Collaboration, Creativity and Learning in a Play Community: A Study of The University of There

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ABSTRACT

This paper is the first in a series presenting findings from a yearlong mixed-methods study of the University of There (UOT), a player-run distributed learning community within the online graphical 3D world *There.com*. UOT is both a large-scale collaborative project and a learning environment within a virtual world originally designed as a social play space. The study employed in-world participant observation, in-world and face-to-face interviews, analysis of player-created virtual artifacts, study of extra-virtual and supplemental media (such as web sites, videos and forums), as well as a survey instrument, to understand the dynamics of this distributed, collaborative learning community.

The study centered on the following research questions:

How does distributed play motivate creative collaboration and learning?

How is creative collaboration in game communities sustained over time? What motivates players to maintain engagement in both the long and short term?

How does the game software itself support or hinder collaboration and learning? How do players exploit, subvert or augment play software to support these activities?

What interaction tools and methods do players use to undertake creative collaboration and support learning and teaching?

What can practices of both collaboration and teaching within the play-driven context of the University of There teach us about distributed collaboration and learning in general? Can these principles be translated into other contexts?

The study found the following:

Play creates forms of affinity, commitment and attention [1], three factors which, according to Nardi, enhance collaboration.

Staff and faculty reported that their volunteer contribution to the UOT was a source of happiness. Personal relationships, creative activities, and a love of learning were other motivating factors.

The play context provided staff and instructors with a framework in which to play with teaching, resulting in experimental "folk" methods, many of which reflected well-studied theories of learning in games.

In addition UOT's being a peer-based constructionist learning community, the study concluded that *There.com*'s "culture of constructionism" [2] makes it a learning environment by definition, since players *must* learn in order to create.

Figure 1: Players at the University of There participate in a graduation ceremony. (Image: Bette)

Keywords: Learning Communities, Play Communities, Distributed Collaboration, Distributed Learning, Virtual Worlds, Online Games.

BACKGROUND AND METHODOLOGY

Background

The study builds on previous research that identified the phenomena of "emergent authorship" [3,4] and "productive play" [5]: Contrary to prior assertions that play is inherently "unproductive" [6,7], these studies found that highly engaged players, especially those inspired by a strong connection to their communities, could transition into a mode of creative productivity [5,8]. Thus engaged in a process of cultural production, players were motivated to embark on often complex and challenging collaborative, creative endeavors. Castronova [9], Yee [10], and others [11], present similar notions around the concept of labor in games, but with less of an emphasis on creative practices. Nardi's recent research in *World of Warcraft,* focusing on the dynamics of social interaction, learning, and gender in modding communities [12-14] as well as Poremba [4] and Hayes et al's [15] studies of *Sims* modding and skinning communities also uncovered similar patterns of creative production and shared learning, particularly among women.

Methodology

The mixed-methods study was conducted over a one-year period, starting in the summer of 2008 and concluding in the summer of 2009. The research team operated from a field station provided by the UOT on its campus. (Figure 2) Research methods included in-world participant observation, in-world and face-to-face interviews and an online survey instrument. The PI (Pearce) and two graduate assistants (Pauline Chan and Katherine Mancuso) conducted fieldwork by attending staff meetings, classes, UOT events, informal social activities, and other gatherings related to the UOT. Data collected by the research team, including field notes, chat logs, e-mail correspondence, forums and web sites, was compiled into a Filemaker Pro database. Accompanying screenshots complemented the textual data. The survey instrument was still in progress at the time of this writing, although some preliminary findings are presented here.

Figure 2: Georgia Tech field station.[1]

ABOUT THERE.COM

Overview

There.com, typically referred to simply as "There," is a persistent, 3D graphical world that was founded in 2003, the same year as *Second Life*. It is virtual home to a an estimated 1.8 million players from the United States, Canada, Europe, South America, Southeast Asia, and other regions. Thereians (as they call themselves) range in age from 13 to 70 years old, and 53% percent of them are female.[2] *There.com* is a classic example of a social virtual world or "metaverse," in which players engage in a wide range of both structured and unstructured social interactions, creating their own environments, communities, events and content.

The PI has been studying emergent cultures in *There.com* since 2004 with a particular focus on the effect of game and software design on emergent behavior. This section will touch briefly on relevant aspects of *There.com*'s economic structure, its software affordances, its governance and its culture, as well as some of the terminology that will be used in this paper.

Economy/Revenue Model

There.com's revenue model is based on a complex synergy between four basic components: subscriptions, real estate fees, developer fees, and fees associated with its in-world auction system. Like other virtual worlds, *There.com* has its own currency, Therebux, which undergirds its economy.

Subscription/Membership

Basic *There.com* membership is free, but a one-time Premium membership fee is required to take advantage of some of its key features, such as lip-synched voice and the ability to give and receive gifts. The voice feature is necessary to fully engage socially within a speech-centered culture, and the ability to receive gifts (in gaming parlance, "twinking") is a common means for newcomers to become acclimated to a new virtual world community. All other transactions listed below take place with Therebux, which players may purchase from Makena, *There.com*'s owners.

Real Estate

There.com has three modes of real estate: rental of pre-existing *There.com* property, temporary "PortAZones" (also called PAZes), and Neighborhoods. PAZes are temporary layouts that players can save to their inventories and pop up anywhere that is not already occupied; PAZ fees are charged by hours open. The first two forms, which were the only ones originally available, gave rise to a nomadic culture with provisional communities clustering together PAZes, with frequent migration patterns. Neighborhoods, a more recent feature proposed by players, are typically owned by individuals who then rent out "lots" to community members. While there is no group ownership in

There.com, Neighborhoods were envisioned as a means for *There.com* communities to form permanent settlements.

Content Creation

There.com's content creation environment is far more controlled than that of *Second Life*. Content creation takes place entirely out-of-world using traditional development software such as Adobe Photoshop® and Corel® Paint Shop Pro (for 2D design), and Gmax, a free variant of 3D Studio Max (for 3D). This "walled garden" approach means that in order to introduce new content into the world, whether for personal use or for sale in *There.com*'s online auction system, developers must submit items for review by the company for a fee. Items are vetted based on conformance to strict PG-rated content standards and intellectual property policy; *There.com* will not allow any content that violates intellectual property, including that of other players, and there are very serious consequences for IP violations of any kind.

Commerce

As mentioned earlier, all transactions are conducted with Therebux. The primary marketplace is an in-world auction system. Unlike *Second Life*, where purchases are made in-situ in the virtual world, the auction brings up a separate browser within the client window, and functions similarly to eBay. The company extracts a listing fee from sellers as well as a wholesale fee for each completed transaction. While most sales take place within in this system, there are also informal transactions that take place in-world between players. In addition, a recently-introduced mannequin feature allows developers to display their fashion items and then direct players to the auction system for purchases.

Community Management and Governance

Makena Technologies, owners of *There.com*, have a unique, hands-on approach to governance. A staff of community and events managers is responsible for hosting various areas and events that are open to the entire Thereian populace, and which create anchors for player groups to convene and participate, as well as to promote commerce. Examples include holiday and theme weeks, such as Halloween, Pirate Week and Geek Week, sporting events, such as the weekly Cross-Country Race and the annual Theregames Olympics-style competition, as well as sponsored events, such as the Cosmo Girl Prom, the Coke Scion areas, among others. Makena has a close relationship with its players, and most of these events include player participation in the their design and operation. Players are also involved in some community functions, such as new player welcomers. *There.com* has a quasi-democratic Member Advisory Board (MAB), which consists of "representatives" who are typically nominated by players and selected by Makena. The MAB can be very influential and, among other things, was instrumental in instigating the Neighborhood feature.

Culture

Because of its "all ages" ethos, and its low age limit (13, in contrast to *Second Life*'s strict over-18 policy), *There.com* attracts a unique demographic that tends towards younger members (under 18) and older members (over forty/baby boomers). There is a significant base of longtime members dating back to its first and second years of operation, which is unusual in the trend- and hype-infused context of virtual worlds. While there is some sex culture in *There.com*, the company discourages overt sexual practices by constraining content and monitoring behavior.

This study grew out of the PI's prior work in *There.com* with the Uru Diaspora, players from the defunct Myst-themed MMOG *Uru: Ages Beyond Myst* who immigrated into other virtual worlds and games, including *There.com* and *Second Life* [8]. One of the largest ongoing communities in *There.com*, the Uru community, primarily baby boomers, brought with it from *Uru* a strong sense of community and service, which, though initially devoted to its own group, eventually expanded to include the *There.com* community as a whole. Uru-Thereians have had a significant influence on the culture of *There.com*. They represent some of the top developers, have had a strong presence on the MAB, were the primary instigators of the Neighborhood system, and have some of the largest real-estate holdings in *There.com*. The founders and the majority of the staff of the University of There are members of this "fictive ethnic group" [16].

UNIVERSITY OF THERE: HISTORY, STRUCTURE AND ORGANIZATION

History

The University of There represents a unique collaboration between a virtual world company and its players. While the UOT is an "official" *There.com* facility owned by Makena, the company that operates the world, it is entirely run by players on a volunteer basis. According to official documents created by the staff, the idea was originally initiated in June of 2004 by *There.com's* Programming and Activities Manager. After she vetted the idea with some key community members, Wingman[3] agreed to serve as the Dean and other (mostly Uru-Thereian players) followed suit. The UOT was officially founded in July of 2004 and classes officially began the following August.

Description

The main function of the UOT is to serve as a learning resource the *There.com* community. The hub of UOT is its virtual campus [Figure 3], donated by Makena, and comprising a number of player-created structures. In addition to classrooms, the UOT also houses an art museum, a library, the Society for There Archeology,

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[3] All avatar names used in this paper are pseudonyms.

virtual sports facilities, a botanical garden and zoo, a flight school and an International Gateway celebrating cultural diversity.

Figure 3: UOT campus overview.

Because content creation takes place out of world, a primary focus of the curriculum is teaching the tools necessary to populate the world with new content. These include Adobe Photoshop®, Corel® Paint Shop Pro and Gmax (a 3D modeling tool similar to 3D Studio Max). The UOT also offers other classes related to life in *There.com*, including piloting in-world "hoverboats," courses in community management, PAZ-building, machinima[4], and a program for disabled players. There are also real-world courses such as zoology, archaeology, anthropology, and Native American Studies. The UOT offers a loosely structured course curriculum that culminates in a graduation ceremony each year (Figure 1). While it has no formal university affiliation or accreditation, the UOT houses facilities owned by three real-world universities which have hosted courses, conferences and research.

Purpose
As is often the case in institutional settings, the UOT has both explicit and implicit goals. The official slogan of UOT is "In this place, we build the future." The stated purpose of UOT, as laid down in January of 2005, is:

The primary objective for UOT is to coordinate and facilitate the offering of experiential options that embrace, educate, and empower fellow Members in an entertaining venue within the There Community.

It is interesting to note the key terminology "entertaining venue." The UOT staff takes this very seriously, and a great deal of collaborative effort is expended in finding ways to make the UOT campus and programs more entertaining.

In addition, each individual within the UOT naturally brings his or her own objectives to the table; the volunteer staff of UOT has its own set of shared objectives. The Dean and faculty in particular have a broader vision, embodied by the slogan above, of advancing the uses of virtual worlds in

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[4] A method of making films within games or virtual worlds

education. The Dean himself is professionally engaged in the use of virtual worlds in training through a parallel effort. Makena positions the UOT as a community service, but at the same time, the UOT supports Makena's hands-on, collaborative approach to community management, as well as its economy. Because Makena's business model relies so heavily on player-created content, it is to the company's advantage to support developer training.

Structure
UOT's personnel consist primarily of staff and instructors. Wingman, the Dean, is considered the "director" of the UOT, and is the liaison to Makena staff. The staff consists of department heads, typically called Chairs, Curators or Directors, some of whom also serve as instructors. Departments include not only educational programs, such as 2D and 3D Design, Native American Studies, but also other project-based departments, such as Archaeology, exhibition spaces, the Student Center, the International Gateway and KUOT Radio/Multimedia, which produces podcasts and radio ads for the UOT. The context of the virtual world allows for a much more labile and flexible structure than exist in real-world universities. At various points during the study, some departments were dormant, some were restructured, and several new initiatives were launched. The following departments were active at various points during the study:

School of Design - Including 2D and 3D design
Arts and Literature - Including Art Zone and Library
Athletics – Sports - Including dog training (dormant)
Botanical Gardens/OooZoo
School of Flight
International Gateway (launched during study)
Interior Design (launched during study)
UOT Newsletter and Archives - Including photo archive and newsletters on university activities
Multimedia/KUOT - Audio, video and web production, podcast and Shoutcast, PR
Museum of Natural History - Including archaeology
Museum of There History
Native American Studies
New Adventures/Thereians with Disabilities
Student Center - Hosts weekly dances

Facilities owned by three real-world universities were either built or underway at the time of the study:

State of Play Academy, NY Law School (dormant)
SFSU Environmental Outpost, San Francisco State University - Used for teaching environmental science (active during study)
Center for Cyberethnography, Georgia Tech UOT Study Field Station (launched during study)
Georgia Tech Treehouse Classroom Complex (under construction at this writing)

Each department is typically run by a department head who is responsible for its activities. In some cases, this is the only person in the department, in some cases department heads are also responsible for recruiting, supervising and working with instructors or project participants. Instructors and project participants generally report directly to department heads, although supervision is fairly minimal. Instructors tend to operate fairly autonomously. Nearly half the classes take place in instructor-owned facilities off-campus. A registrar's desk located at the center of campus features a list of all current instructors and courses. Each instructor maintains his or her own mailing list. While there is a UOT-wide Student Union mailing list, students are expected to sign up on the lists of the individual instructors with whom they wish to study. *There.com* has a built-in scheduling system that allows users to send out invitations and receive RSVPs to specific events in specific locations. Scheduling is somewhat coordinated to avoid conflicts, but by and large the instructors manage their own groups and schedules.

COLLABORATION WITHIN THE UOT

Figure 4: The Barnstomers performing air acrobatics, with their resident ethnographer on the wing.

Staff: Management and Collaboration Style

The core staff is composed of a team of about a dozen people, two thirds of whom are female. The age of staff ranges from 13 to 70. About two thirds of the staff come from the Uru-Thereian community, and half are members of an in-world air acrobatics team, the Barnstormers. (Figure 4) Over one third of UOT staff members identify as having a disability, as compared with 18% of survey respondents tallied as of this writing (about 40 in all, which includes staff, faculty and students). Both of these figures are higher than the national average of 15%, and the higher figure for staff and faculty correlate with our finding that the staff and faculty are predominately baby boomers, whose disability rate is about 2-3 times above average [17].

The management and collaboration style of the UOT Staff echoes the style observed in our prior studies of the Uru-Thereians [8]. While there is typically a directorial figure in a position of authority, decisions are made primarily on a consensus basis. The selection process for new staff, for instance, typically begins with a one-on-one conversation between the Dean and the individual, following by a vetting among the staff. Conversely, if an instructor seems to be having issues, this will be put forth as a topic for consideration during a staff meeting. There are occasional cases in which Makena will intervene, but by and large, the UOT is left to run itself in a fairly autonomous fashion.

Figure 5: A typical UOT staff meeting.

Regular monthly and weekly meetings (Figure 5)—sometimes attended by designated Makena staff—provide a formal context for decision-making; however, a great deal of collaboration, discussion and idea-generation takes place on a more informal basis, although a surprisingly small percentage of this is done via e-mail. The core staff members are all part of an extremely close-knit social unit, and interact with each other frequently in other contexts. In various sub-groupings, they attend Uru community events, participate in Barnstormers' flight performances, and attend regular weekly There-wide events such as the Cross-Country Race. In addition, regular UOT events, such as the weekly dance organized by Bette in the Student Center, provide an informal environment for discussion within the UOT community itself. As a result, there is a constant flow of ideas and information that takes place in both formal and informal contexts. Thus, a new idea, new department head or new faculty member might be introduced in a casual conversation at a social event, then subsequently be vetted in a staff meeting.

The following are two examples of collaborative events organized by UOT staff.

The most regular example is "Adventures in Education," a monthly event offered to all Thereians. It typically includes a flotilla or tour (Figure 6), one or two classes, and culminates in the weekly Student Center dance. These monthly events are typically discussed at the preceding week's staff meeting, where the group brainstorms and

individuals volunteer to host sub-events. Where possible, Adventures in Education is designed to compliment any There-wide theming that may be in-progress.

Figure 6: A flotilla during Pirate Week at Adventures in Education.

The Neighborhood Fair is another example, and provides an instance where the UOT collaborated directly with Makena staff. The Fair was an expo designed to promote the Neighborhood product. It provided booth space to neighborhoods seeking tenants, tours of existing neighbor-hoods, and seminars for new and aspiring Neighborhood owners. The programming was coordinated and conducted primarily by UOT staff and faculty.

The Role of the Play Community in Creating "Fields of Connection" and Social Affinity

Play may have its strongest implications in both collaboration and learning as a site of social affinity. In her studies of the use of chat in computer-mediated work, Nardi noted that not all remote communication between co-workers was strictly informational. Rather, networked collaborators will often communicate with each other simply to make contact. To account for this, she identified what she calls "fields of connection" that serve as stimulators of social connection in distributed work contexts. These are interaction types that appear to have no direct bearing on information or practical exchange, but which set the stage for ongoing productive communication. She describes the three dimensions of fields of connection as "affinity, commitment, and attention" [1]. The play community creates a particularly strong ecosystem for cultivating fields of connection along these three dimensions in the following ways:

Affinity: While the UOT constitutes its own community within *There.com*, membership in other groups creates a natural sense of social affinity among the staff and faculty of the UOT. Affinity also builds a sense of trust, which is critical in collaboration.[CS1]

Commitment: The UOT requires a major time commitment from its volunteers. Having a strong social bond is a strong motivator for commitment and volunteerism. Some informants pointed out that this group socializes extensively in several different configurations, and there was a general consensus that enjoyment of each others' company was one of the primary reasons for engagement with the UOT.

Attention: It was noted earlier that a significant portion of the collaboration that takes place among UOT staff and faculty occurs outside of the formal structure of staff meetings or even within the campus itself. Because the staff is around each other on a regular basis, this facilitates more fluid communication. The play context also allows for a more personal one-on-one vetting process to occur before proposals are put forth to the entire group. Wingman and others will frequently run ideas past individuals outside of the context of formal meetings prior to putting them on a meeting agenda. Often, by the time the meeting convenes, the core direction of an initiative has already been established through these informal interactions.

Nardi has also noted the bonds that can form within collaborative groups in massively multiplayer games [12]. If we put this in a larger context, we can also easily see the role of play in creating affinity in a variety of business scenarios, from team-building games, to deals made on the golf course. In fact, the popular MMOG *World of Warcraft* has been called "the new golf" [18].

Commitment in a Play Context

As mentioned earlier, game scholars generally agree that one of the defining characteristics of play is its voluntary nature [6,7,19,20]. The voluntary nature of play can often serve to motivate people to high levels of effort and commitment, and while the general rule was that UOT staff and faculty took their time and task commitments seriously, there was also a tendency to be somewhat lax about both. Attendance at both meetings and classes (even by instructors themselves) was sometimes erratic, and people who had made commitments to tasks would sometimes disappear for weeks or even months at a time. There is an oft-repeated adage throughout *There.com* that "real life comes first," so there was a fairly permissive attitude about attendance and punctuality, especially if real life intervened. The was a particularly high tolerance for staff or faculty truancy if the missing member's absence was accounted for, e.g., a sick parent, or a staff member who had frequent periods of absence due to his real-life farming schedule, or even a conflicting event in *There.com*. In some cases, staff members might even call each other on the phone to check in or make sure they were okay. The voluntary nature of the play environment also created an institutional culture in which "firing" people was rarely viewed as an option. There was only one case in which instructors were "fired" and this was a dictate handed down

from Makena due to an interpersonal problem that had escalated to the customer support level. In all other cases, invariably, people who were identified by staff as problematic would disappear after a time, although it is unclear whether this was by their own choice, or due to a private side conversation. It should be noted that in cases where players were part of the core staff, or close friends of staff members, the attitude was particularly permissive, with the result that some tasks might remain unattended to for months at a time.

The Happiness Factor and a Love of Learning
In the interviews conducted face-to-face with about two thirds of the UOT staff, typically at their real life homes or in their cities of residence, a consistent theme emerged. As noted earlier, staff and faculty members in particular put a great deal of time, effort and commitment into the UOT. When we asked them why they devoted so much time and energy to the UOT, whether in teaching, administration or both, every single informant produced a variant of the same answer: "Because it makes me happy." Many supplemented this comment with the qualification that being of service or doing something nice for their community was a source of happiness to them. This is consistent with research in the "science of happiness," which suggests that altruism or acts of kindness contribute to a sense of happiness and well-being [21]. The happiness factor seemed to be fueled by a love of learning, reported by all staff and faculty interviewed, as well as a love of sharing their knowledge with others. There is not adequate room here to develop a theory of this phenomenon, but this will be explored further in a subsequent paper.

INSTRUCTIONAL USES OF THERE.COM

Emergent Teaching Styles
Because of our interest in emergence, much of our work has concerned the ways players exploit or subvert the affordances and constraints of play software in unintended ways. *There.com* was not designed as a distributed learning environment. Indeed, there are a number of aspects of the software that could be said to actually hinder instruction. At the same time, there are inherent aspects to both the context, technology and methods used, many of which the staff and instructors at the UOT have intuitively exploited, that are grounded in well-studied learning theories, even while the faculty does not seem to have extensive prior exposure to or knowledge of some of the principles they use in their teaching. It may indeed be worth considering some of these emergent "folk" methods as a model for more formal learning environment.

Teaching and Learning in a Play Context
As mentioned earlier, instructors at the UOT are fairly autonomous. While the Student Union list is used to notify anyone signed up about upcoming classes and events, faculty members keep their own internal lists, which each manages individually.

While the core of the UOT's activities revolves around what would traditionally be thought of as courses, it should also be noted that there are some forms of teaching that do not fall under the traditional rubric of "classes." For instance, there are several installations and exhibitions on campus that their designers view as having an educational component and which can be construed as part of the "curriculum" of the University.

Teaching, Play and Experimentation
Because the UOT is not a "real" university, instructors have a great deal of creative freedom to experiment with the affordances of the virtual world as a teaching environment; so to a great extent, teaching itself can also be viewed as a form of play. Instructors regularly "play" with what they can do within the *There.com* world, and in the process, develop highly innovative instructional techniques. These blend traditional teaching methods with new techniques particular to working within a virtual world, as well as developing innovative workarounds to compensate for constraints of the software. We identified four primary teaching methods:

> **Traditional Teaching:** Speaking to a group of people from a central position. This might include a traditional classroom layout with students in a seated position facing the instructor, a semi-circular, or circular configuration.

> **Environmental/Artifact-Based Materials:** Using in-world artifacts of various kinds including:

> ➢ Three-dimensional objects, including avatars

> ➢ Learning environments to support coursework or as stand-alone learning experiences

> ➢ Text-based scrolls

> **Extra-virtual Curricular Materials**: Because players do not have the ability to stream external content, such as web sites, PowerPoint or video (a capability that is available in *Second Life*), instructors develop creative workarounds, which frequently included web-based curricular materials, which could be used concurrently with, or to supplement, live in-world teaching. These included:

> ➢ Syllabi (most instructors had an online syllabus)

> ➢ Video, visual or text-based content or tutorials to be used concurrently with live in-world classes, or as homework assignments

> ➢ Concurrent use of software, such as Photoshop® or Gmax, and the *There.com* client during the class.

> **Virtual Field Trips:** Visits to different locations throughout *There.com*'s virtual world.

Examples

The following are some specific cases of how these methods were put into practice; each of these examples use one or more of these methods in combination.

2D Design: Two Cases of Teaching Texture Design

Since much of *There.com*'s content creation consists of skinning existing texture templates for fixed 3D objects such as fashion, furniture and vehicles, a significant portion of *There.com* development takes place primarily with 2D tools. Even 3D design requires texture design, so this is both the foundational creative practice in *There.com* as well as the largest curriculum area of the UOT. It is typically the entry level for developers, who may then go on to the more advanced 3D classes if they are so motivated.

Maesi was the instructor and served as Chair of the School of Design for the first two and a half years, later becoming Associate Dean. In an interview, Maesi said she agreed to get involved with the UOT because in the early days of *There.com*, there tended to be a culture of competition among developers, who were not forthcoming about helping others learn the ropes. Bringing with her a community service ethic which was part of the Uru culture, as well as a professional background in graphic design, she felt compelled to create a more helpful environment for those who wished to develop for *There.com*. Although her tenure as Chair of Design predated this study, she left a lasting legacy in the form of campus facilities, a web site which included some highly popular online tutorials, and a number of students who went on to become instructors. The following describes some examples of teaching methods from two classes taught by subsequent instructors in texture design and painting during the period of this study.

Figure 7: Flutterby taught in an outdoor setting.

The first example comes from a Photoshop® class taught by Flutterby, with her boyfriend danielQ. Flutterby was one of three teachers who taught in an outdoor setting. She used a platform with seats and "stand" tags, which allowed people to position themselves in fixed locations on the platform. (Figure 7) Her main teaching method was speaking, however, as the focus of her class was on fashion design, she used her own avatar as a teaching tool. A very animated speaker, she would describe the various aspects of working with the clothing templates, changing clothes while speaking to demonstrate. (Figure 8) [CS2]She also gave weekly homework assignments that included going through a video tutorial and producing a project. Students who completed the assignment were rewarded with free textures or other tools. Between classes, she and danielQ created video walkthroughs of Photoshop® using Captiva software with voice-overs, and he later did in-world teaching as well. An interesting side note: Flutterby was a schoolteacher when she started teaching at UOT, but a disability forced her to change careers. Originally hired as a receptionist, she was promoted to the design when they discovered she knew Photoshop®, which she had learned at UOT. This is one of many examples we uncovered, to be explored more extensively in a subsequent paper, where engagement with the UOT had some tangible impact on the individual's real life.

Figure 8: Flutterby used her own avatar to illustrate concepts in fashion design.

The second instructor, Pegasys, taught at UOT, and later at her own university, formed after a dispute between three instructors caused her to leave the UOT. She also had a background as a teacher, although not in a graphic field. The following describes one particular instance of an innovative method she used to teach her students how to paint textures for vehicles.

There.com has a number of vehicle types including flying devices, such as hoverpacks, hoverbikes, hoverboards and hoverboats, as well as ground vehicles, such as buggies and muscle cars. While some of these vehicles allow for custom modeling, most require players to work with existing model types, so the main focus of vehicle design is on texturing existing templates. To teach vehicle texturing, Pegasys used a method of showing a 3D model while walking players through an annotated texture map viewed in an external web browser, a technique also utilized by Maesi. During class, she would provide, via an external link, an image overlaid with the original template grid (as the player would receive it from *There.com*), on top of the final texture as-designed, and annotated with notes explaining each area of the image. Pegasys' classroom was large enough to fit a car, so she placed the 3D model in the classroom, and had the students walk around the vehicle as she went through each

section of the texture. At each point she would stop and explain the Paint Shop Pro technique that was used to create certain effects, such as highlights, bump maps or aging effects. (Figure 9) Her class each semester, which also covered texturing for furniture and clothing, culminated in a fashion show.

Figure 9: Pegasys provided an annotated texture template through an external link (left), then walked around the model describing how each area was textured (right).

3D Design: Two Cases of Teaching Gmax

The following two cases of teaching 3D are cited because while the instructors were teaching essentially the same thing, the approaches they used were so radically different, that they highlight both the diversity of instructor style, and the range of possibilities for teaching within a real-time virtual world.

Figure 10: DV8's classroom contains props representing the Gmax interface. The hula girls at left show different level-of-detail loading for 3D models.

DV8 presides over the Museum of There History where he taught the introductory level 3D/Gmax Boot Camp. Ironically, Gmax is one of the most difficult subjects to teach in *There.com* precisely because of the client's lack of interoperability with outside media. To compensate for this, DV8 developed a novel teaching tool: he built oversized 3D models of all the elements of the Gmax interface, as well as an arrow-shaped object. By positioning the arrow at various areas on the simulated Gmax toolbars, he can walk students through the step-by-step processes of creating, texturing and modifying models. The space also contains 3D models and measuring apparati for demonstrating concepts such as collision volume level-of-detail loading. (Figure 10)

Conversely, RigaTony's class was taught weekly over two semesters. This intermediate-to-advanced class in 3D modeling was notoriously considered the most difficult class in the UOT curriculum, and many students reported taking it multiple times. RigaTony, who taught this class prior to the launch of the UOT, taught in his own off-campus facility. His students ran Gmax simultaneously with the *There.com* client, either running both programs on the same computer (when possible) or "two-boxing" on a separate computer. This had the interesting effect that students in his class often appeared wearing the green goggles that automatically appear if you are set to "Away" or if your cursor is outside the *There.com* window. (Figure 11) RigaTony used text chat only in his teaching, which was unusual for UOT instructors. His reason was that, because text is automatically logged, students could refer back to the presentation text when working with Gmax on their own. For the classes we studied, RigaTony posted a few web pages, but typically did not use extra-virtual materials [CS3]other than Gmax during the class, although prior students report him distributing PowerPoint slides via a link in an in-world scroll.

Figure 11: Some of RigaTony's students appear in "Away" mode (green goggles) as they toggle between Gmax and the *There.com* client.

Interior Design

Creating PAZ and lot layouts is an art form that requires a significant amount of skill to master. PAZ- and lot-builders are also the primary purchases of developer-created items, as well as the primary renters of real estate. The UOT had been looking for someone to teach PAZ- and lot building, and during the last phase of our research, a volunteer stepped forward to start a new School of Interior Design on the campus. She built a series of model environments demonstrating some of the basic principles she planned to teach in the class. This is an excellent example of how UOT instructors try to leverage the affordances of being *inside* a 3D world as a means to experiment with and enhance the learning experience.

Other Subjects: School of Flight, Thereians with Disabilities, and Native American Studies

In addition to classes aimed at developers, the UOT also offers a number of courses on other aspects of interacting within *There.com*, as well as real world subject areas. Here we describe examples of two of the former and one of the latter.

The School of Flight, presided over by Luna, is the de facto headquarters of the Barnstormers. It also serves as a launching pad for flotillas and tours of *There.com*, as well as a home base for courses aimed at teaching players how to fly *There.com*'s hoverboat vehicles. (Figure 12)

Figure 12: UOT's School of Flight.

The Thereians with Disabilities program was founded by Lynn, and a teenage boy named Robby. This type of cross-generational collaboration is common in *There.com*, and particularly pervasive in the UOT. Lynn, now in her sixties, had a congenital spine disorder which left her confined to a wheelchair or bed, with little use of her body other than speech and to some extent, her hands. Engagement in *Uru* and *There.com* helped her find her way out of the depression that resulted from her diagnosis, and enabled her to engage in community service, as she had done in real life prior to her disability. Lynn has taught workshops for disabled players on a variety of topics, including in-world field trips teaching disabled players how to get the most out *There.com*. One discussion group she hosted concerned ways to make virtual worlds more accessible, either by adjusting settings or by using outside software, such as speech-to-text programs. She has also hosted discussions on personal issues such as living wills and pain management, sometimes including outside speakers.

Lynn is also the Chair of Native American studies and teaches a class in the culture of Plains Indians. Of mixed Lakota Sioux blood, she has had a long-standing interest in history and Native American culture. In this and her other course, students sit in a circular formation, either in an outdoor park area (Figure 13) or in a cave that she has created for this purpose. The course tends to be intimate and Lynn has fairly strict attendance policies due to the sensitive nature of the knowledge she is conveying. Most classes begin with a reading, presented within an in-world scroll or an extra-virtual link, about a particular aspect of

Native American history or culture, such as beliefs, rituals, language or origin stories. Sometimes she will have guest speakers or storytellers. This is followed by a discussion, and there is sometimes a homework reading or writing assignment. The course also took a field trip to a Native American enclave in *There.com* during Native American Heritage week. Lynn and Bette also share the American Heritage lot in the International Gateway.

Figure 13: Lynn teaches Plains Indian culture in a circular formation in an outdoor park.

Learning Environments

The International Gateway (Figure 14) is one of a number of cases where UOT staff and faculty have used the virtual environment itself as a teaching method. This section will discuss this installation, and two additional examples.

Figure 14: The International Gateway.

Presided over by Bette's daughter Mimi, The International Gateway was launched during the study. It was conceived of a celebration of the cultural diversity of both America and *There.com*. Each lot within the Gateway focuses on a certain nation or culture. At this writing, these included; American Heritage/Native American Culture (Figure 15), Latin American and Spanish-speaking countries, France, Italy, England, Japan and India. Each area represents an archetypal environment, such as a Native American Tipi, a Japanese Tea House, or a French Café replete with wine.

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Figure 15: International Gateway American Heritage pavilion.

Each area also contains scrolls about their respective country and culture, and some include mini language lessons. While Mimi is the director of this project, each individual lot owner or group is fairly autonomous in designing their respective areas.

The most notable examples of learning environments are the ongoing suite of projects by Bette, who directs the Department of Archaeology and co-manages the Student Center with KickBoxR, a 15-year-old high school student and youngest member of the UOT staff. While she seldom teaches formal classes, Bette, a woman in her fifties, views constructing environments as a form of teaching. She does not make original assets, but builds her environments from items made by others. She runs the Botanical Garden, The Ooo Zoo, and the Museum of Archaeology, as well as a number of satellite archaeological "digs" embedded within the campus and in locations throughout *There.com.* (Figure 16) These are usually tied to recent real-world scientific discoveries, enhanced with creative and humorous twists, and accompanied by text scrolls; they sometimes change over time.

Figure 16: A dig site created by Bette (center) based the real-world discovery of methane in the arctic.

During my interview with Bette and her daughter Mimi at Bette's home, I noticed that she had the Discovery Channel turned on throughout my entire visit. She mentioned that when she is home (she works in an office during the week) she leaves it on all day, and that most of her ideas for UOT installations came from things she sees there. Bette's philosophy, based on her own experience, is that that

people have the perception that play is not learning, thus, play can provide a means to "trick" them into learning through exploration, play and humor. In addition to her more educationally-oriented installations, she also produces weekly dances based on different themes. (Figure 17) These have included everything from a medieval castle, to the Star Ship Enterprise, to a safari, to a playful summer dock for a swimming party, complete with water, fishing poles and boats. Bette is also the UOT archivist and resident photographer, amassing a huge collection of screenshots of UOT events, is in charge of the UOT newsletter, and has helped to write UOT text and audio advertisements for the There Fun Times.

Figure 17: One of Bette's Student Center dances.

(E)merging Constructionist, Instructionist, Situated and Multi-Modal Learning Principles in a Play Community

As mentioned earlier, teaching practices within the UOT are highly emergent, often arising out of a combination of mutual influence and experimentation. Most of the instructors in UOT, including its Dean (who teaches part-time at a local community college), bring some prior teaching experience to their engagement with UOT. Yet none of the instructors we talked to referred to any formal learning theory that informed their teaching. Nonetheless, their emergent teaching techniques seem to fall naturally into a few well-established theories that have been invoked in discussions of learning in games. There were two factors, however, that seemed pervasive:

First, instructors seemed to be aware of the concepts of multiple intelligences [22] and multimodal learning, perhaps in part because a high percentage of them had disabilities. These factors also affected their teaching, and for some instructors, their teaching methods were informed by their own learning styles. For instance, Flutterby, who was diagnosed with ADD, taught outside so she could adjust her camera angle while teaching. (Figure 7)

Second, there a number of pervasive theories that have been identified by researchers as relevant to the applications of games in learning [15,23-27] which UOT instructors seem to have spontaneously adopted. Without any formal training, the UOT faculty has naturally merged these

diverse and sometimes contradictory approaches in creative and unexpected ways.

Two caveats: One, this finding warrants a much more rigorous analysis than is afforded by the space or scope of the current paper; two, because this was not a "games in learning" study per se, we did not conduct any assessment of the effectiveness of these emergent teaching techniques. The study suggests additional research to determine if these "folk" or "ad hoc" methods, many of which are suggested by the platform itself, have any measurable benefit to learners.

The learning principles used through these "folk" methods by UOT instructors included:

Instructionist Learning
Instructionist learning refers to the traditional classroom method of an instructor speaking to, and/or presenting visual materials to a group of students. Virtually every course we studied included some component of this somewhat conventional teaching style. Two social conventions emerged here. One was the raising of hands as an indicator that someone wished to comment or ask a question, a standard convention adopted from the traditional western classroom and made possible by the "handup" e-mote in *There.com*. The second, more indigenous to the *There.com* environment, was the use of speech by instructors, while students typically communicated via text. Instructors also augmented this method with in-world text scrolls, extra-virtual materials such as web sites, or in-world props, to aid in teaching. Thus some of the affordances of *There.com* provided the opportunity to actually enhance instructionist methods through multimodal learning, as well as augmentation with other teaching methods, described below.

Situated Learning
Situated learning is the principle that people learn better and retain more when learning "on demand" in application of a specific task [28]. This method has been cited by Gee and others as one of the defining characteristics of learning in games [23,29]. This played out in two ways with the UOT. First, because the play context is by definition voluntary, students at the UOT are there on their own behest. All of the students interviewed had initially taken a class at UOT because there was something specific they wanted to make or learn. Second, for content creation classes, learning takes place in situ, that is to say, people are learning 3D design *within* a 3D world. Thus, the world itself can be used as a demonstration environment for the principles being taught.

Constructionist Learning
Constructionism is a learning theory that states that people learn better when engaged in the act of creating something [30], and is defined by its originators as being in contrast to instructionist learning [31]. While not all UOT courses

employed constructionist learning principles, *There.com* has what scholar Amy Bruckman might call a pervasive culture of constructionism [2]. Since most courses revolved around productive play, the practice of making and building things was integral to their process. In addition, it can be argued that the instructors themselves were employing constructionist learning by developing new skills order to make web sites, create course syllabi and extra-virtual materials, and designing and building in-world props and environments to support their teaching activities. All of the instructors we interviewed reported developing new skills in order to teach their classes. Finally, the pervasiveness of learning environments, that is, constructed spaces with a teaching agenda, suggests another dimension to construcionism indigenous to virtual worlds.

Peer Learning Communities
Although UOT has formal instructor-student roles, it is very much a peer-learning community, as all of the instructors are considered peers by their students in the social context of *There.com*. In addition, the instructors will often come out of the ranks of the students, and instructors may actually take other instructors' classes, so there is a fluidity of shifting roles. This is yet another affordance of the play community: that roles are more labile and flexible, and hierarchical relationships can shift depending on different contexts. A player who may be a department head in the context of UOT, might be a pilot in the Barnstormers, or just a friend joining the Cross Country Race. UOT instructors and department heads frequently take each other's classes.

In our prior research on productive play, we also cited Alfred Gell's theory of art as agency [32]. Gell argued that contrary to prior theories based on personal expression, that creative practice is actually a factor of social agency. Our prior research identified the desire to please one's community as the single greatest motivator for creating content [8]. As an emergent phenomenon, user content-creation operates on a system of feedback; where players receive a positive response from their peers to their creations (often indicated by sales and creative uses of these items by others), they are motivated to continue and to advance their skills. Many players who attended UOT were either wishing to become involved in the content-creation community, or, more often, had already done so and were seeking to hone their skills. Thus there is a clear interrelationship between constructionist principles and community, as supported by some of the prior work in learning communities by Bruckman, Hayes, and others [2,15,24,26].

The merger of community and constructionist learning is consistent with Amy Bruckman's early work with MOOSE Crossing, a text-based MUD designed to teach computer programming. Her research demonstrated that peer-based,

intergenerational learning communities can aid and accelerate learning. The social reinforcement of learning from and teaching others, as well as sharing the product of ones labor with an appreciative community, can serve to turbo-charge the learning experience among both children and adults. MOOSE Crossing is an excellent example of a precedent in which play, particularly roleplay and imagination, produced an environment highly conducive to effective technology-based learning. In this context, participants regularly shift between the roles of teacher and learner, migrating from the latter to the former once a skill is acquired [2,33]. Nardi has noted similar peer-learning patterns among guild members and modders in *World of Warcraft* (Wow), the latter of which would qualify as a constructionist learning community [13,14].

FROM PLAY COMMUNITY TO LEARNING COMMUNITY

The UOT differs from MOOSE Crossing in a seemingly minor but highly relevant way. Where MOOSE Crossing which was designed to *be* a learning environment, albeit a playful one, *There.com* was designed as an entertainment environment. Yet *There.com*, like MOOSE Crossing, has what Bruckman would call a "constructionist culture," a culture in which the social milieu supports and motivates people to learn and engage in "productive play" [5]. This constructionist culture has set the stage for the University of There to emerge as a learning context within the larger constructionist culture of *There.com*. In fact, our findings suggest not only that people learn better by making things, but that in places where people are making things, learning is also a pervasive part of the culture. In other words, constructionist cultures are, by definition, learning cultures.

That other apparently contradictory learning theories could be merged together with such fluidity and facility in this context suggests that play provides a much broader and more flexible framework for learning that any one of these theories on its own. Under the auspices of play, instructionism, defined by constructionism's proponents as its very antithesis [31], can be compatible not only with construcionist, but with situationist and community peer-based learning as well. The UOT's experimental merger of play and learning suggests that play might actually provide a versatile new ecosystem for learning that could ultimately embrace a diverse range of learning theories that have been previously thought to be incompatible. Further research is required to explore the implications of this.

The potential for networked play spaces to serve as learning ecosystems that can support diverse learning theories and styles also brings us back to UOT as a collaboration environment. The results of this study suggest the play ecosystem can also provide a context for Nardi's "fields of connection," the informal social bonds that create the foundation for successful collaboration [1]. Developed in the play context, these "fields of play" provide an atmosphere that supports collaboration, especially between players who have established relationships through other play communities. These bonds form a sense of commitment to that motivates players to engage in highly involved and complex projects in service to the larger community. Thus the "fields of connection" supported by "fields of play" can also set the stage for "fields of learning" that emerge from constructionist play cultures.

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