

## The 'Littlefoot' Game: Transactional Ethics and BioPolitics at the U of South Carolina

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Our project seeks to institute serious games as a key activity at the intersection of private self-understanding and the public performance of virtue. Gaming, freed from the strictures of the zero-sum point of view of win/lose, can serve to connect, unite, and focus individuals on the effects of ethos on local ecosystems. Our aim is grand but the mechanisms are simple: we build a serious game that invites individuals to take a transactional approach to their daily activities, providing feedback to the user in real time as a practice of community. By linking to an extensible array of activities—the energy usage of home space; the ecological impact of dining; the effects of decisions to walk, bike, ride, or drive—we provide a datastream to quantify ethos and a visualization of that behavior in both individual & group settings. At the University of SC, much of the hardware for this game is already online, thanks to the nation's first purpose-built LEED certified residence hall. We propose to develop an open-source application interface and an extensible platform that can support not just the game we envision but also enable students to generate, adapt, and alter the content that governs their life at the university, thereby transforming them from students to authors of their own stories.

Roger Travis, Associate Professor of Classics at the University of Connecticut, has argued that gaming reproduces certain structures—mimetic, immersive, and interactive—that transcend historical moments and speak to the nature of beings-in-the-world. At "LivingEpic," Travis suggests that gaming remains relevant through their facilitation of "intersubjective self-performance," his locution for the ways in which games allow us to narrate ourselves to both others and ourselves in ever-changing performances. Ian Bogost, author of the now-classic *Persuasive Games*, applies the term "procedurality" to this feature of games, highlighting that the awareness of self-malleability (and persuasion that is integral to such notions) is not an all-at-once moment, but rather a series of processes that are recursive, iterative, and interactive. Travis and Bogost, working in Classics and Rhetoric, underscore a key dimension of gaming that is only just now gaining traction: the ability of games to measure, reflect, and "game" the ethical behavior of their players. Just as *Monopoly* turns on the ethical performance of the banker-player, and *Go-Fish* hinges on each player's truthful responses to queries, so too do all games involve an ethical dimension that is powerfully present at the moment of play.

The 'Littlefoot' game grapples with this ethical dimension, building a platform for a serious game of participatory engagement at the 'GreenQuad' complex at the U of SC. Using sensors built into the building's infrastructure, our game provides a transactional-level approach to the activities of daily life—encouraging and facilitating a situated approach to learning that merges habit and environment into a politics of life. With visual feedback that merges the individual into the community of practitioners, our serious game functions as a continuous feedback system for an individual to game his own behavior. As an element of community, the game measures the individual's behavior *en vivo*, representing actions through an aesthesis of flourishing that takes its model from Aristotle's notion of human happiness in truth, aletheia. Our framework models this feedback visually through a shared community visualization that 'unfolds' as individuals play the game.

This visualization layer is the critical component that leverages everyday activity into ethical gameplay. Through transactional computation, 'Littlefoot' models and adapts human behavior to the local environment, transforming behavior into ethos. The aesthetic space within the game allows individual users to measure their own behavior in a less-challenging space that opens up the possibility for critique and self-alteration. Johanna Drucker's "Humanities Games and the Market in Digital Futures" underscores the ways in which the arts transform the teleological model of computing into a more sustainable participatory cultural framework. 'Littlefoot' acknowledges this model, investing in the minutiae of daily life as a powerful tool for participatory self-transformation.

## **Building a Sustainable Framework for Participatory Learning: The 10<sup>th</sup> Dimension of the Carolina Core**

South Carolina, like many educational institutions, has developed a great deal of proficiency in building first-rate learning environments in classrooms and laboratories across campus. We've also provided national leadership in beyond-the-classroom learning models such as the widely praised First Year Experience program. Increasingly, though, we've come to accept that success can't be fostered by any number of discrete, if excellent, moments. We recognize a growing need to provide an integrating framework for the staggeringly diverse opportunities that make up our campus environment. Just as String Theory posits a long-sought after unifying presence for Physics in the wake of quantum uncertainty, so too does our 10<sup>th</sup> Dimension seek to provide a unifying framework for students to rationally navigate their own experiences in the high-stakes world of university education. The multidimensional space of education in the 21<sup>st</sup> century includes:

1. Curricular requirements and degree programs;
2. Credit-based classroom experiences;
3. University-sponsored non-credit learning activities;
4. Dynamic live/study/learn environments;
5. student employment;
6. university recognized social associations, for learning, playing, and living in community;
7. university-sponsored athletics;
8. adhoc affiliations for learning, playing, working;
9. independent study, internships, study abroad, and other forms of quasi-formal learning

The 10<sup>th</sup> Dimension is comprised of exquisitely small strings—metadata—that link together the activities of the university into a dynamic interconnected whole. Built on an evolving notion of education as an outcome-based, skill-centered activity that succeeds only inasmuch as it rewards learning as a lifelong, self-directed activity, our 10<sup>th</sup> Dimension using technology to re-instill a traditional notion of education as an immersive and transformative process.

Technically, our 10<sup>th</sup> Dimension project consists of a relational database containing a knowledge base of the resources of the university (the nine dimensions detailed above). This data—mostly extant but extremely disconnected and unstructured at present—provides the “strings” to connect experiences. Of course, this database will have a web-based interactive layer for providing access to the data in much the same way access currently occurs, with some improvements due to better structuring and a much better method for connecting the data by finding and suggesting related activities. The most innovative part of the 10<sup>th</sup> Dimension project, though, is its embrace of simulation—gaming, in common parlance—to facilitate recursive, reflective, and sustained self-engagement.

Essentially, the 10<sup>th</sup> Dimension project asks students, faculty, and staff at the University of South Carolina to conceive of education as a serious game in order to allow a rational process to develop for the largely haphazard decisions that occur over the course of one's educational career. The game environment embraces the Carolina Core as the framework for this transformative project: *Aesthetic and Interpretive Understanding; Analytical Reasoning and Problem-Solving; Effective, Engaged, and Persuasive Communication; Global Citizenship and Multicultural Understanding; Information Literacy; Scientific Literacy; and Values, Ethics, and Social Responsibility*. By using gaming to draw attention to the transactional logic of decision-making, the 10<sup>th</sup> Dimension of the Carolina Core makes possible greater integration of learning between courses and beyond-the-classroom activities, a component of learning that is scarcely addressed in research intensive institutions. *This more integrated approach to holistic learning, provided by the 10<sup>th</sup> Dimension, will help students achieve desired learning outcomes at higher levels and establish habits of mind, such as curiosity, analytic self-reflection, and purposeful initiative, to become lifelong learners and leading citizens in the 21<sup>st</sup> century.*

An overview of the simulation and its environment is available at [tenthdimension.org](http://tenthdimension.org)

The visual framework of the game allows students to interact with the goals of education (Carolina Core) in a way that reveals the institution's structure of educational programs and services and the connections among them. The game turns on the engagement of the student, encouraging and sustaining an active approach to informed decision-making. By simulating both the everyday choices and the larger decisions, each student becomes more aware of the impact of her choices and engaged in the environment of that decision making. The game provides an experience that is at once personal and intersubjective, allowing users to benefit from the experiences of previous students whose paths and destinations provide insight or caution about the importance of making intentional choices for learning.

## Technical Prospectus & Innovation Outline

Our Serious Game, The 10<sup>th</sup> Dimension, draws on several leading-edge technologies to create a flexible environment for student engagement to take shape. At its most simple, the 10<sup>th</sup> Dimension is a simulated environment of the campus where work, learning, and play collide to form the backdrop for the constituent relationships of the university's education. Simulation provides both a visual dimension to the more abstract aspects of this process, but it also builds in an element of play that fosters recursive, rational decision making. Our 10<sup>th</sup> Dimension game invites a transactional view of the ethical activity of everyday life, whereby students are able to model decisions as innocuous as which path to take between the buildings on campus and as complex as whether to spend a semester abroad or undertake a challenging internship.

### Technology Components

1. A highly flexible database backend that holds and structures the vast amount of information that comprises the university. From courses and degree requirements to intercollegiate athletics, social clubs, informal reading groups, and ad hoc student-generated activities, our database backend flexibly conforms to the existing campus environment. The most significant addition to the existing environment is the addition of 'metadata' as event descriptors to allow concept-based event description.
2. A web-based portal to this database that allows searching, predictive matching, and accurate recommendation proposing for Faculty Advisors and Students alike. As the data store grows to reflect the truly complex nature of life on a college campus, we'll deploy semantic analysis and shortest distance query (SDQ) algorithms to provide decision makers with the tools to make confident decisions in the face of multiple best-choices.
3. A simulation "game" that uses location awareness and ubiquitous computing to facilitate a platform for weaving together the virtual and the actual. Several of these "augmented reality" applications are in development, but our proposal for the 10<sup>th</sup> Dimension makes the interaction between virtual representation and a user's location part of a larger framework that gives purpose and utility to this technology.

Our 10<sup>th</sup> Dimension provides a simulated environment for the University's campus, a location-aware platform for applications that model and reflect user behavior on a granular level, and a game-based decision engine for campus life. Its capabilities include providing technologically advanced walking directions, event locations, and campus tours to providing a platform for game-based simulations of various types (e.g., energy environment, where LittleFoot, a carbon footprint monitoring app, is already on our radar screen for Fall 2009). Along the way, we'll build a platform to house the largest, most dense, and most flexible virtualization of an environment for any campus environment in the country.

### Challenges

1. One of the largest challenges we face is the question of platform. The best current device for the environment we describe is the iPhone, which provides GPS location sensing, a robust graphical engine, and well-established mobile platform. Currently, it uses a subscription model with a cell phone provider that makes it unattractive to the university for large-scale adoption. Competing devices, such as the Android-based G1 and myTouch, require a similar subscription model. Our plan works with desktop and laptop based computing, but invests heavily in more mobile ubiquitous devices.
2. Accurate location awareness within buildings remains an interesting challenge. Our team includes members whose area of research specialization lies in wireless communications. We believe we can build highly accurate location awareness using existing wireless devices by adding a low-level protocol component for accurate triangulation. Campus environments are ideal for this development, with multiple overlapping wireless signals packed into a dense campus core.
3. Content creation will remain a challenge. We recognize that the best content will be supplied by users, so we'll embrace platforms such as the iPhone that offer SDK-level assistance for application development. Our team includes researchers, administrators, and teaching faculty, which will help us assist student content creators in a variety of environments.

### Innovation Profile

While we recognize that the 10<sup>th</sup> Dimension represents a substantial investment in the technical infrastructure of our campus, we believe that our university community will benefit from working at the leading edge of ubiquitous computing. The 10<sup>th</sup> Dimension will set a new standard for a tightly integrated learning environment and pose an array of new technical and educational challenges that we look forward to meeting.