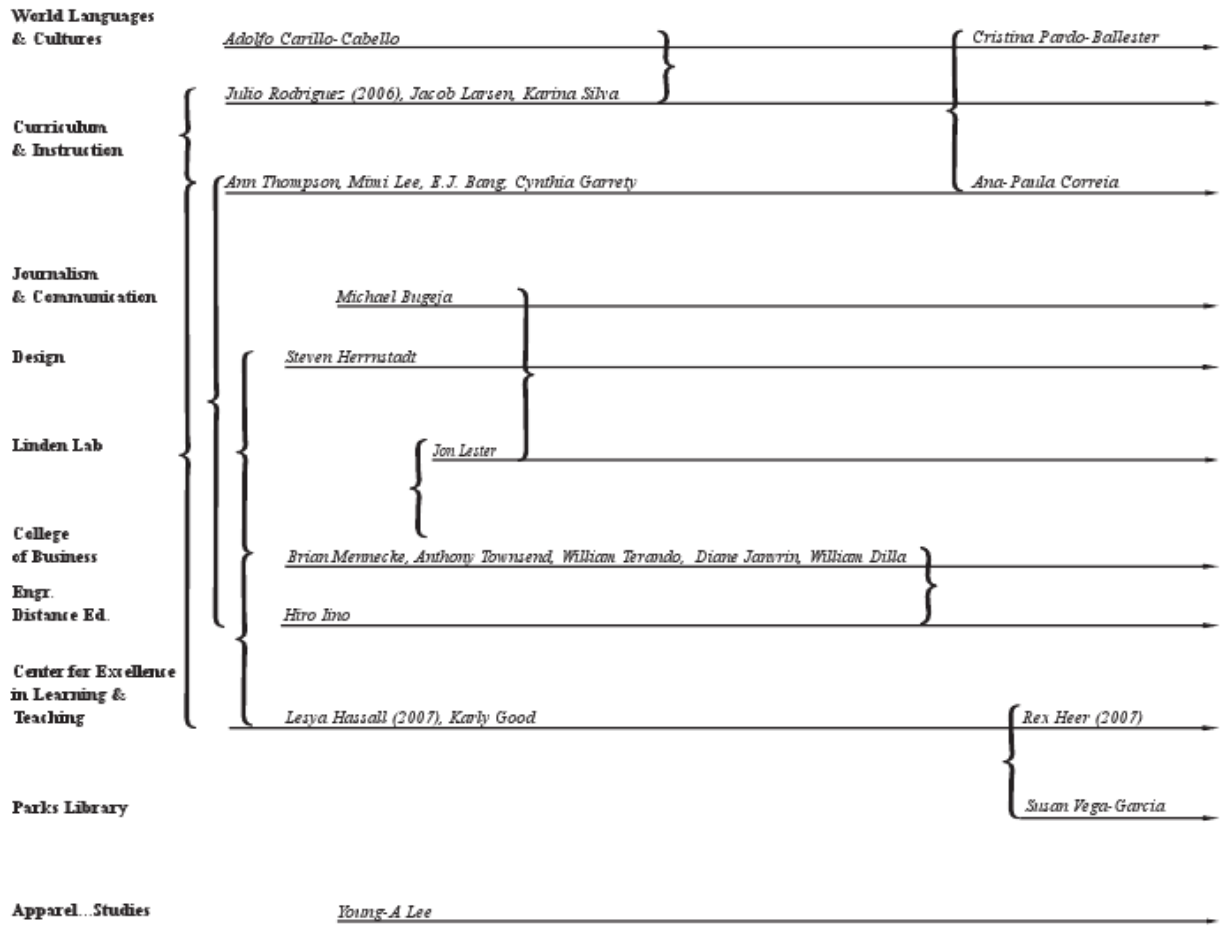


Figure 2. Placeholder

## Appendix C

## Second Life Islands

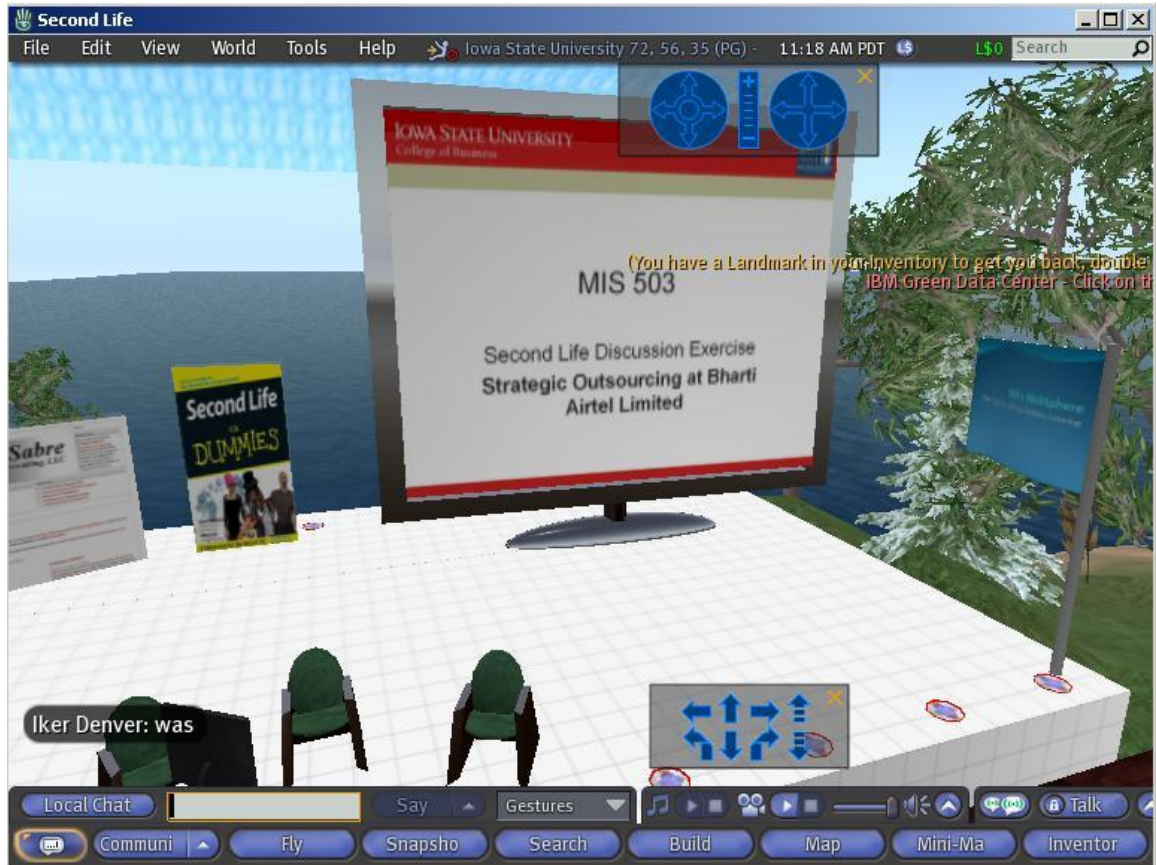


Figure 1. Management Information Systems/Engineering Distance Education



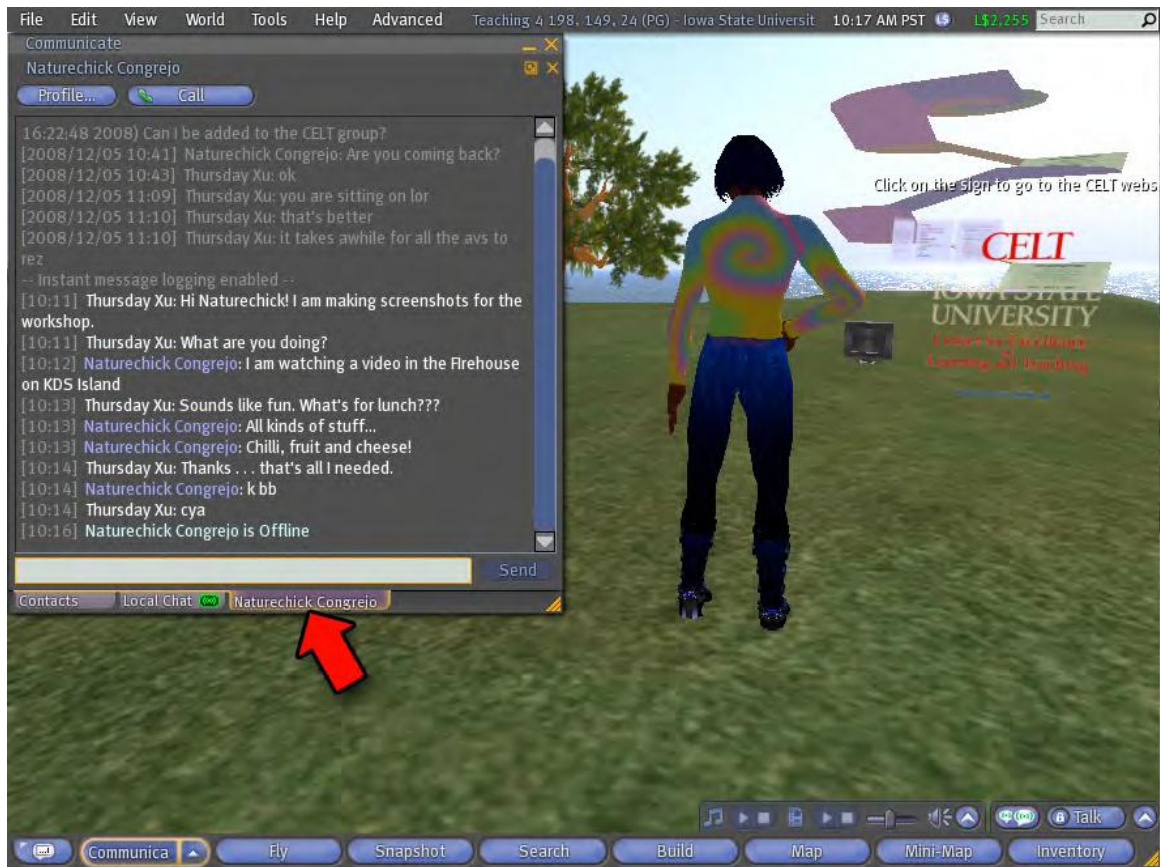


Figure 2. Center for Excellence in Learning and Teaching



Figure 3. World Languages and Cultures

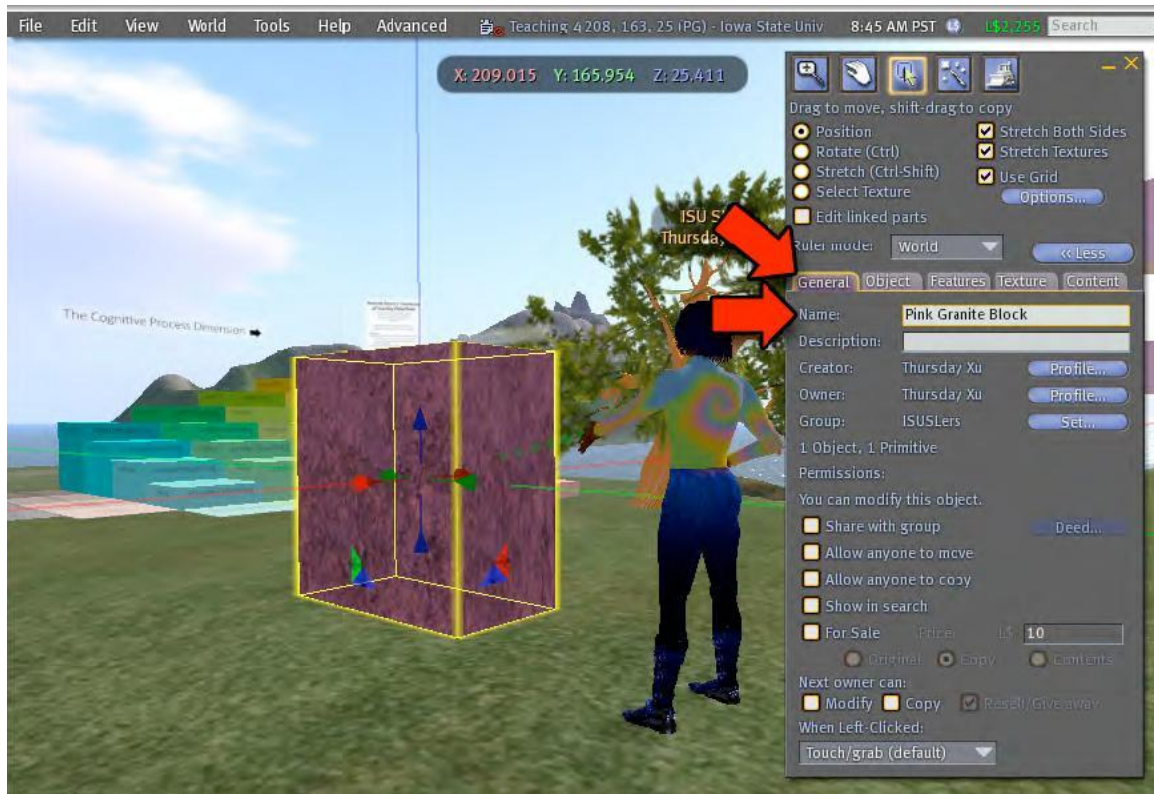


Figure 4. Creating objects in Second Life

## APPENDIX D

## EMERGING SECOND LIFE RESEARCH AREAS

Group	Faculty Members	Thematic Area	Year Begun
Greenlee School of Journalism and Communication	Bugeja	Liability, Terms of Service	2007
Center for Excellence in Learning and Teaching	Thompson, Correia, Bang	Teaching Methodology	2007
Management Information Systems	Mennecke, Townsend	Collaboration	2008
College of Business	Mennecke, Terando, Dilla, Janvrin	Taxation	2009
College of Business, CELT	Mennecke, Triplett, Hassall, Heer, Conde	Embodied Social Presence	2008
College of Business	Mennecke	Collaboration	2007
World Languages and Cultures	Pardo-Ballester, Carillo-Cabello, Rodriguez	Teaching Methodology	2008
GSJC and MIS	Bugeja and Mennecke	Terms of Service	2010

## ACKNOWLEDGMENTS

Eighty-one years ago, my great-grandfather was finishing his thesis. Speaking of his own case study, he wrote, “no matter how insignificantly small this piece of work may be, I could not claim it all to be my own production.” In this case study, my debt is to the Program of Study committee for their helpful comments, to the faculty, staff, and students who agreed to be interviewed, and to the doctors who have helped me fight mastoiditis in May and June. This work is dedicated to the Berbanos of the past, present, and future. May they continue to do more.

## WORKS CITED

- Abbott, E., & Yarbrough, J. P. (1999). Re-thinking the role of information in diffusion theory: An historical analysis with an empirical test. Presented at the Association for Education in Journalism and Mass Communication, New Orleans. Retrieved from [http://www.infoamerica.org/documentos\\_pdf/difusion\\_teoría.pdf](http://www.infoamerica.org/documentos_pdf/difusion_teoría.pdf)
- Arendt, H. (1998). *The human condition* (1st ed.). Chicago: University Of Chicago Press.
- Association for Education in Journalism and Mass Communication. (2009). Discussing JMC with... Michael Bugeja : Hot topics. Retrieved June 3, 2010, from <http://aejmc.org/topics/2009/02/discussing-jmc-with-michael-bugeja/>
- Bainbridge, W. S. (2007). The scientific research potential of virtual worlds. *Science*, 317(5837), 472-476. doi:10.1126/science.1146930
- BBC News. (2003, December 2). Rum remark wins Rumsfeld an award. Retrieved June 2, 2010, from <http://news.bbc.co.uk/2/hi/3254852.stm>
- Berbano, M. (1930). *The social status of the Filipinos in Los Angeles County*. University of Southern California, Los Angeles, CA.
- Bettcher, T. (2009). Feminist perspectives on trans issues. In *Stanford Encyclopedia of Philosophy*. Retrieved from <http://plato.stanford.edu/entries/feminism-trans/#EmpStrBac>
- Bishop, E. (2008, February 1). Adults join online social networks. *Iowa State Daily*. Retrieved from <http://www.iowastatedaily.com/articles/2008/02/01/fyi/20080201-archive.txt>
- Boettcher, M. (2010, June 21). Judicial affairs and Second Life.
- Boettcher, R. (2007a, September 21). Virtual or corporeal, we're still human. *Iowa State*

*Daily*. Retrieved from

<http://www.iowastatedaily.com/articles/2007/09/21/news/20070921-archive6.txt>

Boettcher, R. (2007b, September 25). Educators get 'Second Life'. *Iowa State Daily (Iowa State University) (Ames, IA)*. Retrieved from

<http://docs.newsbank.com/s/InfoWeb/aggdocs/AWNB/11BE766607A978B8/0EB4DDE3EEA45960>

Boettcher, R. (2007c, October 5). Software threatens ISU policy. *Iowa State Daily (Iowa State University) (Ames, IA)*. Retrieved from

<http://docs.newsbank.com/s/InfoWeb/aggdocs/AWNB/11C1C210A171E7A8/0EB4DDE3EEA45960>

Boettcher, R. (2007d, November 16). Panel analyzes academic value of 'Second Life'.

*Iowa State Daily*. Retrieved from

<http://www.iowastatedaily.com/articles/2007/11/16/news/20071116-archive1.txt>

Bowling Green State University. (n.d.). Virtual campus blog. Retrieved November 30,

2009, from <http://blogs.bgsu.edu/secondlife/>

Boyd, D. (2008, January 15). The Economist Debate on Social “Networking”. Retrieved June 3, 2010, from

[http://www.zephoria.org/thoughts/archives/2008/01/15/the\\_economist\\_d.html](http://www.zephoria.org/thoughts/archives/2008/01/15/the_economist_d.html)

Broudy, H. (1961). *Building a philosophy of education* (2nd ed.). Englewood Cliffs, NJ: Prentice-Hall.

Bugeja, M. (2007a, September 14). Second thoughts about Second Life. *The Chronicle of Higher Education*, C1.

Bugeja, M. (2007b, November 12). Second life, revisited. *The Chronicle of Higher*

*Education*, A31.

- Bugeja, M. (2008a). Progress with transparency: Moving forward while preserving Greenlee School values. Retrieved November 30, 2009, from <http://www.jlmc.iastate.edu/main/files/sotsa.2008.09.pdf>
- Bugeja, M. (2008b). Digital ethics in autonomous systems. In L. Wilkins & C. Christians (Eds.), *The handbook of mass media ethics* (p. 398). New York: Routledge.
- Bugeja, M. (2008c, March 11). Harsh realities about virtual ones. *Inside Higher Ed*. Retrieved June 2, 2010, from <http://www.insidehighered.com/views/2008/03/11/bugeja>
- Bugeja, M. (2008d, August 6). *First life potential and liability when using Second Life in academe*. Panel presented at the AEJMC, Chicago. Retrieved from [http://aejmcctm.blogspot.com/2008\\_05\\_01\\_archive.html](http://aejmcctm.blogspot.com/2008_05_01_archive.html)
- Bugeja, M. (2008e, September 12). Could you be a hoopla-dite? *The Chronicle of Higher Education*. Retrieved from <http://chronicle.com/article/Could-You-Be-a-Hoopla-dite-/45913/>
- Bugeja, M. (2008f, December). Digital dummies. *The Ecologist*, 60.
- Bugeja, M. (2008g, December 5). The costs (and benefits) of clickers. Retrieved June 2, 2010, from <http://derekbruff.com/teachingwithcrs/?p=39>
- Bugeja, M. (2010, February 25). Avatar rape. *Inside Higher Ed*. Retrieved March 12, 2010, from <http://www.insidehighered.com/views/2010/02/25/bugeja>
- Bugeja, M. J. (2005). *Interpersonal divide: The search for community in a technological age*. New York: Oxford University Press.
- Carillo-Cabello, A. (2010). Spanish 202 in hybrid format.



- Carnevale, D. (2007, July 13). Colleges find they must police online worlds. *The Chronicle of Higher Education*, 53(45), A22.
- Chan, C., Satterfield, D., & Call, A. (n.d.). Teaching design and interaction in virtual space. Retrieved from <http://www.it.iastate.edu/cac/proposals/2008-2009/proposals/04.pdf>
- Correia, A. (2010, April 19). Interview Request -- Second Life.
- Dark, V., Gentile, D., & Cross, S. (2009). Psychology 101 syllabus. Retrieved November 30, 2009, from [http://www.psychology.iastate.edu/fileadmin/user\\_upload/ugrad/pdf/syllabi\\_F09/f09101syll.pdf](http://www.psychology.iastate.edu/fileadmin/user_upload/ugrad/pdf/syllabi_F09/f09101syll.pdf)
- Davidson, C. (2007, September 17). Liability in Second Life. *HASTAC*. Retrieved May 1, 2010, from <http://www.hastac.org/blogs/cathy-davidson/liability-second-life>
- Davis, C. (2009, December 12). Continually distracted by constantly updating. *Iowa State Daily*. Ames, IA. Retrieved from <http://www.iowastatedaily.com/articles/2009/12/12/news/doc4b240bf3d75d7292544110.txt>
- Davis, J. (2010, January 26). Network information.
- Dillavou, L. (2008, August 26). Lee introduces new 3D body scanner. Retrieved June 7, 2010, from <http://www.hs.iastate.edu/news/inside/view/150/>
- Ebeling, A. (2008, April 16). Taxing virtual worlds. Retrieved March 23, 2010, from [http://www.forbes.com/2008/04/15/taxes-congress-virtual-biz-beltway-cz\\_ae\\_0416beltway.html](http://www.forbes.com/2008/04/15/taxes-congress-virtual-biz-beltway-cz_ae_0416beltway.html)
- Economist debates: Social networking. (2008). . Retrieved March 23, 2010, from

<http://www.economist.com/debate/overview/123>

Ellis, A. (2005). *Research on educational innovations*. Larchmont, NY: Eye on

Education.

Fairlie, H. (1977, December). The politician's art. *Harper's Magazine*, 39-46, 123-124.

Fairs, M. (2008, March 11). Michael Bugeja would have you believe that higher ed costs

so much because of technology. *A collage of citations*. Retrieved April 1, 2010,

from [http://michaeljfaris.com/blog/2008/03/michael-bugeja-would-have-you-](http://michaeljfaris.com/blog/2008/03/michael-bugeja-would-have-you-believe-that-higher-ed-costs-so-much-because-of-technology/)

[believe-that-higher-ed-costs-so-much-because-of-technology/](http://michaeljfaris.com/blog/2008/03/michael-bugeja-would-have-you-believe-that-higher-ed-costs-so-much-because-of-technology/)

Ferlazzo, M. (2007a, May 3). ISU e-commerce strategy class probes "Second Life" for

business opportunity. *Iowa State University News Service*. Retrieved March 8,

2010, from

<http://www.public.iastate.edu/~nscentral/news/2007/may/SLclass.shtml>

Ferlazzo, M. (2007b, October 31). College of Liberal Arts and Sciences to explore

Second Life in Nov. 15 symposium. *Iowa State University News Service*.

Retrieved March 8, 2010, from

<http://www.public.iastate.edu/~nscentral/news/2007/oct/slsymposium.shtml>

Ferlazzo, M. (2008, April 2). Should real profits in virtual worlds be taxed? ISU

professors say there's a way to do it. *Iowa State University News Service*.

Retrieved June 2, 2010, from

<http://www2.iastate.edu/~nscentral/news/08/apr/virtualtax.shtml>

Ferlazzo, M. (2009a, April 6). ISU business experts address layoffs, virtual appeal,

customer relationship management. *Iowa*. Retrieved March 8, 2010, from

<http://www.public.iastate.edu/~nscentral/news/2009/apr/biztips.shtml>

- Ferlazzo, M. (2009b, June 25). Iowa State researchers working to improve performance of firefighter gear. Retrieved June 1, 2010, from <http://www.news.iastate.edu/news/2009/jun/firegear>
- FitzGerald, S. (2007, June 14). [SLED] "the foremost symbol of digital decadence that we confront in the so-called information age.". Retrieved from <https://lists.secondlife.com/pipermail/educators/2007-June/010926.html>
- Foster, A. (2007a, July 13). The death of a virtual campus. *The Chronicle of Higher Education*, 53(45), A22.
- Foster, A. (2007b, December 21). 'Immersive education' submerges students in online worlds made for learning. *The Chronicle of Higher Education*, 54(17), A22.
- Gartner. (n.d.). Understanding hype cycles. Retrieved June 2, 2010, from <http://www.gartner.com/pages/story.php.id.8795.s.8.jsp>
- Geoffroy, G. (2009, October 9). Budget update from President Gregory Geoffroy to ISU faculty, staff. Retrieved October 11, 2009, from <http://www.news.iastate.edu/news/2009/oct/budgetupdate>
- Germain, J. (2007, May 30). The net generation goes to college. *TECHNEWSWORLD*. Retrieved March 23, 2010, from <http://www.technewsworld.com/story/57590.html?wlc=1269387522>
- Good, K. (2009). ISU JETS team. Retrieved June 2, 2010, from <http://www.it.iastate.edu/cac/news/2009/02/>
- Good, K. (2010, June 16). JETS.
- Google. (2010a). Corporate information - company overview. Retrieved March 8, 2010, from <http://www.google.com/corporate/>

- Google. (2010b). Google for Android. *Google Mobile*. Retrieved March 8, 2010, from <http://www.google.com/mobile/android/>
- Goolsby, K. (2008, June 8). Second Life - creating a parallel university - area colleges reach out to tech-minded students with lessons on virtual campuses. *Dallas Morning News, The (TX)*, 1A.
- Graham, P. (2005, November). Web 2.0. *Web 2.0*. Retrieved March 6, 2010, from <http://www.paulgraham.com/web20.html>
- Grudens-Schuck, N., Allen, B., & Larson, K. (2004). *Focus group fundamentals*. Ames, IA: Iowa State University. Retrieved from <http://www.extension.iastate.edu/Publications/PM1969B.pdf>
- Guest, T. (2007). *Second lives*. London: Hutchinson.
- Hamel, J. (1993). *Case study methods*. Qualitative research methods. Newbury Park, Calif.: Sage Publications.
- Harper, C. (1993). *Exploring social change* (2nd ed.). Englewoods Cliffs, NJ: Prentice Hall.
- Hassall, L. (2007a, June 3). [SLED] SL course disclaimers. Retrieved from <https://lists.secondlife.com/pipermail/educators/2007-June.txt>
- Hassall, L. (2007b, September 6). [SLED] Creating a large number of avatars. Retrieved from <https://lists.secondlife.com/pipermail/educators/2007-September/014000.html>
- Hassall, L. (2008, March 6). [SLED] A tool to track avatar presence. Retrieved from <https://lists.secondlife.com/pipermail/educators/2008-March.txt>
- Heer, R. (2007a, April 30). [SLED] Laptop purchasing suggestions. Retrieved from

<https://lists.secondlife.com/pipermail/educators/2007-April/008976.html>

Heer, R. (2007b, September 11). [SLED] Chronicle: Second Thoughts About Second Life. Retrieved from <https://lists.secondlife.com/pipermail/educators/2007-September/014079.html>

Heer, R. (2007c, September 26). [SLED] Pedagogy of the Oppressed... Retrieved from <https://lists.secondlife.com/pipermail/educators/2007-September/014577.html>

Heer, R. (2007d, November 16). [SLED] University symposium: Second thoughts about Second Life. Retrieved from <https://lists.secondlife.com/pipermail/educators/2007-November/016115.html>

Heer, R. (2007e, November 20). [SLED] Invitation. Retrieved from <https://lists.secondlife.com/pipermail/educators/2007-November/016217.html>

Heer, R. (2008a). Teaching & learning and social software. Retrieved from <http://www.celt.iastate.edu/pdfs-docs/workshops/SocialNetworkingOct08.pdf>

Heer, R. (2008b). Experience Second Life: Getting ready. Retrieved from <http://www.celt.iastate.edu/pdfs-docs/ExperienceSL-GettingReady.pdf>

Heer, R. (2008c, October 24). *Teaching and learning in a MUVE*. Iowa State University. Retrieved from <http://www.celt.iastate.edu/pdfs-docs/workshops/SL-October2008.pdf>

Heer, R. (2009a). Social networking technologies: Implications for teaching and learning. Retrieved from <http://www.celt.iastate.edu/pdfs-docs/workshops/SocialNetworkingApril09a.pdf>

Heer, R. (2009b, January 2). [SLED] Bloom's Taxonomy in SL. Retrieved from <https://lists.secondlife.com/pipermail/educators/2009-January/028543.html>

Heer, R. (2009c, January 3). [SLED] student can't run SL with year old macbook pro.

Retrieved from <https://lists.secondlife.com/pipermail/educators/2009-January/028525.html>

Heer, R. (2009d, February 25). [SLED] What about teaching/learning centers? Retrieved

from <https://lists.secondlife.com/pipermail/educators/2009-February.txt>

Heer, R. (2009e, April 1). [SLED] The Theorist Project - a private tour. Retrieved from

<https://lists.secondlife.com/pipermail/educators/2009-April.txt>

Heer, R. (2009f, April 16). [SLED] Educators Digest, Vol 1050, Issue 1. Retrieved from

<https://lists.secondlife.com/pipermail/educators/2009-April/031461.html>

Heer, R. (2009g, April 16). [SLED] A cautionary tale - VWs: A Panopticon prison?

Retrieved from <https://lists.secondlife.com/pipermail/educators/2009-April/031461.html>

Heer, R., & Sanborn, D. (2009, November 12). *Understanding social media for student engagement*. Iowa State University.

Heldt, D. (2008a, October 30). Unreal estate - Kirkwood campus goes virtual with

Second Life island. *Gazette, The (Cedar Rapids-Iowa City, IA)*, 1A.

Heldt, D. (2008b, November 7). A degree from IOU - rising loan debt a concern for

state's grads, universities. *Gazette, The (Cedar Rapids-*

*Iowa*

*City, IA)*. Retrieved from

<http://docs.newsbank.com/s/InfoWeb/aggdocs/AWNB/124568E2F2F31F10/0EB4>

DDE3EEA45960

Iowa State Daily Editorial Board. (2009, April 1). Seek affection, activities in real life,

not from virtual life. *Iowa State Daily*. Retrieved from

[http://www.iowastatedaily.com/articles/2009/04/01/opinion/todays\\_editorial/doc49d43217cb814934142205.txt](http://www.iowastatedaily.com/articles/2009/04/01/opinion/todays_editorial/doc49d43217cb814934142205.txt)

Iowa State University. (2005). Strategic Plan 2005-2010: Iowa State University.

Retrieved June 1, 2010, from <http://www.public.iastate.edu/~strategicplan/>

Iowa State University. (2007). Office of the President. Retrieved November 30, 2009,

from <http://www.president.iastate.edu/about/bio.shtml>

Iowa State University. (2009a). Welcome : Live green! Retrieved November 30, 2009,

from <http://www.livegreen.iastate.edu/>

Iowa State University. (2009b). Faculty Senate councils and committees. Retrieved

November 30, 2009, from

<http://www.facsen.iastate.edu/AACouncil/academicaffairs.htm>

Iowa State University. (2009c). Student Affairs Advisory Board. Retrieved November 30,

2009, from <http://www.committees.iastate.edu/comm-info.php?id=50>

Iowa State University. (2009d). Division of Student Affairs: 2008-2009 annual report.

Retrieved November 30, 2009, from

[http://www.public.iastate.edu/~saff/whatwedo/forms/sa\\_annual\\_report\\_08-09.pdf](http://www.public.iastate.edu/~saff/whatwedo/forms/sa_annual_report_08-09.pdf)

Iowa State University. (2009e). Computer fee history. Retrieved November 30, 2009,

from [http://www.it.iastate.edu/cac/policies/computer\\_fee\\_history.pdf](http://www.it.iastate.edu/cac/policies/computer_fee_history.pdf)

Iowa State University. (2009f). Computation Advisory Committee. Retrieved November

30, 2009, from <http://www.committees.iastate.edu/comm-info.php?id=59>

Iowa State University. (2009g). *Budget Book*. Ames, IA.

Iowa State University. (2010). Curriculum & Instruction 615 B (instructional technology

- seminar spring 2010). Retrieved June 1, 2010, from  
<https://sites.google.com/a/iastate.edu/instructional-technology-seminar-spring/>
- Iowa State University Center for Excellence in Learning and Teaching. (2009). JETS: Just-in-time educational technology support. Retrieved November 30, 2009, from  
[http://www.celt.iastate.edu/elearning/?page\\_id=279](http://www.celt.iastate.edu/elearning/?page_id=279)
- Iowa State University Center for Excellence in Learning and Teaching. (2010a). Teaching at ISU. Retrieved from <http://www.celt.iastate.edu/pdfs-docs/NewsletterPDFs/CELT-Spr2010Newsletter.pdf>
- Iowa State University Center for Excellence in Learning and Teaching. (2010b). Teaching & learning in a MUVE\* (Second Life) resources. Retrieved June 3, 2010, from [http://www.celt.iastate.edu/elearning/?page\\_id=1167](http://www.celt.iastate.edu/elearning/?page_id=1167)
- Iowa State University Center for Excellence in Learning and Teaching. (2010c). “second life” « Search Results « eLearning. Retrieved June 3, 2010, from  
<http://www.celt.iastate.edu/elearning/?s=%22second+life%22>
- Iowa State University Center for Excellence in Learning and Teaching. (2010d, April 29). Recap: Blended Learning Show and Tell « eLearning. Retrieved June 3, 2010, from <http://www.celt.iastate.edu/elearning/?p=3506>
- Iowa State University Center for Excellence in Learning and Teaching. (n.d.). Just-in-time educational technology support: Testimonials. Retrieved from  
<http://www.celt.iastate.edu/storage/jets/JETSTestimonialsSp2010.pdf>
- Iowa State University College of Business. (2008). Second Life classroom: A virtual path to a real-world experience. *Prospectus*, (Spring), 15-19.
- Iowa State University College of Human Sciences. (2010). Roger P. Volker Experimental



Technology Classroom dedication. *Center for Technology in Learning and Teaching*. Retrieved April 19, 2010, from

<http://www.cltl.iastate.edu/spotlight/index.php>

Iowa State University Department of Computer Science. (2004). John Vincent Atanasoff & the birth of the digital computer. Retrieved April 20, 2010, from

<http://www.cs.iastate.edu/jva/jva-archive.shtml>

Iowa State University Extension. (2007, November 30). A second look at Second Life. Retrieved March 8, 2010, from

<http://www.vrac.iastate.edu/press/detail.php?s=press&r=189>

Iowa State University Human Computer Interaction Graduate Program. (2007, April 11).

HCI Supervisory Committee meeting. Retrieved April 1, 2010, from

[http://www.hci.iastate.edu/graddocs/SupervisoryMinutes/4-11-07\\_minutes.htm](http://www.hci.iastate.edu/graddocs/SupervisoryMinutes/4-11-07_minutes.htm)

Iowa State University Information Technology. (2009a). CAC 2009-2010 awarded proposals. Retrieved April 1, 2010, from

<http://www.it.iastate.edu/cac/proposals/2009-2010/awarded.html>

Iowa State University Information Technology. (2009b). CAC 2008-2009 Awarded Proposals & Final Reports : IT. Retrieved April 1, 2010, from

<http://www.it.iastate.edu/cac/proposals/2008-2009/awarded.html>

Iowa State University Information Technology. (2009c). FY09 CAC report - College of Business combined accounts. Retrieved from

<http://www.it.iastate.edu/cac/reports/2008-2009/bus.pdf>

Iowa State University Information Technology Services. (2010, April 30). New student information technology packet. Retrieved June 2, 2010, from

<https://docs.google.com/fileview?id=0B-8JJciCQPgaYmJm2VkY2EtMWRjZi00ZGQxLWFiZjAtMzNjYTVkMzBiMDZi&hl=en>

Iowa State University Office of Institutional Research. (2009). *Iowa State University Fact Book* (p. 122). Iowa State University. Retrieved from <http://www.ir.iastate.edu/FB10/PDF/FB0910All.pdf>

Iowa State University Office of the CIO. (2007, May 15). Code of computer ethics and acceptable use. *Iowa State University Policy Library*. Retrieved April 19, 2010, from <http://policy.iastate.edu/policy/it/ethics/>

Iowa State University Office of the Registrar. (2008, December 18). Experimental courses: Iowa State University. Retrieved April 1, 2009, from <http://www.public.iastate.edu/~catalog/exp/07-09/exstu.html>

Iowa State University Parks Library. (2010, January 13). Facts & figures. Retrieved June 1, 2010, from <http://www.lib.iastate.edu/narrative-main/2026/11180>

Iowa State University Virtual Reality Applications Center. (2007a). The C6. Retrieved March 20, 2010, from <http://www.vrac.iastate.edu/c6.php>

Iowa State University Virtual Reality Applications Center. (2007b). *Second Life symposium*. Ames, IA. Retrieved from <http://connect.extension.iastate.edu/p29452072/?launcher=false&fcsContent=true&pbMode=normal>

Irvine, M. (2007, December 3). Are virtual gifts worth it? *AP Digital*. Retrieved from <http://www.smh.com.au/news/Technology/Are-Virtual-Gifts-Worth-It/2007/12/04/1196530609109.html>

- James, R. (2007, December 9). This virtual universe is what you make it. *The Post-Standard*, A1.
- Janis, I. (1983). *Groupthink: Psychological studies of policy decisions and fiascoes* (2nd ed.). Boston: Houghton Mifflin.
- Jefferson, L. (2007, November 16). A second look at Second Life. *Iowa State Daily*. Retrieved from <http://www.iowastatedaily.com/articles/2007/11/16/opinion/20071116-archive2.txt>
- Jenkins, H., Clinton, K., Robinson, A., & Weigel, M. (2006). *Confronting the challenges of participatory culture: Media education for the 21st century*. MacArthur Foundation. Retrieved from [http://www.storyofmysecondlife.com/wp-content/uploads/jenkins\\_white\\_paper.PDF](http://www.storyofmysecondlife.com/wp-content/uploads/jenkins_white_paper.PDF)
- John Lester. (2010). *LinkedIn*. Retrieved June 2, 2010, from <http://www.linkedin.com/profile?viewProfile=&key=8496871&authToken=3FCX&authType=name>
- Karon, J. (2007, October 5). Virtual worlds in the real world. *Chronicle of Higher Education*, A47.
- KCCI. (2007, May 8). Sites give people alter egos in virtual worlds. Retrieved April 1, 2010, from <http://www.kcci.com/technology/13276991/detail.html>
- Kemp, J. (2007, November 16). [SLED] University symposium: Second Thoughts About Second Life. Retrieved from <https://lists.secondlife.com/pipermail/educators/2007-November/016121.html>
- Krathwohl, D. (2002). A Revision of Bloom's Taxonomy: An Overview. *Theory into*

*Practice*, 41(4), 212-218.

Krathwohl, D., Bloom, B., & Masia, B. (1964). *Taxonomy of educational objectives: The classification of educational goals*. Longman Group Ltd.

LaPiere, R. (1965). *Social change*. New York: McGraw-Hill.

Larsen, J. (2010, March 29). Interview Request -- Second Life.

Larsen, J., & Silva, K. (2008). Learning languages in virtual worlds: An analysis of use and potential. In *CALICO Conference*. Presented at the The Computer Aided Language Instruction Consortium, San Francisco, CA. Retrieved from <https://calico.org/p-399-%20...html>

Lee, Y. (2008). Virtual self: 3D avatar as self expression in Second Life. In *2008 Proceedings*. Presented at the International Textile and Apparel Association, Schamburg, IL.

Lee, Y., & Hwang, J. Y. (2009). Second Life integration into three-dimensional textile and fashion product design: Applications, benefits, and opportunities. In *2009 Proceedings*. Presented at the International Textile and Apparel Association, Bellevue, WA. Retrieved from [http://www.itaonline.org/downloads/DA-Lee,%20Y-Second\\_Life\\_Integration.pdf](http://www.itaonline.org/downloads/DA-Lee,%20Y-Second_Life_Integration.pdf)

Lester, J. (2008). *Virtual worlds, real people*. Presented at the Association for Education in Journalism and Mass Communication, Chicago. Retrieved from [http://zero.hastypastry.net/pathfinder/public\\_slides/aejmc.ppt](http://zero.hastypastry.net/pathfinder/public_slides/aejmc.ppt)

Levinson, P. (2009). *New new media* (1st ed.). Boston: Allyn & Bacon.

Lindblom, C. E. (1959). The science of "muddling through". *Public Administration Review*, 19(2), 79-88.

- Linden Research, Inc. (2009a). How education enterprises use virtual worlds. Retrieved April 29, 2009, from <http://secondlifegrid.net/slfe/education-use-virtual-world>
- Linden Research, Inc. (2009b, March 19). Smithsonian's Latino virtual museum in Second Life. Retrieved October 10, 2009, from <https://blogs.secondlife.com/community/learninginworld/blog/2009/03/19/smithsonians-latino-virtual-museum-in-second-life>
- Linden Research, Inc. (2010a). Community Standards | Second Life. Retrieved November 30, 2009, from <http://secondlife.com/corporate/cs.php>
- Linden Research, Inc. (2010b). How meeting in Second Life transformed IBM's technology elite into virtual world believers. Retrieved April 29, 2009, from <http://secondlifegrid.net/casestudies/IBM>
- Linden Research, Inc. (2010c). Online Harassment | Second Life. Retrieved November 30, 2009, from <http://secondlife.com/policy/security/harassment.php>
- Linden Research, Inc. (2010d). Private Region Pricing | Second Life. Retrieved November 30, 2009, from <http://secondlife.com/land/privatepricing.php>
- Linden Research, Inc. (2010e). System Requirements. Retrieved July 1, 2010, from <http://secondlife.com/support/system-requirements/>
- Linden Research, Inc. (2010f, March 31). Terms of service. Retrieved March 8, 2010, from <http://secondlife.com/corporate/tos.php>
- Long, P. (2007, September 11). [SLED] Chronicle: Second thoughts about Second Life. Retrieved from <https://lists.secondlife.com/pipermail/educators/2007-September/014079.html>
- Loon, R. (2007a, September 11). [SLED] FULL TEXT: Second Thoughts About Second

- Life by MichaelBugeja. Retrieved from  
<https://lists.secondlife.com/pipermail/educators/2007-September/014119.html>
- Loon, R. (2007b, September 14). [SLED] Question/Idea re: Dr. Bugeja's. Retrieved from  
<https://lists.secondlife.com/pipermail/educators/2007-September/014195.html>
- Loon, R. (2007c, September 14). [SLED] Question/Idea re: Dr. Bugeja's. Retrieved from  
<https://lists.secondlife.com/pipermail/educators/2007-September/014195.html>
- Ludlow, P., & Wallace, M. (2007). *The Second Life Herald*. Cambridge, MA: MIT Press.
- Manovich, L. (2007). *The language of new media*. Cambridge, MA: MIT Press.
- Marx, G., & Muschert, G. (2008). Simmel on secrecy: A legacy and inheritance for the sociology of information. *The Possibility of Sociology: 100 Years of Georg Simmel's Investigations into the Forms of Social Organization*. Retrieved from  
<http://web.mit.edu/gtmarx/www/marx-muschert-simmel.pdf>
- Mason, J. B. (1995). Marketing education in the 1990's: A Dean's retrospective and prospective view. *Marketing Education Review*, 5, 1-8.
- McKiernan, G. (2008a). Search results for bugeja. *Friends: Social networking sites for engaged library services*. Retrieved April 1, 2010, from  
<http://onlinesocialnetworks.blogspot.com/search?q=bugaja>
- McKiernan, G. (2008b, January 15). Proposition: Social networking technologies will bring large [positive] changes to educational methods. Retrieved June 3, 2010, from  
<http://onlinesocialnetworks.blogspot.com/2008/01/proposition-social-networking.html>
- McKiernan, G. (2008c, May 14). [SLED] Research in VW listserv. Retrieved from  
<https://lists.secondlife.com/pipermail/educators/2008-May/022329.html>

- McKiernan, G. (2008d, May 15). [SLED] Research in VW listserv. Retrieved from <https://lists.secondlife.com/pipermail/educators/2008-May/022329.html>
- McLuhan, M. (1964). *Understanding media: The extensions of man*. New York: McGraw-Hill.
- Meadows, M. S. (2008). *I, avatar: The culture and consequences of having a Second Life* (1st ed.). Berkeley, CA: New Riders Press.
- Mennecke, B. (2010a, June 2). MIS 534.
- Mennecke, B. (2010b, June 30). Quick question inre: Second Life.
- Mennecke, B. (n.d.). Curriculum vitae. Retrieved from <http://www.design.iastate.edu/GIS/FILEDIR/MenneckeCV.pdf>
- Mennecke, B., Roche, E., Abrahamson, D., Konsynski, B., Lester, J., Rowe, M., & Townsend, A. (2007). Second Life and other virtual worlds: A roadmap for research. In *28th International Conference on Information Systems (ICIS)*.
- Mennecke, B., Terando, W., Janvrin, D., & Dilla, W. (2007). It's just a game, or is it? Real money, real income, and real taxes in virtual worlds. *Communications of the Association for Information Systems, 134*(141), 134.
- Mennecke, B., Triplett, J. L., Hassall, L. M., Heer, R., & Conde, Z. (2008). Embodied social presence theory. *SSRN eLibrary*. Retrieved from [http://papers.ssrn.com/sol3/papers.cfm?abstract\\_id=1286281](http://papers.ssrn.com/sol3/papers.cfm?abstract_id=1286281)
- Merrill, D. (2007, November 8). Online sex world lures many with dollars. *Iowa State Daily*. Retrieved from <http://www.iowastatedaily.com/articles/2007/11/08/fyi/20071108-archive0.txt>
- Messaris, P., & Abraham, L. (2001). The role of images in framing news stories. In S.

- Reese, O. Gandy, & A. Grant (Eds.), *Framing public life: Perspectives on media and our understanding of the social world* (pp. 215–226). Mahwah, N.J.: Lawrence Erlbaum Associates.
- Meyers, R. (2010, June 9). Second Life.
- Miller, R. (2006, December 20). Second Life millionaire pummeled with penises. Retrieved November 30, 2009, from <http://www.joystiq.com/2006/12/20/second-life-millionaire-plagued-with-peckers>
- Nah, F., Mennecke, B., & Schiller, S. (2009). Team collaboration in virtual worlds: The role of task complexity. In *MG 2009 Proceedings*. Presented at the Mardi Gras Conference, Baton Rouge, LA.
- Nails, D. (2009, November 7). Socrates. *Stanford Encyclopedia of Philosophy*. Retrieved March 10, 2010, from <http://plato.stanford.edu/entries/socrates/>
- Ohio University. (n.d.). Ohio University Without Boundaries. Retrieved March 22, 2010, from <http://www.ouwb.ohiou.edu/>
- Olson, G. (2009, March 30). ISU's president: Stimulus money to dictate layoffs. *Des Moines Register, The (IA)*, 3A.
- Pattee, G. (1909). *Practical argumentation*. New York: The Century Company.
- Perrow, C. (1981). Disintegrating social sciences. *New York University Education Quarterly*, 1-9.
- Plato. (1972). *Plato's Phaedrus*. (R. Hackforth, Tran.). Cambridge University Press.
- Podsakoff, P., MacKenzie, S., Lee, J., & Podsakoff, N. (2003). Common method biases in behavioral research: A critical review of the literature and recommended remedies. *Journal of applied psychology*, 88(5), 879–903.



- Postman, N. (2005). *Amusing ourselves to death: public discourse in the age of show business* (20th ed.). New York: Penguin (Non-Classics).
- Prell, S. (2009, May 2). It's summer break, your Facebook and MySpace can wait. *Iowa State Daily*. Ames, IA. Retrieved from <http://www.iowastatedaily.com/articles/2009/05/02/opinion/doc49fcbd6bdeea7157450550.txt>
- Radcliffe, J. (2008, April 20). Schools confront virtual world - Second Life software seen as blessing, curse. *Houston Chronicle*, 1 MetFront.
- Reid, E. (1994). *Cultural formations in text-based virtual realities* (Masters Thesis). University of Melbourne. Retrieved from <http://www.aluluei.com/cult-form.htm>
- Ritzer, G. (1965). Sociology: A multiple paradigm science. *American Sociologist*, (10), 156-167.
- Ritzer, G. (1981). *Toward an Integrated Sociological Paradigm: The Search for an Exemplar and an Image of the Subject Matter*. Boston: Allyn & Bacon.
- Ritzer, G. (2006). *The Blackwell encyclopedia of sociology* (Har/Pas., Vols. 1-11). Malden, MA: WileyBlackwell.
- Ritzer, G., & Bell, R. (1981). Emile Durkheim: Exemplar for an integrated sociological paradigm. *Social Forces*, 59(4), 966-995.
- Roblyer, M. D. (2006). *Integrating educational technology into teaching* (4th ed.). Upper Saddle River, NJ: Pearson/Merrill Prentice Hall.
- Rodriguez, J. (2009a, February 13). [SLED] Virtual worlds in world language teacher development. Retrieved from <https://lists.secondlife.com/pipermail/educators/2009-February/030000.html>

- Rodriguez, J. (2009b, March 24). Preguntas. Retrieved from <https://mail.google.com/mail/?shva=1#label/Jodido+T%C3%A9sis/1203f3d8b04117c4>
- Rodriguez, J., & Pardo-Ballester, C. (2008). Using design-based research to guide the development and evaluation of instructional materials for hybrid Spanish courses. In *TSL 2008*. Presented at the The 6th Annual Conference on Technology for Second Language Learning, Ames, IA. Retrieved from [http://thevvt-site.net/tsll/index.php?option=com\\_content&view=article&id=59&Itemid=76](http://thevvt-site.net/tsll/index.php?option=com_content&view=article&id=59&Itemid=76)
- Rodriguez, J., Silva, K., Larsen, J., & Sadler, R. (2010). Capturing video, audio, and text in Second Life: A hands-on experience. In *CALICO Conference*. Presented at the The Computer Assisted Language Learning Consortium, Amherst, MA. Retrieved from <https://calico.org/conference/publicBrowse.php>
- Rodriguez, M. (2008, September 10). School of business program to launch virtual campus on Second Life. *Herald-Times*. Retrieved from <http://docs.newsbank.com/s/InfoWeb/aggdocs/AWNB/1231FF7A51038B88/0EB4DDE3EEA45960>
- Rogers, E. (1971). *Communication of innovations; a cross-cultural approach* (2nd ed.). New York: Free Press.
- Rogers, E. (2003). *Diffusion of innovations* (5th ed.). New York: Free Press.
- Roos, F., & Vinluan, J. (2004, June 13). State faces a hard task in unloading fiber optics. *Des Moines Register*, 1A.
- Rossi, L. (2007, July 10). Professors add life to courses through Second Life. *Des Moines*

- Register*. Des Moines, IA. Retrieved from  
<http://www.livingethics.org/miscellaneous/DesMoinesRegister.com.pdf>
- Rossi, L. (2008, February 29). ISU journalism director challenges cyber trend. *Des Moines Register, The (IA)*, 1B.
- Ruff, J. (2008, May 29). In a virtual world, there's real money. *Omaha World-Herald (NE)*. Retrieved from  
<http://docs.newsbank.com/s/InfoWeb/aggdocs/AWNB/120FDF12272360F0/0EB4DDE3EEA45960>
- Sands, N. (1869). *The philosophy of teaching; the teacher, the pupil, the school*. New York: Harper & Brothers.
- Schauer, F. F. (2009). *Thinking like a lawyer*. Cambridge, MA: Harvard University Press.
- Schulman, P. (1975). Nonincremental policy making: Notes toward an alternative paradigm. *The American Political Science Review*, 69(4), 1354-1370.
- Scopes, L. (2009). *Learning archetypes as tools of cybergogy for a 3D educational landscape: A structure for eTeaching in Second Life* (Ph.D. Dissertation). University of Southampton, Southampton, United Kingdom. Retrieved from  
[http://eprints.soton.ac.uk/66169/1/Learning\\_Archetypes\\_as\\_tools\\_of\\_Cybergogy\\_for\\_a\\_3D\\_Educational\\_Landscape\\_-\\_Lesley\\_J.M.\\_Scopes\\_2009\\_V2.0.pdf](http://eprints.soton.ac.uk/66169/1/Learning_Archetypes_as_tools_of_Cybergogy_for_a_3D_Educational_Landscape_-_Lesley_J.M._Scopes_2009_V2.0.pdf)
- Shah-Nelson, C. (2007, September 14). [SLED] Question/Idea re: Dr. Bugeja's. Retrieved from <https://lists.secondlife.com/pipermail/educators/2007-September/014195.html>
- Shieh, D. (2009, February 10). Professors regard online instruction as less effective than classroom learning. Retrieved April 29, 2009, from

<http://chronicle.com/free/2009/02/11232n.htm>

Shoemaker, P., Tankard, J., & Lasorsa, D. (2003). *How to build social science theories*.

Sage Publications, Inc.

Silva, K. (2008, February 21). [SLED] Teaching foreign languages in SL. Retrieved from

<https://lists.secondlife.com/pipermail/educators/2008-February/019100.html>

Silva, K., Correia, A., & Pardo-Ballester, C. (2009). A faculty mentoring experience:

Learning together in Second Life. *Society for Information Technology & Teacher Education International Conference, 2009(1)*, 1312-1317.

Silva, K., & Larsen, J. (2008). Where the language worlds meet: Combining real life and

Second Life in classroom materials design. In *TSLL 2008*. Presented at the The 6th Annual Conference on Technology for Second Language Learning, Ames, IA.

Retrieved from

[http://thevvt-site.net/tsll/index.php?option=com\\_content&view=article&id=59&Itemid=76](http://thevvt-site.net/tsll/index.php?option=com_content&view=article&id=59&Itemid=76)

Silva, K., & Pardo-Ballester, C. (2009). A faculty mentoring experience: Learning

together in Second Life. In I. Gibson (Ed.), *Society for Information Technology & Teacher Education International Conference* (Vol. 2009, pp. 1312-1317).

Presented at the AACE, Chesapeake, VA.

Smith, A. (1839). *An inquiry into the nature and causes of the wealth of nations*. London:

Charles Knight & Co.

Stegmeir, M. (2008, April 26). ISU professor questions role of technology in classroom.

*Waterloo Courier (IA)*. Retrieved from

<http://docs.newsbank.com/s/InfoWeb/aggdocs/AWNB/1204FE932E5E3570/0EB>

4DDE3EEA45960

Sullivan, S. (2000, January 7). LAS honors five teachers. *Inside Iowa State*. Ames, IA.

Retrieved from <http://www.iastate.edu/Inside/2000/0107/las.html>

Tahmincioglu, E. (2008a, March 9). The faculty is remote, but not detached. *New York Times, The (NY)*, 15.

Tahmincioglu, E. (2008b, August 22). Business, and startups, in Second Life.

*BusinessWeek: Online Magazine*. Retrieved from

[http://www.businessweek.com/magazine/content/08\\_68/s0808041522849.htm?campaign\\_id=rss\\_topStories](http://www.businessweek.com/magazine/content/08_68/s0808041522849.htm?campaign_id=rss_topStories)

Tellis, W. (1997a). Application of a case study methodology. *The Qualitative Report*, 3(3), 1-17.

Tellis, W. (1997b). Introduction to case study. *The Qualitative Report*, 3(2), 1–11.

*The beast file: Google*. (2010). . Australian Broadcasting Company. Retrieved from

<http://vimeo.com/9925756>

The Lantern. (2009, June 20). The Lantern - crime briefs. Retrieved June 2, 2010, from

<http://www.thelantern.com/2.1345/crime-briefs-1.74419>

The MMO is 30-years-old. (2008, October 20). *Kotaku*. Retrieved April 19, 2010, from

<http://kotaku.com/5066824/the-mmo-is-30-years-old>

Thilmany, J. (2008, October). Real-life business in Second Life. *Mechanical Engineering Magazine*. Retrieved from

<http://memagazine.asme.org/articles/2008/october/InOutOutput.cfm>

Thompson, A. (2010, March 24). *Roger Volker Experimental Technology Classroom dedication*. Iowa State University.

- Todras-Whitehill, E. (2005, August 3). If you virtually build it, they will virtually check it out. *The New York Times*. Retrieved from <http://www.nytimes.com/2005/08/03/technology/techspecial3/03etwbox.html>
- Trevena, S. (2007, June 14). [SLED] "the foremost symbol of digital decadence that we confront in the so-called information age.". Retrieved from <https://lists.secondlife.com/pipermail/educators/2007-June/010923.html>
- Tucker, C. (2007, September 12). Re: [SLED] Question/Idea re: Dr. Bugeja's Chronicle article To: "SL Educators. Retrieved from <https://lists.secondlife.com/pipermail/educators/2007-September/014203.html>
- Vaughn, S., Schumm, J., & Sinagub, J. (1996). *Focus group interviews in education and psychology*. Thousand Oaks, CA: Sage Publications.
- Vega-Garcia, S. (2010, June 9). Second Life and Curriculum and Instruction. Virtual worlds and language learning. (2009). . Retrieved June 22, 2010, from <http://sl4calico.pbworks.com/Introductions>
- Volker, R. (1970). *Development of a multimedia system for teaching high school biology* (Doctoral Dissertation). Iowa State University.
- Waggoner, K. (2010). Sociology 401 syllabus.
- Waggoner, K., & Roark, E. (2006). *Look Ma, We're Still Theorizing: The Continued Search for Theoretical Integration*.
- Wang, X. H., & Yang, B. Z. (2001). Fixed and sunk costs revisited. *The Journal of Economic Education*, 32(2), 178-185. doi:10.2307/1183493
- Wortmann, K. (2008). ISU TECH Team (now called JETS) activity summary. Iowa State University Center for Excellence in Learning and Teaching. Retrieved from

<http://www.it.iastate.edu/cac/proposals/2008-2009/final/02.pdf>

Wrong, D. (1961). The oversocialized conception of man in modern society. *American Sociological Review*, (26), 183-193.

Yepsen, D. (2004, March 30). Junk ICN : Give state and businesses a break. *Des Moines Register, The (IA)*, 7A.

Yin, R. (1984). *Case study research: Design and methods* (2nd ed.). Thousand Oaks, CA: SAGE Publications.

## VITA

NAME OF AUTHOR: Samuel Sevidal Berbano

DATE AND PLACE OF BIRTH: September 13, 1987, Ames, IA

### DEGREES AWARDED:

M.S. in Journalism and Mass Communication, Iowa State University, 2010

B.A. in Journalism and Mass Communication, Iowa State University, 2008

B.A. in Political Science, Iowa State University, 2008

### HONORS AND AWARDS:

Rebecca and John Hsu Graduate Fellowship, 2008-2010

University Honors Program Graduate, 2008

George Washington Carver Scholarship, 2004-2008

Phi Kappa Phi, 2005

Phi Theta Kappa, 2002

### PROFESSIONAL EXPERIENCE

Teaching Assistant, Honors Program, Iowa State University, 2006, 2007, 2009

Research Assistant, Greenlee School of Journalism and Mass Communication,  
Iowa State University, 2008-2010

### PROFESSIONAL PUBLICATIONS

Berbano, S. (2007). Constitutional Law (Samuel) #2: Mootness. Life of a Law Student.  
Retrieved January 11, 2010, from [http://www.lifeofalawstudent.com/  
category/podcasters/samuel-berbano/](http://www.lifeofalawstudent.com/category/podcasters/samuel-berbano/).

Berbano, S. (2007). Constitutional Law (Samuel) #1: Standing. Life of a Law Student.  
Retrieved January 11, 2010, from [http://www.lifeofalawstudent.com/  
category/podcasters/samuel-berbano/](http://www.lifeofalawstudent.com/category/podcasters/samuel-berbano/).

Berbano, S. (2006) Library 160 Honors. Iowa State University, Freshman Honors  
Program.

Berbano, S. (2007). The web, the world, and the church: Social networking and modern  
values. United Methodist Church, Iowa Conference Podcasts.