



# The Tenth Dimension: An Integrative Learning Environment

## Quality Enhancement Plan for the University of South Carolina

October 30, 2009

*all possibilities are contained within the tenth dimension*<sup>1</sup>

### Proposal Co-authors

- Davis Baird** Dean of the Honors College and Professor of Philosophy
- Pam Bowers** Associate Vice President for Planning, Assessment, and Innovation, Student Affairs and Academic Support
- Randall Cream** Post-Doctoral Fellow in Digital Humanities and Associate Director, Center for Digital Humanities
- Pearl Fernandes** Associate Professor of Biology, Division of Science, Mathematics and Engineering, USC Sumter
- Susanne Hicklin** Director of Institutional Effectiveness, Office of Institutional Assessment and Compliance
- Gene Luna** Associate Vice President for Housing and Student Development, Student Affairs and Academic Support
- Manton Matthews** Associate Professor and Associate Department Chair, Computer Science and Engineering
- Michael A. Matthews** Professor and Chair, Department of Chemical Engineering and Adjunct Professor, Department of Orthopaedic Surgery; Faculty Co-Chair of the Carolina Core General Education Committee
- David Lee Miller** Carolina Distinguished Professor of English and Comparative Literature and Director of the Center for Digital Humanities, Faculty Co-Chair of the Carolina Core General Education Committee



# The Tenth Dimension: An Integrative Learning Environment

Quality Enhancement Plan for the University of South Carolina

*October 30, 2009*

*all possibilities are contained within the tenth dimension<sup>1</sup>*

**Authors' names removed**

In the spring of 2009, the Faculty Senate adopted learning outcomes for a new Carolina Core Curriculum designed to educate students as active and engaged citizens.<sup>2</sup> Our proposal extends these outcomes into the learning environment across the eight campuses of the USC system, opening coursework in creative new ways to the intellectual and cultural opportunities that enrich our campuses and surrounding communities. **The Tenth Dimension** establishes an intelligent virtual community in which students, faculty, and staff can build a comprehensive, individualized, and integrative learning experience, placing specialized academic study in the broader context of experiential learning.<sup>3</sup>

### **THE PROBLEM: Disconnected Domains of Knowledge**

Colleges and universities nationwide have recognized that advanced learning too often leads to curricular fragmentation, leaving students unable to synthesize, let alone identify, the outcomes of related courses and correlated learning experiences. The Association of American Colleges and Universities puts the case bluntly:

The fragmentation of the curriculum into a collection of independently “owned” courses is itself an impediment to student accomplishment, because the different courses students take, even on the same campus, are not expected to engage or build on one another. Few maps exist to help students plan or integrate their learning as they move in and out of separately organized courses, programs, and campuses. In the absence of shared learning goals and clear expectations, a college degree more frequently certifies completion of disconnected fragments than of a coherent plan for student accomplishment.<sup>4</sup>

Too often students experience the university as a bewildering array of choices. Opportunity, where it occurs, is based on serendipity: a chance encounter along a pathway, an idle moment near an elevator, an overheard rumor. This experience both results from and reinforces a fragmented and incoherent campus life of narrow attention to a single domain. **The Tenth Dimension** goes to the root of this problem because it reconnects the fragments, providing students and their mentors with the means to forge meaningful links among learning experiences in disparate environments. It will enhance the University’s educational effectiveness by integrating our exceptional but isolated disciplines, courses, and beyond the classroom learning activities into an experiential model of interconnectedness and engagement.<sup>5</sup>

### **THE SOLUTION: How The Tenth Dimension Works**

Students using **The Tenth Dimension** will have at their disposal a powerful tool for planning and



discovery, as well as for remembering and organizing their experience. Take the example of a pre-med student with strong interests in public health policy. How might he find the right lab to work in, the right hospital program to volunteer for, the right Washington, D.C. internship to pursue? How could he know that Anthropology Professor David Simmons arranges for volunteer work with the Modelo Juan XXIII Health Program in the Dominican Republic, helping rural residents discover the importance of vaccination? And after three or four years packed with such activities, how would he gather and present his credentials? A Rhodes Scholarship applicant should start developing her application in the summer before her senior year. If the full array of her honors, awards, and extracurricular activities is already organized into an electronic portfolio, both she and those who evaluate her will have ready access to a vivid and comprehensive picture of her accomplishments.

**The Tenth Dimension** is a virtual space in which all these connections are made automatically. It employs mature developments in information technology to create a tightly integrated framework for institutional memory, while offering a flexible and intuitive means for interacting with the knowledge that memory harbors. It will assist in a range of decisions that now occur disconnectedly: selecting classes, finding guest lectures and other extra-curricular learning moments, choosing a major or semester abroad. But because it is driven by its participants, **The Tenth Dimension** can also foster new forms of engagement between students, faculty, staff, and administrators that support the multi-dimensional nature of life in a university.

The technical infrastructure for **The Tenth Dimension** consists of a database with related data sets. The first set contains information from all USC campuses about academic courses, including descriptions, syllabi, reading lists, and assignments, with special attention to high-impact pedagogical practices. The second data set contains information about opportunities and activities beyond the classroom, on system campuses and in the surrounding communities. Algorithms that explore and report connections between these two data sets link and organize them. Students, teachers, and advisors will find a sophisticated set of tools for mapping the learning environment, visualizing possible trajectories for themselves, and discovering unsuspected connections between coursework and the world beyond the classroom.

The “front end” of this complex computer application features three different user-interfaces. One,

designed for delivery over the web and arranged around xml-based data, will facilitate the discovery of connections, so that a faculty member uploading a course-description or syllabus (for example) will be able to see an array of links to the multi-campus learning environment. A second interface will open onto a game-based visualization of the campus. (A preliminary mockup of this portal may be viewed online at [www.tenthdimension.org](http://www.tenthdimension.org).) Within this environment users will be able to model decisions visually, exploring a virtual campus rather than interacting with abstract data points, schedules, and lists. They will be invited to imagine pathways for their own lives, mapping connections between coursework and other activities. Students venturing into this virtual learning environment will be made vividly aware of opportunities lost when they disengage from campus life; they will see more clearly the value of opportunities seized as they reflect on the far-reaching effects of active engagement.

A third interface for this electronic storehouse of institutional memory is a location-based application developed for emerging mobile platforms: iPhone and Android handsets. This application puts at the user's fingertips both a comprehensive memory of the history embodied in buildings, objects, and settings and a comprehensive awareness of activities and opportunities in the present. The experience of walking across campus, whether on a tour or between classes, turns into a series of opportunities to navigate the history of the place or to seize the moment with a spontaneous decision that transforms wasted time into participatory learning.

Because it is structured to suggest connections between related materials, **The Tenth Dimension** will prompt users to consider possibilities of which they were unaware, like the Amazon application "readers who purchased this title also enjoyed . . ." Automated searches will spontaneously suggest opportunities that might tie in with given curricular choices; advising options will let students imagine goals for themselves and map the steps needed to achieve them. Because its structure and content are generated by users, continuously built and rebuilt by their ongoing activity, **The Tenth Dimension** is open-ended, flexible, and extensible. In this way it is able to serve students as both a window and a mirror, offering powerful, innovative views of the learning environment while reflecting the university experience as coherent, complex, and meaningful.



## OUTCOMES: The Benefits of an Integrated Learning Environment

The transformative benefits of this proposal extend to all constituencies within the university system. Our primary focus is on students, whose opportunities for self-directed, individualized learning will unfold in every direction. They will graduate not just with transcripts but with digital portfolios containing a rich representation of their accomplishments. Their self-realization—and their job prospects—will expand, as will their prospects for lifelong learning. Faculty and graduate students will discover new opportunities for collaborative research and teaching.<sup>6</sup> Undergraduate majors will be strengthened by tighter integration with the **Carolina Core** and with beyond the classroom opportunities. Advisors will have a powerful tool to help students map their progress. Students and faculty at all campuses will be effectively linked. Prospective students will have a unique means of exploring what USC might be for them, and alumni will be able to feel the pulse of intellectual life at their alma mater.

As **The Tenth Dimension** transforms USC from a loosely affiliated collection of disciplines, courses, and extracurricular activities to a more deeply interconnected, cohesive whole, the University will be able to demonstrate increased success in the pursuit of its mission. Digital portfolios will broaden our opportunities for assessing how well students achieve the skills and perspectives embodied in the Carolina Core learning outcomes (see note 2), and the results of such assessment will inform ongoing efforts to help students achieve at the highest levels. Rates of retention and graduation will improve, as will our advising system, and these improvements will be easily documented. Faculty awareness of student services and other elements of the campus environment will also increase.

## TIMETABLE: Launching The Tenth Dimension

**The Tenth Dimension** will develop incrementally from a prototype to be tested in a limited environment. This work is already underway at the Center for Digital Humanities.<sup>7</sup> In partnership with faculty in Media Arts and Computer Science, the Center has secured external funding for a Humanities Gaming Institute that offers an ideal context for work on **The Tenth Dimension** user-interface. While the technical infrastructure for this system is under construction, the coauthors of this proposal will develop and implement a step-by-step schedule for the rollout of **The Tenth Dimension**. We will meet with constituencies system-wide to solicit feedback and offer buy-in. We will also test early versions of the user



interfaces with focus groups, using their responses to extend the reach of the system in stages, incorporating larger user groups as we adapt to the needs of the multi-campus community.

The research initiatives behind this proposal put USC in a unique position to develop a system like **The Tenth Dimension**. The Carnegie Foundation for the Advancement of Teaching, which already had recognized our excellence as research university, recently cited USC for its engagement with local communities through service and outreach. We are the only institution in the state to achieve both designations, one of only twenty-three public universities in the nation to have done so. Integrating within and beyond the classroom opportunities will allow students and faculty to capitalize on what Carnegie recognizes as our growing Research and Service excellence. Linking our research initiatives to the University's own project for quality enhancement will benefit both parties: researchers will have added a powerful argument in support of the value of their work, while the University will be able to draw on its own resources as a Carnegie RU/VH institution to reinvigorate the environment for undergraduate education. The synergy generated by this initiative promises to distinguish USC as a high-profile model for improving undergraduate education nationwide.

---

<sup>1</sup> Rob Bryanton, *Imagining the Tenth Dimension: A New Way of Thinking about Time and Space* (Trafford, 2006), p. 27.

<sup>2</sup> The background statement, coherent rationale, core components, and associated learning outcomes of the Carolina Core may be viewed online at <http://www.sc.edu/generaleducation/carolinacore.html>. These new outcomes will become part of the University's general education assessment and improvement program under SACS.

<sup>3</sup> The title of our proposal refers not only to the nine learning outcomes of the Carolina Core Curriculum as they extend into the University learning environment, but also (as our epigraph suggests) to string theory's notion of a tenth dimension that contains all possible universes.

<sup>4</sup> *Greater Expectations: A New Vision for Learning as a Nation Goes to College*, National Panel Report of the Association of American Colleges and Universities: <http://www.greaterexpectations.org/>.

<sup>5</sup> For an authoritative assessment of the importance of integrative learning, see the 2004 statement jointly issued by the AACU and the Carnegie Foundation for the Advancement of Teaching: [https://www.aacu.org/integrative\\_learning/pdfs/ILP\\_Statement.pdf](https://www.aacu.org/integrative_learning/pdfs/ILP_Statement.pdf).

<sup>6</sup> An example of the way such opportunities can strengthen graduate education is provided by the following comment from a reader of this proposal: "I will share an actual experience: in graduate school I was in a judgment and decision-making lab in the psychology department, and a graduate student studying marketing in the Moore School of Business joined our lab so that she could study how price context influences judgment. Another student joined our lab from the philosophy department as well—and won an award for his interdisciplinary research. The database could help graduates and faculty members identify research opportunities across campus. Also, as you know, some faculty only teach graduate-level courses. We want to motivate and reward their participation as well."

<sup>7</sup> Additional materials may be viewed online at [www.tenthdimension.org](http://www.tenthdimension.org).





# The Tenth Dimension: An Integrative Learning Environment

This Blueprint for Excellence was created in accordance with the university's strategic planning process, Focus Carolina. This initiative supports Focus Carolina goals for Teaching and Learning, Quality of Life, and Recognition and Visibility.

Shaded text below describes blueprint terms as defined for **Focus Carolina**, the university's strategic planning process.

Vision - The "Big Idea" expressed in a single sentence, encapsulating the aspirations of the unit over the next five to ten years. This statement should convey a compelling image of how the unit will be perceived by the objective viewer in the not too distant future.

**Vision:** Transform the Carolina educational environment by integrating loosely affiliated disciplines, courses, and beyond-the-classroom activities to a deeply interconnected, cohesive whole - a nationally recognized point of innovative distinction for Carolina.

Mission - A concise statement that reflects the unit's roles and the functions deriving from both its unique identity and from the larger mission of the university.

**Mission:** Transform the educational experience at USC by more fully integrating the scattered elements of a complex learning environment, providing all members of the university community—but especially students, both undergraduate and graduate—with a sophisticated set of tools for mapping their progress through that environment, visualizing possible trajectories for themselves and discovering unsuspected connections between coursework, research and the world outside the classroom. The Tenth Dimension will be a sustainable structure, at once human and technical, in which students, faculty, and staff can work, separately and together, to build a highly integrated learning environment.

Goals: Goal statements should reflect targeted outcomes that the unit has or will soon launch in order to fulfill its mission and achieve its vision.

a. Initiative – specific plans to support achievement of goals.

Indicator – a measurable outcome useful in assessing the success in meeting a goal. The outcome may be qualitative or quantitative, but it must be measurable and objective.

## Goals and Initiatives:

### 1. Improve students' achievement of learning outcomes by integrating educational experiences.

- Make more explicit the connections among coursework and the vast array of campus and community activities, and the possibilities for enhanced learning and fun (stimulating, personalized exploration of ideas and activities) by articulating and making visible (electronically) the purpose, content, entry paths, and experiences of participants
- Through advising, in UNIV 101, and electronically, engage students in exploration of the multitude of opportunities for engagement in courses and activities related to their intellectual and social interests and goals, especially practices known to have high educational impact, to guide their choices for engaging in the campus environment
- Through advising, and through electronic portfolio capabilities, engage students in reflection on the educational/developmental impact of participation in various activities – in class and beyond, to help them articulate their educational growth

### 2. Provide a technical infrastructure to create and support a highly integrated learning environment.

- Create a database that explores and reports connections among academic courses and beyond-the-classroom activities (1a above has to happen in conjunction with this initiative)
- Collaborate to integrate this structure to complement existing technology systems

### 3. Strengthen developmental advising toward facilitating students' self-directed exploration/planning/mapping of learning and development in and beyond the classroom and increased engagement in high-impact practices

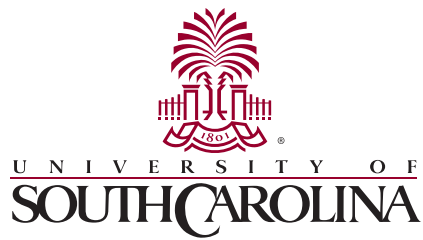
- Collaborate with advisors to implement The Tenth Dimension and enhance its usefulness by providing supporting data (advisors are likely to be a huge source of knowledge about existing and potential connections, paths to success for past students, gaps they perceive in current practices, etc)

### 4. Improve the quality of scholarly life for faculty members and graduate students by strengthening the culture of the campus as an integrative learning community.

- Increase faculty and graduate students' awareness of links (and possible links) between their teaching, research and services activities with the total learning environment
- Increase faculty and graduate students' opportunities for collaboration on research, teaching and service.

Performance Indicators\* (\*may be revised as project initiatives and implementation plans are more fully developed):

- Direct – students' achievement of learning outcomes – institutional (Carolina Core) and in the major
  - Indirect - Students perceptions of the effect of The Tenth Dimension on their educational attainment, on shaping their educational experience; satisfaction with the process and results
- Direct – Student learning as demonstrated in student portfolios that document each student's self-authorship of his/her educational experience by creating an educational map, providing samples of work that demonstrate learning achievement, and self-reflections on learning across all elements of the educational experience (learning gained from a beyond-the-classroom experience, understanding of connections to learning goals in the major and in general education)
  - Indirect - Students' perceptions of quality of campus life, satisfaction, usefulness and educational value
  - Indirect - Faculty perceptions of quality of campus life, satisfaction, usefulness and educational value
- Direct - Faculty engagement in collaborative teaching, research, and service (increase in numbers of collaborative projects)
  - Indirect - Faculty perceptions of the effect of The Tenth Dimension on their teaching, research and service; and their satisfaction with the process and results; quality of scholarly campus environment
- Direct – Adoption of this innovative educational model by other research institutions



OFFICE OF THE VICE PRESIDENT FOR STUDENT AFFAIRS,  
VICE PROVOST FOR ACADEMIC SUPPORT,  
AND DEAN OF STUDENTS

October 30, 2009

To the QEP Selection Committee:

*The Tenth Dimension: An Integrative Learning Environment* Quality Enhancement Plan is one that will truly advance—and over time, even transform—the educational experience for all members of the University community in many ways: in Columbia and throughout the system; at the undergraduate and graduate student level; for faculty and professional educators; and for our greater Carolina community. The Tenth Dimension proposal represents the thinking and design of an interdisciplinary team of the best scholars and practitioners at Carolina. The level of meaningful, learning-centered change that would result from this institutional initiative is inspirational in its breadth and substance. I suspect that most other QEP proposals could be collaborative partners with this effort; I hope the selection committee will consider the synergy of combining the excellent ideas from multiple proposals into one collaborative, institutional project.

This concept appears to be simple and practical in nature: help students, faculty, advisors and professional educators learn how to navigate the nearly unlimited educational learning experiences provided by our University and our greater Carolina community, to ensure that each student gains the benefits of holistic development. The educational benefits provided by a research university can be increased if each student is assisted to create a “map” that provides a personalized learning plan to integrate knowledge, skills and attitudes gained from coursework in general education, program of study (major), and in the exponential number of “beyond the classroom experiences” available on campus and in our external communities. These beyond-the-classroom experiences provide opportunities for students to apply and practice knowledge and skills learned in the classroom and, conversely, enrich their classroom experiences by providing “real-life” context for concepts, theories and ideas presented in coursework. Failure to consider them as part of the educational plan is a missed opportunity for student learning.

We have learned from national studies, scholarly presentations, and conversations with national educational experts that the Tenth Dimension Project would be a point of distinction for the University of South Carolina, and one with the potential to have a high educational impact on students’ achievement of the newly approved Carolina Core learning outcomes.

According to Dr. Carol Geary Schneider, President of the Association of American Colleges and Universities, “no other research university of Carolina’s stature (other than perhaps Michigan State) is working to provide an integrative learning experience for its students as you have proposed. Further, if you can incorporate the proposed gaming technology to create the relational connections between in-class and beyond-the-classroom learning experiences, you will make a unique

contribution to your students' learning in ways that will be emulated by others." In conversations with Dr. Schneider, she expressed that the educational concepts the University was pursuing to enhance the educational experience through integrative learning, bolstered by the use of technology, would certainly warrant attention from foundation and government grants.

Support also has been forthcoming from another distinguished educator with impeccable credentials, Mr. John Gardner, who is recognized internationally as the "father" of one of the most successful and high impacting educational activities—the freshman seminar. Mr. Gardner is currently Executive Director of The Institute for Excellence in Undergraduate Education. The Institute's mission is to "further accountability through assessment, the coordination and delivery of efforts associated with student learning, student success, and student retention during the undergraduate experience." Mr. Gardner informally reviewed this proposal and provided unsolicited, but very positive, feedback stating "I am very excited about the direction the University is considering." In conversation, Mr. Gardner has expressed that integrative learning—implemented through assessment, institutional focus, and activities that utilize established high-impact educational activities both inside and beyond the classroom—will play a significant role in the educational transformation of our students' learning experiences.

The University of South Carolina system is uniquely positioned to foster this newly fashioned integrative learning experience that will enhance the learning experience for students, their faculty, professional educators, and our external Carolina community. Carolina already provides a campus with an opportunity-rich learning environment (with programs for undergraduate research, study abroad, and service learning, among many others), a robust series of outreach activities with our community (including a new program to develop internship and work related experiences while in school), nationally recognized programs such as the Student Success Center, the University 101 freshman seminar, Healthy Carolina, living-learning centers, appearances by nationally prominent speakers, and many, many others. In spite of these rich resources available to them, many of our students miss learning opportunities. They would be more likely to obtain maximum benefit if they could learn from the experiences of previous students, but these students' paths to knowledge acquisition and talent development have not been easily captured or shared with others. These capabilities are central to the Tenth Dimension.

This Tenth Dimension Integrative Learning Project will allow each student to first learn the relevance of their educational experiences, as they are assisted to understand how the component pieces are connected. Next, the student will have a visual map of the many educational options that can combine in-class and beyond the classroom experiences to provide a holistic and full learning experience—resulting in each student gaining knowledge and competencies in all learning outcomes! Then, the student can design and map their own individualized, personalized, learning plan for four years (which will facilitate University leadership decisions for future course and seat demands, providing more precise availabilities). The project envisions a senior year assignment project where each student, in a team setting, could demonstrate their learning by integrating their knowledge, experiences, and life skills to provide proposed solutions to complex problems as a final expression of their educational experience. Finally, the student can capture and archive for future use their formative reflections in an e-portfolio. As importantly, the assessment audits conducted as a part of this project would result in the makeover, the reinvention, of services and systems that may not currently provide optimum challenges or support for our students' learning—such as our often criticized system for advising.

What a tremendously useful tool this system will be for students, their faculty, and their advisors! Benefits include: fewer lost opportunities for learning and development; open-sourced options for individualized paths for learning; designed

systems to allow each student to self-advise, creating their own personalized learning path based on the paths of successful students who preceded them; wonderful opportunities for students, their academic departments, and the University to engage in sophisticated assessment, accountability, and innovation activities; and incredible tools for the faculty to use in designing active learning experiences for their students. This program would bring distinction to the University of South Carolina and propel us to national stature as a leader in teaching and learning, as an institution known for providing our students a holistic, integrative education. Most importantly, our students will leave with the engrained ability to be lifelong learners. The integrative learning project will have taught them and helped them practice these very skills in their own college learning experiences.

I could express many more implications and desirable outcomes we will realize from the implementation of *The Tenth Dimension: An Integrated Learning Environment*. It would appear to me that this system would provide a wholesale review and remodeling of the educational experience at Carolina, both in and beyond the classroom. Thus, this proposal may well serve as an umbrella for other QEP proposals submitted for consideration; other projects could be incorporated and accomplished within this integrative framework. Again, I would encourage the selection committee to consider the synergy that could be realized by combining what I suspect will be many good proposals.

Please accept this letter as my full and enthusiastic endorsement of *The Tenth Dimension: An Integrated Learning Environment* QEP Proposal. I have confidence that this approach, using technology to fuel integrative learning both in and beyond the classroom, will position the University of South Carolina to be a leader in providing educational experiences where all can learn and develop in individualized ways, and in ways that also benefit the learning and development others experience.

I am convinced that integrative learning is the “next big thing” in higher education; this project may well be an innovative solution that higher education institutions have been searching for to ensure that learning, assessment, accountability, and innovation drive our joint efforts towards educational excellence! In the Division of Student Affairs and Academic Support, we believe in this concept so strongly that in Summer 2010, our national award-winning, annual professional development conference for our 400 professional educators will be on the theme “Integrative Learning and its Implications for Students and Faculty at Carolina.” We are prepared and eager to begin work on *The Tenth Dimension*, to transform the educational experience for all constituents and to cultivate in our students a lifelong passion for learning.

Sincerely,



Dennis Pruitt  
Vice President for Student Affairs