

Building Immersive Instructional Experiences and Learning Communities in Second Life

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I. Executive Summary

The purpose of this proposal is to offer a creative approach to undergraduate instruction that makes innovative use of a 21st century free online virtual world technology called Second Life (SL). Web 2.0 and Web 3.0 (three-dimensions) converge with this technology, and it increases student access to higher education and improves undergraduate learning experiences and opportunities. Our proposal intends to initiate a UT System-wide virtual learning community that supports individual student success and long-term learning while reducing overall instructional costs. We also envision that the UT System can use this high-profile pilot to leverage its ROI and to enhance its position in securing state and federal American Recovery and Reinvestment Act funding as well as new NSF and NIH funding for pioneering cyber-learning and cyber-infrastructure educational projects.

This design of this proposal, **Building Immersive Instructional Experiences and Learning Communities in Second Life**, reflects an in-depth effort to address each of the TUE evaluation criteria. This is a high-profile innovative and transformative project that will be the first of its kind in the world. It has been designed for maximum utility throughout the UT System and for extensive inter-campus and intra-campus collaboration of all 16 campuses. This project features an open online virtual platform characterized by being networked, customizable, and computationally and socially rich to ensure wide adaptability and expansion throughout the System. Finally, this project is grounded firmly in foundational educational principles, has research and assessment integrated throughout, and takes into account the most current evidence-based research on pedagogy in virtual learning spaces.

II. An Illustration Case: *Julia and the Mars Living Module Station in Second Life*

Julia, a sophomore student in a UT-El Paso civil engineering class, is working with her class team on a homework project to build a mockup of a room in the Mars Living Station module in their “sandbox” area in Second Life (SL). Julia and her team are applying the stress equations they’ve been studying in class. She’s at home working from her laptop while her team members are dispersed (2 at a campus computer lab, 1 at the public library, and 1 at Starbucks). They IM (instant message) two friends from NASA’s CoLab community in SL to review their structure-in-progress and to give feedback, and the two experts teleport over to the team’s sandbox (one is on a computer in Houston, the other in Germany). Because now they can create visualizations and models so easily, Julia and her teammates can *see the impact* when their equations are not accurate.

Over time, through trial and error, and everyone pitching ideas from their class notes, Julia’s student team is finally pleased with their homework project and are ready to give a “virtual tour” of their module to their classmates and to explain just how their equations are demonstrated and work.

Joining the virtual tour will be 15 students from a UT TeleCampus Health Services Technology class who will be taking a “field trip” in SL to collect data on how health issues are being addressed in diverse environments; their data collection is part of a UT-faculty IRB-approved research project and part of the Undergraduate Research Initiative.

Julia is especially proud because, on the one hand, she is very confident that she really understands the homework because she had to actually build an important structure and test it. On the other hand, she knows that pictures of their Mars module will be used by a SL non-profit organization whose mission is to inspire young women to take engineering and other STEM courses (her younger sister, Angela, went to a virtual STEM summer camp on the Teen Grid in SL led by Girlstart and the Educators Coop).

Because it’s so easy to collaborate in the virtual world, Julia’s engineering professor decided to also connect with a medical science class at the UT Health Science Center in San Antonio and with an undergraduate design class in the UK, taking advantage of the distributed knowledge dimension of SL. Julia enjoys hearing those students’ different accents when they visit and ask questions or offer ideas.

Although Julia is feeling a bit tired, she’s also feeling a sense of accomplishment. She takes a few final snapshots in SL of herself (her avatar) and her teammates learning and building the module. Then she opens up her class blog, reflects on her learning experiences, and shares insights with her class about how these days she feels like she’s connecting to people and systems of knowledge that actually matter. She uploads the photos from her team’s work-and-learning-in-progress for the final Class Report. Her class will be submitting a paper to an international virtual engineering conference with participation by undergraduates and sponsored by Engineers Without Borders in SL.

She thinks, “School’s not what it used to be. I feel like I’m part of something important.”

III. Background, need, and significance

Two of the UT System’s primary motivational propositions are:

1. The critical need for a pedagogical transformation for undergraduate education. This proposal meets this need by initiating a preliminary extension into the virtual world environment for undergraduate education that can emphasize teaching in areas of science/math, international/intercultural, and health/ medical, among other subject areas. The focus is on using 21st century virtual world technology to develop 21st century knowledge and skills.
2. The need to reduce (and in some cases replace) 20th century brick-and-mortar costs. This proposal uses low-cost and, in some areas, no-cost 21st century 3-D virtual world environments for student learning, research, collaboration, and operations.

Hundreds of universities and schools are beginning to discover successful uses for virtual worlds, on-line games and simulations in vital academic research, collaboration and learning. This proposal addresses the need for the UT System to provide students with forward-looking, successful educational experiences that meet the highest teaching standards for learning outcomes. This proposal also offers students beyond-the-classroom learning experiences that will empower them with a competitive advantage in an increasingly globalized and technological world. Online virtual worlds are already becoming networked workspaces and social spaces of the new century.

Two distinct but interrelated tracks for entry into the virtual learning environment of Second Life are proposed:

- **At the UT System level:** To initiate a System-wide virtual collaborative learning community of students, faculty, researchers and administrators.
- **At the course level:** To improve the learning experiences and opportunities for *individual* undergraduate students.

We find ourselves poised at a time not unlike the early initial phases of the Internet when members of UT System—mostly early-adopting faculty and individual departments—had created an

exciting, if somewhat chaotic, educational presence on the World Wide Web. At that point, the UT System and its 16 campuses wisely began to create the infrastructure and support necessary for systematizing a greater and more effective utilization of the Internet for our broader educational mission. Similarly, the model proposed here provides for a balance between necessary control and guidance, security, transformative learning experiences for our students, and academic freedom for faculty.

While the expense of the System's move into the virtual realm is relatively minimal in relation to its significant cost savings, such a move also adds value to existing programs by integrating high-quality virtual learning activities into current coursework and collaborating across departmental and disciplinary units. Second Life (SL) is an online rapid collaboration platform where Web 2.0 and Web 3.0 (virtually three-dimensional) converge. The networked System-wide initiative proposed here will allow the collaborative impact to be felt across a wider array of disciplines than is possible with today's often disconnected efforts across the state. SL will allow our wonderfully distributed and diverse educational endeavors and discoveries to be more immediately available for dissemination throughout the System, thereby increasing opportunities for even greater collaboration. As a computationally and socially rich technology that allows for modeling and simulation, SL is also a tool-making tool, and we anticipate the co-evolution of our students' knowledge-making alongside their innovations of the virtual technology itself.

In addition to integrating the use of customizable virtual learning environments into regular classroom instructional models, focused learning activities held in the virtual world can also transform a student's distance-learning experience and increase a student's access to virtual office hours, virtual Q&A sessions, lab discussion sections, and even consultations with distant experts. Our UT System is a complex and multidisciplinary organization. As we enter the virtual world environment, we will want to strive to cultivate effective working *communities of learning*, of discovery for our students, and of opportunity for our students to become innovators and thought leaders throughout the state, the country and the world.

Finally, as virtual worlds become more mainstream and as the underlying technology becomes more transparent, the allure of connecting geospatially-distant teachers and students, researchers and community members through 3D environments is expected to attract even more participants. Educational organizations across sectors, including corporate, public, nonprofit, and educational institutions, will undoubtedly create their own presence in this burgeoning learning environment. For example, as of April 2009, IBM already had over 6,000 employees conducting company operations across 50 islands in SL. If implemented, this first-in-the-world project will make a significant contribution by helping the UT System extend its reach into virtual world learning environments, increasing student access to quality higher education, and reducing instructional costs.

IV. Project description

The two distinct but interrelated tracks proposed here are to:

- (1) Initiate a UT System-wide virtual collaborative learning community of students, faculty, researchers and administrators, and
- (2) Transform the learning experiences and opportunities for the individual undergraduate student at the course level.

Open virtual world platforms such as SL are still in their infancy, and extensive research, development and investment are on-going as critical challenges continue to emerge (Jarmon, 2009). This new arena of open-ended virtual simulation environments has come into being only during the last decade, and SL is the most-widely used. SL can be defined as a free, online, computer-based, simulated, multi-user, persistent, user-created, virtual environment with 3-D graphical representations of people, space, motion, objects, topography and tools. All these elements become parts of an

extended system of student experience and interaction, and with such an array of educational elements, they constitute what Lave & Wenger have called a complex situated learning environment (1991).

Some Educational Affordances of SL	Extended Learning Capabilities
Communication/Collaboration/Community	Voice, chat, groups, friends, search → rapidly extended networks
Embodied social presence	3-D perspective on avatars (oneself & others)
Building/engineering/design/sculpting	Highly flexible & robust tools; customizable; inworld training
Animation and scripting	Motion, behaviors, sensors, lighting, sound
Data visualizations & simulations	Modeling, infinite scale, micro/macro, role-play, molecular models, spreadsheet conversion, historical, art
Sound & spatial relationships	Example: nano-structures, underwater labs
Language immersion	Example: 27 language-specific islands
Learning communities created by & for users	Example: Educators Coop Residential Community; group affiliations; NASA CoLab
International	Collapses distance: Dublin, Paris, Forbidden City
Reduced operations costs	Overhead, travel, equipment, training, energy
Fundraising	Am. Cancer Soc., Katrina Relief, kiva.org
Recruitment/administration/management	Universities; IBM = 6,000 employees working in SL
Bringing distance & online learning together in 3-D	Online-course class photo; distance learning pharmacology & science

Today’s students are accustomed to using multiple technologies simultaneously, and SL provides a communication platform into which software applications, including many Web 2.0 applications, can be integrated to support and leverage a sense of massively expansive and rapid connectivity.

(1) At the UT System level, this proposal recommends that, after a high-level briefing of participating campuses during summer 2009, the UT System (with nine universities, six health institutions, and one UT TeleCampus) purchase and create a virtual archipelago of islands in SL with a total of 49 islands. The **UT System Archipelago** will consist of three islands per campus (48 islands), with one central island for System-wide collaboration activities for a total of 49 islands:

<p>9 Universities, 3 islands/ea = 27 UT Arlington, UT Austin, UT Brownsville, UT Dallas, UT El Paso, UT Pan American, UT Permian Basin, UT Tyler, UT San Antonio</p>	<p>6 Health Institutions, 3 islands/ea = 18 UT Southwestern Medical Center at Dallas UT Medical Branch at Galveston UT Health Science Center at Houston UT Health Science Center at San Antonio UT M. D. Anderson Cancer Center UT Health Science Center at Tyler</p>	<p>UT TeleCampus 3 islands UT System 1 island</p>
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The proposed model suggests that for each campus, one island might be used for administrative, training and orientation operations while the other two islands can evolve in ways decided by individual colleges, departments, faculty members and/or by those identified as early adopters or “change agents” on each campus. An instructional model will be presented for faculty to use as a teaching heuristic (see below: *At the course level*). Most campuses have both ITS units and Teaching and Learning Excellence units, and this proposal recommends their collaboration in ensuring two basic but quite different support resources: technical *and* pedagogical. This proposal presents a

model that can be adopted and adapted by all 16 entities that make up the UT System. The creation of the System's virtual collaborative learning community of students, faculty, researchers and administrators will allow everyone to learn, share, collaborate and grow alongside one another as new models emerge and as diverse needs and challenges surface. Step by step in our evolving system-wide virtual learning community, we want to imagine all of these players - and especially our undergraduates - as learners with expanded roles: *learners* as scientists, *learners* as designers, *learners* as researchers, *learners* as communicators, *learners* as collaborators. The ethic is generosity: *passing it on* to colleagues and peers and thereby widely extending one's own support network.

The UT System Archipelago in Second Life



To further extend student access and increase enrollment, the proposal will recommend partnering with the statewide system of public libraries and other agencies that provide computers and public access to the Internet. Additionally, for those UT System entities that do not offer undergraduate courses, the virtual spaces could be used to create virtual “research collaboration sites” in SL where undergraduate students from other UT academic campuses can be invited to learn and participate in actual research that is related to their field of interest and course work. This proposal encourages and supports the **Undergraduate Research Initiative** and, working virtually, the project can increase the number and scope of research opportunities for undergraduate students statewide.

At the System level, the global reach of SL provides for increased virtual connectivity with students, faculty, universities, government agencies and research institutions around the world. SL is a rapid collaboration platform that dramatically reduces costs related to time management, travel, physical infrastructure, logistics, health and safety issues, and communication costs. System-wide efforts will benefit from the enhanced virtual learning experiences afforded their students at minimal cost. Each campus will develop its own SL project plan according to its needs and priorities. However, all campuses will participate in the System-wide research study and will submit appropriate information when requested. All campuses will participate in the Overview briefing, the training for Estate Managers and for campus trainers, the 6-month review meeting (in SL), and the completion and submission of final reports. All campuses are encouraged (but not required) to participate in inter-campus collaborations, meetings, and project events, the Undergraduate Research Initiative, and the Undergraduate Conference.

Finally, as part of their collaborative support of this proposal, **Linden Lab** will create a special educational relationship with the UT System and will provide Extended Support at no additional charge to the UT System's archipelago in SL. In addition to existing Concierge benefits, this Extended Support includes accelerated ticket response (24 hour response and average 48 hour resolve for most issues), and on-going support through tickets, Live Chat from the Support Portal, or by telephone (1-877-236-0711). Importantly, if the project is funded, Linden Lab will appoint John Lester to be Special Educational Liaison to the UT System, and, if desired, Linden Lab's public affairs office would collaborate with that of the UT System to help disseminate information about this pioneering educational initiative.

(2) At the course level, this proposal presents strategies to transform the learning experiences and opportunities for the successful individual undergraduate student.* Introduction and integration of virtual learning activities into existing curricula can apply to undergraduate courses offered in the classroom as well as to distance-learning courses offered online. Examples of innovative course activities tied to specific learning objectives can range from a 1-hour virtual behavioral observation exercise to a completely immersive semester-long course project, and every variety of learning activity in between. Further enriching their learning opportunities, students can also visit instructors in SL during virtual office hours, attend informal Q&A sessions, attend virtual lab discussion sections, and assist with actual research projects in SL. Any instructional activity in SL is situated within the specific context of a course and that course's learning objectives; however, factors that affect the success of an SL activity such as its design, purpose and duration, must be considered. Recommendations will be provided to help faculty adapt and transform their learning designs and their assessment practices accordingly.

This transformation proposal also takes into account opportunities for an individual student's learning experience and learning life cycle, both during a course and extended beyond the semester-long timeframe. An adaptable instructional model based on empirical research on learning in virtual worlds and grounded in the actual findings of students and teachers in SL will be presented for faculty. The model can offer pedagogical recommendations for faculty in two capacities:

- (1) to help guide their own creative journey into a virtual environment that can be modified to meet their disciplinary requirements and vision (and it is critical to allow faculty and students ample time for exploration, discovery, and connecting with others), and
- (2) to help plan, execute and evaluate SL activities and student learning outcomes.

* Undergraduate students who are under 18 years old will not be able to participate in Second Life; underage users are not allowed at this time.

We have learned that SL can provide a complex system of capabilities for engaged active learning, including connectivity with teams and group affiliations, synchronous interaction among real persons, an embodied sense of social presence, and virtual spaces where geospatially separated teachers and learners can work and interact. In particular, 3-D virtual world learning environments such as SL feature multiple channels for engagement, communication, collaboration, modeling, data visualization and simulation, sound and spatial relationships, language immersion, and opportunities for crossing physical, geographical and even temporal boundaries (Jarmon 2009).

Furthermore, we have learned that some passive learning activities (lecture format), while still possible in SL, are less engaging for students than active problem-driven or project-based activities. These preferred, more active SL activities require the individual student to apply and demonstrate his/her understanding of course concepts and allow the student to explore, discover, create, test, revise and present their work to others—all virtually. When students feel more engaged in learning, student satisfaction, success and retention are increased. The instructional model is grounded in revised experiential learning theory (Kolb & Kolb 2008) and includes an important reflection/writing component that might take the form of student blogs (a social networked version of a reflective essay).

Before virtual learning environments like SL, a student may have felt physical and intellectual constraints in the classroom. These students will now be able to experience an international and intercultural learning environment, with access to virtual experts and resources from around the world. They will enjoy opportunities to collaborate across borders and to be immersed in virtual linguistic and ethnic environments, complete with music, art and spoken languages. The instructional model also encourages, where feasible, connecting class projects in SL with actual world organizations and projects. Research has shown that students can experience an increased sense of value, motivation, confidence and empowerment when their course work has been of service to others.

Beyond the semester-long timeframe, the instructional model encourages an individual student to participate in conferences, submit papers for publication, participate in on-going research projects with SL collaborators, join other virtual learning groups and affiliates across the UT system and beyond, and extend their learning to benefit the community and non-profits, all both in SL and in the real world.

Finally, the notion of “interdisciplinary” learning has taken on new meaning in light of the capabilities for rapid, virtual collaboration among faculty. For example, in a pilot, undergraduate students enrolled in a design course on the UT-Austin campus have designed and built NEREUS, Nautical Environment for Research, Exploration, and Understanding of the Sea (a virtual oceanography research simulation). NEREUS is a virtual underwater “classroom” space representing the Gulf of Mexico for both classroom and online students who will be enrolled in a future semester at UT’s Marine Science Institute (MSI) in Port Aransas. The MSI students will learn about oceanography and how to conduct research and collect and analyze data. These kinds of completely new and enriched learning experiences—at dramatically reduced costs—are possible only because of the instructors’ bold and imaginative foray into virtual worlds.

The proposed project also includes funding for:

- One full time GRA and a number of independent study graduate students (School of Information, among others) interested in helping to create and implement the project
- Undergraduate Work Study participants
- The summer 2009 high level briefing
- A series of System-wide Training of Estate Managers (TOEM), Training of Trainers (TOT) Workshops, In-Service Training (IST) Workshops, and Virtual Showcases
- An Undergraduate Conference in both SL and real life

- Multiple faculty collaborators within the UT System and also those teaching and conducting research at other institutions who are able to collaborate virtually via SL

Virtual collaboration is at the heart of transforming undergraduate education, and the list of confirmed collaborators who have submitted Letters of Support can be found after the biographical sketch. This proposal simultaneously involves the projected launch of undergraduate courses in summer and fall of 2009 and spring of 2010 in nursing, design, oceanography, toxicology, pharmacogenomics, French, German, engineering, information management, computer science, architecture and Plan II Honors seminars, among others (some are online distance education courses).

Dr. Alan Combs Toxicology & Pharmacology	Dr. Tracy Villareal Marine Science Institute	Dr. Carl Blyth Dept. French & Italian	Riley Triggs, Art & Art History/Architecture
<p>“SL provides an opportunity to try to make online education both entertaining and effective. This is a chance to be creative, indeed... As well as creating toxicological puzzles for my elective course, I am hoping to use SL for virtual face-to-face question and answer sessions for students who are taking a pharmacogenomics course simultaneously in Austin, San Antonio, Harlingen, and El Paso. I use email, but it is so cold and flavorless.”</p>	<p>“UT sold the <i>Longhorn</i> due to high maintenance costs & an inability to support the ship’s daily operating costs. We have no ability to provide actual field experiences for many of our marine related courses. The potential to simulate oceanographic sampling in SL has opened up many new possibilities & has permitted me to consider whole new horizons for what I can do in my courses. SL allows me to create (with collaborators) a universe to sample.”</p>	<p>“We want to enrich the classroom by making it more 'immersive,' that is, less pedagogical & more authentic. SL allows language learners to encounter language in a 'situated context' that demonstrates the relationship between language & social action. With a new focus on task-based pedagogy, students would learn the language more effectively by using it to solve a real-life task, an example of learning by doing.”</p>	<p>“In SL's safe environment for experimentation, students can experience three dimensional construction possibilities that otherwise could not be built because of time & money restrictions. Projects are accessible to the public who provide feedback & exposure for the students & for our academic program. SL provides a level playing field for student engagement.”</p>

Foundation for future funding: This is a high-profile innovative and transformative project that will be the first of its kind in the world. We envision that the UT System can use this innovative pilot to leverage its ROI and to enhance its position in securing state and federal ARRA funding as well as new NSF and NIH funding for pioneering cyber-learning and cyber-infrastructure educational projects.

V. Objectives and Outcome Measures, Assessment, and Research

Objectives and Outcome Measures: The success of this single-year preliminary project marking the UT System’s initial-stage entry into the virtual learning environment will be determined by the degree to which each of the following eleven outcomes are achieved at the end of one year:

1. All campuses have virtual islands.
2. Representatives from all campuses have participated in Summer 09 briefing, in TOEMs, TOTs and ISTs.
3. All campuses with undergraduate studies report offering at least one undergraduate course that incorporates virtual learning activities directly tied to learning objectives for that course and applies recommendations for successful learning in virtual worlds.
4. All non-undergraduate campuses and medical and health science institutes report the creation of at least one “virtual research site” and an invitation policy for engaging undergraduates to participate.

5. All campuses report collaboration activity with another campus.
6. Cost savings of instruction with enhanced virtual extensions or improvements in the quality of instruction for participating undergraduates have been estimated.
7. Increased access to courses, office hours, or discussion sections based either on number of participating students or on transition of existing face-to-face activities into virtual activities.
8. IRB approval successfully completed by some participating faculty, educational and research units, and some inter-campus research collaborations.
9. All monitoring, evaluation, assessment and reporting procedures for the project are in place and operational.
10. An undergraduate conference has been held (or has been fully scheduled).
11. Initial planning has been completed for a transition from these grant-supported activities to campus-supported maintenance and expansion activities.

Assessment and Research: There are three levels of assessment and research for this initial-entry project: (1) at the System level, to record the process of an entire state university system's initial and preliminary entry into an online virtual learning environment; (2) at the individual campus level, to track the process of preliminary entry throughout the year, comparing the similarities and differences in campus experiences; and (3) to encourage individual participating faculty at each campus to assess the impact of the virtual environment on student learning outcomes.

(1) **At the System level**, to fulfill reporting requirements of the grant and to study this statewide preliminary entry process, IRB clearance will be secured at the start of the project. The sequence of stages of the project, as they are implemented, will be monitored and documented with checkpoints for on-going assessment and opportunities for revision. These assessment and research mechanisms are primarily concerned with the highest-level of project activity and will ensure that at the end of year one, the UT System will have evidence-based quality information with which to shape future decisions regarding the transformation of undergraduate education. An initial survey will be used to gather information about the pre-project climate on each campus, as perceived by the campus leads, whether or not Second Life is already being used, and information regarding early adopters, learning innovators, undergraduate research programs, and other existing conditions on each campus. Post-project surveys will be conducted that include as many of the participants statewide as possible. These data will be analyzed, and findings will be published. Data will be collected through surveys, field reports, and required campus reports (mid-point and final) to assess the project's components as they align with the 11 objectives and outcomes of the project and of the TUE Program listed above. Furthermore, by the end of one year, we will have identified specific challenges that may have emerged as obstacles to the achievement of any of the 11 outcome measures.

(2) It is of equal importance to monitor and assess the process of preliminary entry at the **individual campus level**, given the diversity of campuses, their administrative units, their resources, their personnel and faculty, and the different choices they make in approaching entry into the online virtual learning environment. Each campus lead will be encouraged to secure IRB clearance and to gather data on the operations as they unfold on their own campus, including their plan and planning process, who is participating, and what resources, faculty, departments, trainers, and students are involved. Furthermore, the core group of campus leads will meet virtually in Second Life every two weeks on a rotating basis to exchange key information and to compare the similarities and differences in campus experiences. This requirement is an integral dimension of collaboration built into the project design and will enable the campus leads to help one another and to become familiar first-hand with the

virtual landscape of the other campuses' islands. These bi-weekly meetings include a core agenda (subject to revision) that has the campus leads regularly addressing the following questions:

- What is working well and what is underlying that success?
- What obstacles or challenges are you facing? What do you need?
- What new activities have been initiated? What is responsible for the progress?
- What has been the most surprising development since our last meeting?
- After hearing from everyone, what are your final takeaways from this meeting?

Since these meetings will be conducted in Chat, the transcripts of all the meetings can be accessed by the campus leads, collected throughout the year, and archived, yielding a fairly representative record of the progression of the project on each campus as well as a record of collaboration and the growth of a *learning community*.

(3) At the third level, **individual participating faculty** at each campus will be encouraged to secure IRB clearance to study and assess the impact of the virtual environment on student learning outcomes for their course(s). Faculty will be provided with IRB proposal guides and will be encouraged to publish their findings, positioning the UT System at the very forefront of research on virtual world learning environments. The following elements are suggested as critical:

- Learning outcomes based directly on specific course curriculum objectives.
- The instructor's experience and assessment of student learning success.
- Students' sense of engagement in learning and perceptions of success.
- Retention (post-semester surveys).
- Increased collaboration and insights related to research projects, future projects.
- Assessment and feedback regarding resources, technical support and training.

Data collection and assessment could include, for example, analyses of student class work such as papers, virtual projects and presentations using standardized rubrics designed by instructors; comparison of learning gains between students using SL and previous students who took the same class without SL and/or equivalent course sections that are not employing SL; classroom assessments such as exams, projects and papers; and analysis of student reflective essays, journals, blogs and virtual projects created during the course. Additionally, pre- and post-course surveys could be conducted asking students about their perceptions of their individual learning gains; focus group interviews asking students to reflect on how SL influenced their learning; post-*semester* surveys asking students their perceptions of how well they retained course content over time as a result of using SL; and instructor interviews. Finally, all participating faculty will be encouraged to participate in the following components of the project:

- Participate in the regional TOEMs/TOTs/ISTs for teaching and learning in virtual worlds, followed by individual participation in virtual instructional workshops already being held in SL for educators;
- Participate in periodic and even impromptu virtual collaboration gatherings on their own islands or on the UT System's central island to share experiences, insights and feedback;
- Cultivate a practice of *passing it on* by volunteering for virtual showcases, or by demonstrating their uses of SL for their departmental colleagues and students;
- Encourage students to similarly share their own discoveries about learning in virtual environments via conferences, meetings, publications, virtual showcases, public blogs, and the Undergraduate Conference.

VII. Timeline and Administration

Month	Project at System Level	Tasks	Includes
1	Project team preparation		
		GRA/Work study Presidents ID campus leads Funds dispersed to Presidents IRB proposal Linden Lab liaison plan Preparation for briefing	
2	High-level briefing		
		16 campus leads + System lead Project overview/demo	
		System project plan	Communication Land provision Reporting Assessment Research (IRB)
		Information sharing Getting Started Guide – Estate Managers Campuses’ project plans & Research (IRB) Calendar for trainings	
	Establish archipelago	Campuses & Linden Lab	
3	TOEMs/ TOTs /ISTs		
4	TOEMs/ TOTs /ISTs		
5	TOEMs/ TOTs /ISTs		
6	TOTs /ISTs		
		6-month reporting meeting held in SL	
7	TOTs /ISTs		
8	TOTs /ISTs		
9	TOTs /ISTs	(as needed)	
		Preparation for Undergraduate Conference Designated Work study selected Linden Lab support	
10	ISTs	(as needed)	
11	System Collaboration	Meeting held in SL	
12	Undergraduate Conference	Held both on campuses & in SL	
	Final de-briefing meeting	Held in SL; Campus final reports submitted	
	Final Report		

Administration of Project:

- Leslie Jarmon is the **PI and lead administrator** for this project (see **Section VIII**).
- All funds in this budget will be managed by the PI and dispersed by DIIA, UT-Austin.
- Each of the 16 campus Presidents appoints a Campus Lead, called the Estate Manager, who will then submit to the PI a 1-page Request to Collaborate, agreeing to fulfill the reporting requirements of the project. The System will do the same for its 1 island.
- **Funding dispersal:** To ensure each campus’ autonomy, when the PI approves receipt of a campus Request to Collaborate, she will transfer funds to that campus’ designated account, and

the Campus Lead will purchase 3 virtual islands directly from Linden Lab (the finds include one full year of their maintenance). In this way, each campus will own its virtual space and will handle all operations based on those 3 islands.

- Linden Lab will complete the island orders in a timely fashion and will set up the islands according to the pre-determined UT System Archipelago map, facilitating each campus' smooth entry into SL and addressing any needs of the Campus Leads ("Estate Managers").
- Island maintenance coverage begins on date of land purchase. Therefore, maintenance coverage may extend 1-2 months into Year 2 and beyond the duration of this project, at which time each campus decides on maintenance renewal and retention of islands.

Timeline Details of Project at the UT System Level

Month 1 - Preparation of project team: Hire GRA and undergraduate students. UT System invites each campus President to submit a formal Request to Collaborate and to identify their Campus Leads. Land acquisition funds are dispersed into accounts designated by Campus Leads. PI completes IRB proposal. PI works with Linden Lab liaison on communication plan and details of collaboration for full year. Project team prepares all details and materials for the Briefing.

Month 2 - High-level briefing with the 17 Campus Leads (in Austin): Present the Project Overview to inform all participants of the overall design, objectives, and desired outcomes of the project. Present a short demonstration of SL for those less familiar with it as an educational platform. Provide hard copy and e-copy of the **Project Plan at the System Level** that includes information about these key elements: Communication plan, Land provision, Reporting requirements, Assessment plan, and the plan for Research at the System Level (including Consent Forms if needed and Survey 1 for Estate Managers, Trainers, and Faculty participants as they join). Information sharing: campus leads will be asked to bring information about SL land and activities on their campus (and identify any re-location needs of islands). A Getting Started Guide for Estate Managers will be provided along with an overview of the special educational relationship with Linden Lab to provide guidance and troubleshooting functions for the year. Campuses will be encouraged to create their own Campus Project Plan and to integrate research activities into that plan along with IRB-approved studies. Finally, the Calendar for Training Workshops and a scheduling and communication plan will be presented.

- Establish UT System Archipelago: Month 2 will also see the establishment of the UT Archipelago in SL. As soon as System has dispersed funds for land acquisition to a campus account, the Estate Manager will request the islands from Linden Lab according to a special pre-established system for purchase and location in SL. The Linden Lab liaison will ensure that our land orders are filed in a smooth and timely fashion and will oversee the technical aspects of creating our archipelago space in SL (see **MAP, Section IV.**).

Month 3 – Customized Training Workshops will be designed for (1) Training of Estate Managers (TOEM) to better administer the islands on their campus, (2) Training of Trainers (TOT) on each campus to help them introduce SL to faculty, to acquaint them with pedagogical insights and examples of teaching and learning design in SL, and to familiarize them with built-in class management tools and strategies for teaching and learning in SL, and (3) In-Service Training modules for more localized training needs on each campus. Training materials and resources, including extensive resources available online and within SL itself (including, for example, virtual teaching tools created by ISTE) will be provided, as well as pre-training and post-training surveys to measure learning outcomes. **On-site delivery of the Training Workshops** will begin in Month 3, will continue over Months 4-6, and will involve select faculty experts both in Texas and in SL. Training will involve 2-day visits to these five consolidated regions:

- **Region 1:** UT Arlington, UT Dallas, UT Southwestern Medical Center at Dallas, UT Tyler, UT

Health Science Center at Tyler

- **Region 2:** UT Brownsville, UT Pan American
- **Region 3:** UT El Paso, UT Permian Basin
- **Region 4:** UT Health Science Center at Houston, UT M. D. Anderson Cancer Center, UT Medical Branch at Galveston
- **Region 5:** UT System (Austin), UT Austin, UT San Antonio, UT Health Science Center at San Antonio, UT TeleCampus

Month 4 - TOEMs/ TOTs /ISTs: On-site delivery of the Training Workshops that began in Month 3, will continue over Months 4-6, and will involve select faculty experts both in Texas and in SL. Training will involve 2-day visits to the five consolidated regions.

Month 5 - TOEMs/ TOTs /ISTs: On-site delivery of the Training Workshops that began in Month 3, will continue over Months 4-6, and will involve select faculty experts both in Texas and in SL. Training will involve 2-day visits to the five consolidated regions.

Month 6 – Mid-Point Reporting Meeting of campus Estate Managers and Trainers will be held virtually in SL on the UT System’s island. Required mid-point reports will be submitted prior to the meeting (along with research documents such as Consent Forms if needed by newly-participating faculty). Project participants will discuss (1) their Campus Project Plans and the degree to which they are being followed successfully; (2) their accomplishments, problems, level of undergraduate and faculty activity, and collaborations to date, and if and how problems have been addressed, as well as what resources were required; (3) what current activities are underway and if collaboration from other participants is involved; and (4) what their modified plans are for the second half of the duration of the project, what collaborations they desire, and what resources that plan to use. (5) Finally, participants will discuss the overall scope of the Undergraduate Conference and steps that need to be initiated now. This information from the campuses and the discussions will be collected and included in the overall reporting and research documents.

- **TOTs /ISTs:** On-site delivery of the Training Workshops that began in Month 3 will continue over Months 4-6, and will involve select faculty experts both in Texas and in SL. Training will involve 2-day visits to the five consolidated regions. Note: TOEM will no longer be needed at this stage.

Month 7 - TOTs /ISTs as needed, monitoring collaborations, and planning for Undergraduate Conference.

Month 8 - TOTs /ISTs as needed, monitoring collaborations, and planning for Undergraduate Conference.

Month 9 - TOTs /ISTs as needed, monitoring collaborations. Preparations for Undergraduate Conference (including assessment data collection, publicity, and de-briefing session. Hire designated Work Study student, and specify Linden Lab support and publicity.

Month 10 - ISTs as needed, monitoring collaborations. On-going preparations for Undergraduate Conference.

Month 11 – Review System Collaboration. Meeting of 17 leads held in SL on UT System island to review undergraduate and faculty activity to date, review collaborative activities, and plan final steps and procedures for reporting and closing out the project (including planning for activity extended beyond the scope of the project). On-going preparations for Undergraduate Conference.

Month 12 - Undergraduate Conference held both on campuses and in SL. Conference data collection. **Final de-briefing meeting in SL** (required final campus reports will be submitted prior to the meeting). Survey 2 for Estate Managers, Trainers, and Faculty participants. Compile and analyze project data. Draft and submit Final Report.