



Using a Virtual World for a High-Impact Educational Practice

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Abstract

Aztlan Island, SDSU in Second Life, was an initiative demonstrating the use of a 3D virtual world to facilitate high-impact educational practices (HIEPs) [1] in a large, urban public university. High-impact educational practices include capstone courses and projects, common intellectual experiences, undergraduate research, study abroad and internships. They contribute to increases in student retention and academic success [1] by providing students with tailored learning experiences aligned with their academic and life goals.

The Second Life platform is an online, 3D virtual world. It is also a user-created, 3D-design space that affords users highly personalized, high-tech [2] learning through world-building [3]. World-builders create and manipulate 3D objects and space, and manipulate computer code to add interactivity to them. World-builders also embody an avatar through which they inhabit their design space with others, and through which they encounter “authentic modes of being” [4], such as walking through their built spaces and observing others interacting with them. With these affordances in mind, virtual world-building accommodates at least three aims of HIEPs. First, it is a learner-centric endeavor by providing a context for students to generate and measure their own learning objectives. Second, it is a real-world endeavor. Students acquire skills and knowledge relevant to their everyday and professional lives. And third, virtual worlds are cultural locations of human endeavors students will encounter throughout their lives.

One focus of the Aztlan Island initiative was to give students in art and design disciplines opportunities to world-build in academically significant ways. To do this, the initiative provided virtual space, pedagogical and technical support, and encouragement to faculty and students to explore its potential in these disciplines. This paper begins by describing high-impact educational practices and the goals of the Aztlan Island initiative. It then describes the process and impact of two projects. In the first project, students created 3D models of campus architectural landmarks for the island. This was an extra credit project in an upper-level undergraduate television set design course. In the second, students conceptualized and built an art gallery exhibit. This was for the capstone project of an upper-level undergraduate art gallery exhibit design course. Four students and two faculty members were involved in these projects. Data are drawn from interviews, emails, observations, and project documentation and artifacts.

1. High-impact educational practices

From Socrates to bell hooks, practitioners have understood education as an intimate exchange between the learned and learner. High-impact educational practices (HIEPs) formalize this understanding by contributing to “students cumulative educational achievements across multiple levels of the college curriculum” (p.2) [1]. HIEPs include capstone courses and projects, first year common intellectual experiences, community-service learning, undergraduate research, and study abroad.

These practices embody educative experiences that inspire in students a capacity and desire to learn more [5]. They are learning outcome focused. When learning outcomes are articulated, educative experiences are framed; they are assessable. Moreover, they are distinguishable from non-educative experiences [5]. A HIEP then can be thought of as designed experiences. We design for learning based on how people learn [6], and we design curricula and employ pedagogies based on what contributes to students’ academic success [1][5][6].

2. Aztlan Island, SDSU in Second Life

This paper addresses one goal of the Aztlan Island initiative: Encourage faculty to exploit the Second Life 3D design space in service to high impact practices in design disciplines [7]. Second Life is an



online, user-created virtual world in which users world-build, that is, they embody avatars, create 3D spaces and objects, and program interactivity into them.

Aztlan was supported by pICT, People, Information and Communication Technologies, an innovative faculty development program in the Division of Undergraduate Studies. The Division houses programs dedicated to high impact practices [8]. From 2005 to 2011, pICT and the Center for Teaching and Learning, also housed in the Division, infused a culture of innovative teaching practices into undergraduate curricula. Aztlan was an outcome of these efforts, an accumulation of five years of research and development of virtual worlds for teaching and learning, (see [3][9][10]) and six years of faculty development programming (see [11][12][13][14][15]).

3. Methodology

I used an evaluative lens [16] and action-research [17] to ascertain the effectiveness of the initiative. The projects reported here were pilots intended to improve our practice and implementation of the initiative. Specifically, we wanted to know what students expected from the experience and what they actually got from it. We also wanted to know what faculty expected their students to get from it, and what they thought they had actually got. Data were drawn from interviews, emails, observations and artifacts from participating students and faculty.

4. The process

4.1 Engaging faculty and student interest

Technology is embedded in the fabric of a design field. It is a cultural artifact and a tool of a trade. So to engage participants' interest in the unfamiliarity of Second Life as a design tool, I presented it in a spirit of experimentation and collaboration.

I first sent faculty in the design disciplines a personalized email that included a summary of the goals and benefits of the initiative. David Morong, in Theater, Television and Film, and Tina Yapelli, in Art responded. In our initial meetings, we discussed the initiative's aims and then formulated a student project in a specific course. I then presented the opportunity to David's Television, Film and New Media class, and Tina's Art Gallery Exhibit Design class, two upper-level undergraduate courses. I demonstrated building and highlighted benefits of participating, such as producing a digital portfolio piece, and gaining experience with an emerging technology.

In David's class, students would receive extra credit for building replicas of campus historical buildings for the island. They would use Sketchup to design models, and Sketchlife to import them into Second Life. In Tina's class, students could use Second Life rather than matt board to build their capstone project, a concept and model of an art gallery exhibition. Two students from each class participated.

4.2 World-building together

4.2.1 Architectural models

David and I devised two design cycles [18]. The first cycle is reported here. Chris and Andy built our Library's Dome (Figure 1) and a hall, Scripps Cottage (Figure 2), and then imported them into Second Life. They worked closely with David over the fall 2009 semester. During the process, David realized that Sketchlife was too complicated. Students were novices with 3D design language, he said, expecting them to learn the import software language too was expecting too much. So he and I collaborated on importing the models. He handled the Sketchlife; I handled Second Life.

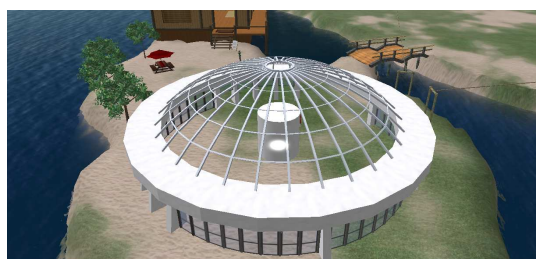


Figure 1 Chris' Library Dome Model in Second Life



Figure 2 Andy's Scripps Cottage Model in Second Life

4.2.2 Art gallery exhibits

Immediately following my presentation in Tina's class, Monica and Kate said they wanted to participate. I followed up with an email to them. It included resources for getting started with the platform and world-building. We met weekly in my office, and I checked in regularly with them per email and in Second Life. They also met regularly with Tina, as did all the students. She guided them on realizing gallery design concepts and principles. Kate said she helped them choose color schemes, textures, and placement of objects.

I guided them on realizing their projects in Second Life. At our initial meeting, we reviewed the project learning outcomes summarized here. "Conceive, curate, design a theoretical exhibition, and construct a model to represent the exhibition [19]." We then delegated tasks we had categorized as *technical*, *conceptual* and *instructional*.

Monica and Kate learned to world-build as many users do, through learning by doing and using available resources [3]. Kate used the building tutorials we provided on Aztlan, and worked mostly from home. Monica said she figured things out as she went and worked mostly in the department's computer lab. World-building also involves buying and editing objects. They each used funds we had provided to shop for objects, such as furniture, for their models. At the end of the semester, I attended students' project presentations. Their finished projects are illustrated in figures 3 and 4.



Figure 3 Monica's Exhibit "Art and Couture, Jackson Pollock and Dolce & Gabbana"



Figure 4 Kate's Exhibit "Brotherly Love, Paul Gauguin and Vincent Van Gogh"

5. Outcomes, experiences, and reflections

All students completed their projects reaching or exceeding instructors' expectations and learning outcomes. The architectural models became island landmarks, contributing to the University's identity in and outside of Second Life, as David had articulated in his outcomes. As one of his last engagements before leaving office, the University President publicly endorsed the island's goals and praised Andy and Chris' contributions [7]. They each received a letter of appreciation for their contributions as well.

With David's oversight, students' time and effort remained focused on the learning outcomes: creating architectural models. When David saw students were struggling with Sketchlife, he took over the task himself. Novices are often unable on their own to judge the value of a given task relative to others. The expert's ongoing assessment is critical to ensuring student success. In this case it meant steering students away from what might have resulted in a non-educative experience, namely frustration using a technology that was unforeseeably difficult to use, and only peripherally relevant to the learning outcomes.

David reflected afterwards saying that some students would be capable of handling Sketchlife. It needed better instructions, and he planned to write them out. The experimental nature of our efforts, and the design cycle process we had devised, allowed us to use this initial design cycle to reflect and improve on our practice, and to model for students and colleagues an iterative design approach to HIEPs.

Something similar occurred in Tina's course too. Importing and scaling the floor plan for each model was unforeseeable challenging and thus time-intensive, involving graphic design and world-building expertise none of us had. I consulted a more experienced builder to help us. Kate managed to complete the task on her own; I took it over for Monica.

In reflecting on the situation during and afterwards, I noted the issue of "time spent on the technology" as problematic. Both Monica and Kate had commented negatively on how much time they needed to get things done. Nothing could be built without the floor plan, thus it held up other work. My research [5,8] and observations of technology use generally echo a similar sentiment, namely that using technology requires more time to accomplish a task than expected.

While some individuals have, and enjoy the time spent figuring out how to use technology for a desired aim, we cannot assume that everyone approaches the task with a similar predisposition. Even given the range of assumptions underpinning this largely anecdotal generalization, time is an essential element of all aspects of teaching and learning, and thus the issue of time spent on technology is non-trivial. I decided to provide future students with specifications for creating a floor plan image, I would then import and setup in Second Life. Moreover, I resolved to pursue a new research direction focusing on how women learn to use particular technologies in their everyday lives.

One objective of a high impact practice is developing students' critical thinking. By framing our work in terms of types of tasks (e.g. technical, conceptual and instructional), I modeled for Monica and Kate an analytical approach to structuring ill-formed problems. By labeling some of our work as instructional and referring to it often, I underlined the fact that our successes and challenges would guide those of future students. Kate and Monica said they had got a lot from our time together. Tina confirmed that



they appreciated having both her and I to turn to. In addition, I observed over time how each of them could more effectively articulate her knowledge about world-building and our process.

Finally, David and Tina reflected positively on their experiences, saying that students got out of the projects what they had expected. They said they themselves had learned a great deal about the technologies. I attributed these positive outcomes to their willingness to take pedagogical risks. For example, Tina was initially concerned about not having time to learn Second Life. In the end, her unfamiliarity with the technology empowered Monica and Kate to become the experts. We each had a valued role to play in our small community. Both Tina and I reflected together how well this arrangement seemed to work for the students and for her.

In closing, I considered these pilots successful. They improved the Aztlan Island initiative, and the implementation of this high-impact educational practice.

References

- [1] Kuh, G. D. (2008). High-impact educational practices: What they are, who has access to them, and why they matter. Association of American Colleges and Universities.
- [2] Aurilio, S. (2012). Where are the high-tech women? Findings from an educational study of a virtual world. Paper presented at 6th International Technology, Education and Development Conference. Valencia, Spain.
- [3] Aurilio, S. (2010). Learning in the wild of a virtual world. (Doctoral Dissertation, Accession Order No. [3399141]). <http://tinyurl.com/yjojsu3>
- [4] Allen, B. S., & Otto, R. G. (1996). Media as lived environments: the ecological psychology of educational technology. In David H. Jonassen (Ed.), Handbook of research for educational communications and technology (199-225). New York: Macmillan.
- [5] Dewey, J. (1938). Experience and education. New York: Touchstone
- [6] Bransford, J. D., Brown, A. L., & Cocking, R. R. (eds.). (2000). How people learn. Washington, D.C.: National Academy Press.
- [7] Aurilio, S. (2009). Aztlan Island, SDSU in Second Life. <http://sdsu-aztlan.wikispaces.com/home>
- [8] Division of Undergraduate Studies, San Diego State University (n.d.). <http://dus.sdsu.edu/dus/Default.aspx>
- [9] Aurilio, S. (2007). About the piCTsl Farm. <http://pictsl.edublogs.org/about/>
- [10] Aurilio, S. (2008). Introducing university faculty and instructional staff to second life: A pilot initiative. Presentation at the EDUCAUSE Learning Initiative Annual Meeting. San Antonio, TX.
- [11] Aurilio, S. (2009). piCT, People, Information and Communication Technologies Impact. <http://pict.sdsu.edu/impact/index.html>
- [12] Burks, M., & Aurilio, S. (2009). piCT-People, Information and Communication Technologies: How Have Faculty Fellows Changed? Focus Group Results. <http://pict.sdsu.edu/impact/focusgroupreport.pdf>
- [13] Aurilio, S. (2009). piCT-People, Information and Communication Technologies: Faculty Fellows Survey Results, Assessment of Students' Learning Gains of 21st Century Skills & Program Evaluation. <http://pict.sdsu.edu/impact/surveyreportfinal.pdf>
- [14] Aurilio, S., & Atkins, C. (2007). piCT Faculty Fellows: Creating a Living, Learning organization at San Diego State University. Presentation at the 2007 WASC Annual Meeting, San Jose, CA
- [15] Aurilio, S., & Atkins, C. (2007). People, information, and communication technologies: A faculty development initiative. Presentation at Educause Western Regional Conference, San Francisco, CA.
- [16] Russ-Eft, D. & Preskill, H. (2001). Evaluation in organizations: A systematic approach to enhancing learning, performance and change. Cambridge, MA: Persues Publishing.
- [17] Whitehead, J. (1989). Creating a living educational theory from questions of the kind, 'How do I improve my practice?'. Cambridge Journal of Education, 19(1). 41-52.
- [18] Aurilio, S. (2009). Project Proposal for David Morong's 3D Class. http://sdsu-aztlan.wikispaces.com/3D_design
- [19] Aurilio, S. (2009). Prototyping Learning with Second Life. http://sdsu-aztlan.wikispaces.com/art_exhibits.