Welcome from the Dean

This year, Ball State University’s College of Architecture and Planning will host its second CAP Faculty Symposium. Last year we invited our faculty to submit abstracts on their creative activities and on April 2, the college took time out from its busy schedule of classes and meetings in order to celebrate the richness of our collective expertise. That day we learned much about each other and further confirmed our strength in studio teaching, emerging media, sustainability, design, historic preservation and community service. The first CAP Faculty Symposium was followed later in the fall by our first CAP Alumni Symposium, designed to give our alumni a similar opportunity as we collectively celebrated their professional accomplishments.

Later in the fall of 2008, during a meeting with our emeritus faculty, I asked them: “What are the things that we need to preserve so that our school remains true to its fundamental strengths?” Several things were mentioned but the most obvious answer was “our focus on teaching.” Consequently, this year our faculty symposium will pay particular attention to how we bring our expertise into the lecture room, classroom, seminar room and studio. CAP faculty share an active commitment to the process of knowledge creation and knowledge dissemination. This event will deliver overwhelming evidence that we accomplish both.

On March 25, our faculty will learn more about their colleagues as we provide an unprecedented opportunity to openly discuss not only “how we teach,” but also, and perhaps more importantly, “how we inform our teaching.” At the same time, the participation of our students in this event will provide them with an unusual opportunity to further understand our teaching methods and their expected learning outcomes. This event will further contribute to the implementation of immersive learning environments where the students understand how they can be proactive participants in the teaching and learning process.

The 2008 faculty symposium provided a substantial amount of time for presentations followed by limited opportunities for Q&A. This year, given the thematic nature of the event, the sessions will be fundamentally focused on promoting discussion. The proceedings of the event will contain short abstracts on the position or experience of each presenter and a short provocation that seeks to promote debate in areas of potential controversy.

We will address a wide variety of topics that may generate conversations that will weave across several sessions. It is easy to predict that “multidisciplinary education” will resonate not only within its own session but will extend itself into other thematic discussions about “education for a sustainable future” and “environmental revitalization.” The same may happen in our sessions on “new educational paradigms,” “digital technology and media,” “beginning design studio education” and “pedagogical explorations.” I am also sure that the session on “multidisciplinary education” will project thinking that will benefit our conversation about “domain technical integration.”

Please join us in this celebration of learning and the examination of our collective scholarship of teaching.

Guillermo Vasquez de Velasco, Ph.D.
Dean
Schedule of Events

8:00 AM  Breakfast

8:30 AM  Introduction - Dean Guillermo Vasquez de Velasco
          Opening Remarks - Provost Terry King

9:00 AM  **Keynote Address - Marvin Malecha, FAIA**
          President of AIA and Dean of the College of Design at North Carolina State University

10:00 AM  Coffee Break - 3rd Floor Atrium

10:30 AM  **AB210**
          Multidisciplinary Education

          *Pam Harwood*
          Design Pedagogy: An Evidence-based Design Studio Using Patterns, Practices, and Performance

          *Guillermo Vasquez de Velasco*
          Collaborative Teaching/Learning Environment for Students of Architecture, Construction Sciences, and Landscape Architecture

          *Stephen Kendall*
          How I Approach Interdisciplinary Education

10:30 AM  **AB310**
          Early Studio Education

          *Carla Corbin*
          Critical Thinking Made Visible: Diagrams and Early Studio Education

          *Lohren Deeg / Vera Adams / Paul Puzzello / Megan Phillippe / Sean Rotar*
          Spatial Definition with Points, Lines, and Planes

12:00 PM  Lunch

1:00 PM  **Digital Technology and Media**

          *Michael Gibson*
          Armatures: Technology, Experimentation, and Performance in Design

          *Paul Puzzello*
          Handcraft and the Digital Revolution - In Terms of Endearment

          *Kevin Klinger*
          Digital Design through Production Pedagogy

          *Antonieta Angulo / John Fillwalk / Guillermo Vasquez de Velasco*
          Collaborating in a Virtual Multi-User Environment: The Virtual Design Studio Populates Second Life

          *John Motloch*
          Design Education in Transition

          *Meg Calkins*
          Form, Meaning AND Living Systems: Integrating Ecological Literacy into the Design Curriculum

          *Martha Hunt*
          Using GIS in Our Curriculum

          *Chris Marlow*
          Digital Game-Based Visualization: Catalyst for Learning in a Sustainable Future

3:00 PM  Coffee Break - 3rd Floor Atrium

3:30 PM  **Domain Technical Integration**

          *Michele Chiuni*
          Filling the Gaps: Teaching Structures as Design

          *Robert Koester*
          Eight Years Later: Assessing Notable Architecture Of The Midwest Using The Vital Signs Protocol

          *Walter Grondzik*
          With a Little Help from My Friends: The Society of Building Science Educators

          *Olon Dotson*
          The Fourth World - A Post-Developing Nation

          *Olon Dotson / Wes Janz / Nihal Perera*
          Midwess Distress and Distress Too

          *Duncan Campbell*
          Filling the Gaps - Contemporary Context for Traditional Communities

5:00 PM  Reception - 3rd Floor Atrium
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Since 1994, Mr. Malecha has served as the Dean of the College of Design at North Carolina State University, Raleigh. Dean Malecha has served as President of the Association of Collegiate Schools of Architecture (ACSA) and the California Council of Architectural Education and as the Vice Chair of the AIA/ACSA Council on Architectural Research. He has had frequent exchanges with the European Association for Architectural Education as a visiting speaker and as an advisor. He has served as a member of the National Institute for Architectural Education Teaching Office Task Force. Dean Malecha has also served as a Master Juror for the National Council of Architectural Registration Boards, a member of the National Architectural Accrediting Board, on the Steering Committee of the AIA Architects in Education Professional Interest Area as the Chair, and as a member of the AIA Research Policy Board. He also served as a member of the Board of the Contemporary Art Museum of Raleigh. As a member of the Building and Real Estate Commission of the Catholic Diocese of Raleigh, he acted as a peer reviewer for all new construction.

Dean Malecha has led the effort to promote the development of the case studies in architecture. His efforts as co-chair of the AIA Case Study Workgroup fostered increased collaboration between academic institutions and professional offices. This work led him to initiate studies of a Practice Academy Model on behalf of the American Institute of Architects.

Currently serving as President of the American Institute of Architects (AIA), he was First Vice President/President Elect prior to this year. From 2004 to 2007 he served as a member of the American Institute of Architects National Board and he continues to serve as a member of the AIA North Carolina Board.


As an educator Mr. Malecha has devoted considerable energy to international studies. While at Cal Poly Pomona he led student tours to Europe, initiated study abroad programs in Japan and Greece and conducted urban research projects in Northern Italy. Since coming to NC State he has provided the leadership to initiate the Prague Institute, a year-round study center at the core of the city. During the course of his leadership at the College of Design, student participation in study abroad programs for credit has risen to 45 per cent of the graduating class. Dean Malecha chaired an International Programs Deans Task Force leading to the development of a white paper providing a vision of the future for NC State University.

He is regularly requested to lecture and participate in academic programs abroad and has, in recent years, conducted lectures and seminars in Bucharest, Romania; Antwerp, Belgium; and Santiago, Chile. He was the founder of a bi-annual conference between the Architecture Research Centers Consortium and the European Association of Architectural Educators. He has been recognized for his efforts by the EAAE for his efforts and is a regularly invited contributor to EAAE publications on architectural education. For these many efforts, in 2006, Dean Malecha was awarded the Jackson Rigney International Service Award from NC State University.

He was named second on a list of the 30 most influential architectural educators in the United States regarding the relationship between education and practice by Design Intelligence magazine in 2005.

As an architect, Mr. Malecha gained experience working in the firm of Hugh Stubbins and Associates. He continues to practice, working on a variety of commissions from programming to architectural design. He is currently the lead architectural designer for the Chancellor’s Residence at NC State University in association with a local architectural firm.
Multidisciplinary Education

Multidisciplinary integration is a characteristic of immersive learning at Ball State University and a required professional accreditation criterion in all our disciplines. If we are convinced that multidisciplinary integration is important, then why is it so difficult to attain? Is this something that needs to be pervasive across the curricula or should we limit our efforts to particular episodes in the structure of our degree programs? Traditionally, professional internships provided this learning opportunity. Do we need more? Where do we draw the line between multidisciplinary integration and professional competency? As we address the way in which universities generate disciplinary silos, are we in favor of melting the silos or building them stronger? At the margin of institutional pressures, as educators addressing the knowledge base of our disciplines and professions, what are the challenges and benefits of providing for multidisciplinary integration in our courses and studios?

Pam Harwood
Associate Professor • Department of Architecture • M.Arch., University of Minnesota, 1991 • Diploma Program in Urban Studies, University of Stockholm, 1985 • B.S., Architectural Studies, University of Wisconsin-Milwaukee, 1981 • pharwood@bsu.edu

Design Pedagogy: An Evidence-based Design Studio using Patterns, Practices and Performance

Drawn from our research on charter schools, we present 10 design patterns, best practice examples, and studio design projects in this paper, revealing some of the most relevant trends in educational design. An interdisciplinary team of students in architecture, urban planning, business, education, and psychology completed a series of case studies of best practices, as well as profiled charter schools locally, to develop patterns and guidelines for the facility planning and educational development of charter schools. Charter schools are public schools of choice that receive more administrative and pedagogical autonomy and flexibility than district schools in exchange for meeting the performance goals specified in each school’s charter. Charter schools often have innovative curriculum, challenging traditional education methods and facility design. This research addresses the connections between the designed physical environment and the learning innovations it supports, while encouraging the entrepreneurial charter school vision, emphasizing creativity in the renovation, adaptive reuse, and non-traditional use of existing buildings, efficiently maximizing student safety and learning, and adhering to best-practice standards of ecological design.

Following the development of the case studies, school profiles, and design principles and patterns, upper-level undergraduate students in the Department of Architecture at Ball State University undertook nine different charter school design projects. These projects were based on programmatic needs and client interactions with specific charter school personnel and site conditions. In this evidence-based studio, the design patterns, best-practice examples, and performance measures were used to focus the students’ innovative ideas. The interdisciplinary group of students on the Charter School Business Fellows team served as consultants to the design studio. This parallel activity allowed for the effectiveness, validity, and relevance of the patterns to be tested in the studio projects, which helped us to improve ways that the pattern language is useful for all school stakeholders. In this presentation, students and I will discuss the design patterns and illustrative examples from our larger research study, essential to the design and planning of innovative and responsive learning environments in the 21st century. The outcomes of this evidence-based design studio will then be shared so that the effectiveness of this studio pedagogy can be assessed.

Pattern 1.1: Provide Differing Informal and Formal Learning Settings (source: Denver School of Science and Technology)
Collaborative Teaching/Learning Environment for Students of Architecture, Construction Sciences, and Landscape Architecture

This presentation will illustrate several implementations, at a different institution, where the author has experimented with the integration of graduate students of several disciplines in a studio environment.

The multidisciplinary educational objectives:

- To develop awareness of the knowledge bases of other disciplines and an understanding of how that knowledge is likely to interact with their own knowledge base;
- To develop a functional awareness of the boundaries of their own disciplines and an understanding that, in many instances, those boundaries are not clearly defined; and
- To develop the ability to positively interact with other disciplines in the context of a real multidisciplinary project.

In every case a multidisciplinary team of instructors collaborated in the design and implementation of a studio subject that was later addressed as an actual project by multidisciplinary teams of students with backgrounds in architecture, landscape architecture, and construction.

The projects addressed in a sequence of three years are as follows:
2004- A large botanical repository housing a visitor’s center, a green house complex, and a small resort, in central Texas.
2005- A hurricane vertical evacuation facility and site, in south Florida.
2006- A university research and teaching center and site, in the rain forest of Costa Rica.

How I Approach Interdisciplinary Education

I argue that interdisciplinary education is most successful when a student’s grasp of a discipline’s knowledge base and skills is well established. Students can then explore ways in which various design – and other - disciplines relate to each other.

Interdisciplinary education depends on an understanding of the concepts of control and levels of intervention. Put simply, an urban planner is in control of land use, transportation and infrastructure decisions, employing knowledge of specialists. This provides constraints for urban design decisions concerning the morphology and character of public space, also requiring various specialists. This in turn sets the stage for architects to exercise control in the design of buildings, and for landscape architects to design the spaces between buildings and in the public realm.

In the long unfolding of the built environment, these acts of designing occur sequentially. Urban plans are made long before architects are hired for individual sites. Even if an architect is consulted in making the urban design, different architects are normally involved in the design of the buildings, and that is true over the course of urban transformation.

Ideally, an urban design class will make an urban tissue, and hand it to a class of architects who use this plan, each designing a building in it. A dialogue ensues: Does the urban design help produce coherence and also variety? Does the urban design –now that it has been filled-in – recognize issues of territorial boundaries, or topography, orientation to the sun and winds, etc.? Do the individual building designs add up to more than the sum of the parts, etc.? Instead of putting students from many disciplines into one project in which everyone is involved in everything, without regard to disciplines, I try to help students develop the methods and attitudes needed to thrive when tasks are partitioned and when the making of environment is recognized as never ending.
Early Studio Education

Remember the movie “The Karate Kid”? In the movie, the young boy is asked to varnish a fence brushing up and down, to paint a wall brushing side to side and to polish a floor brushing in circles. At the end, the young boy discovers that he has not only made a number of home improvements, but has actually mastered a number of key karate moves. Faculty frequently say that our main objective is not necessarily to teach content, but to teach how to learn that content. As we introduce new college students to our teaching/learning paradigm, are we transparent about the pedagogical premises we follow? Do we have a clear pedagogical framework that guides our first year curriculum? When we address the minimum common denominator of our disciplines and illustrate disciplinary differences, are we cultivating a culture of multidisciplinary integration or guiding them into professional silos?

Carla Corbin
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Critical Thinking Made Visible: Diagrams and Early Studio Education

Design is choice. The theory of the visual display of . . . information consists of principles that generate design options and that guide choices among options. The principles should not be applied rigidly or in a peevish spirit; they are not logically or mathematically certain; and it is better to violate any principle than to place graceless or inelegant marks on paper.

The Visual Display of Quantitative Information, Tufte, 1983

The design disciplines use visual analysis in distinct and unique ways. Diagrams and analytical drawings are powerful tools in practice to communicate how a designer conceptualizes a site and program, and are the basis for the design response.

When and how is the right place to teach this important language of the environmental design disciplines? This paper assumes that diagram-making should be integrated with the other basics of foundational learning; the focus of the investigation will be on how – what methods and approaches create effective learning situations for students to understand and use this particular aspect of communication.

Robert Leamnson, Director of Multidisciplinary Studies at U Mass, Dartmouth, has made first year university students a focus of his work. In Thinking About Teaching and Learning [1999], Leamnson characterizes the culture of today’s students as primarily oral, typically focused on the specific and particular. With limited ability for abstracting and generalizing – essential to the processes of formulating design ideas – many struggle with the translation of concepts into the visual language of diagrams. Thus there are particular, specific issues to be addressed in teaching the ideas and graphic language of analysis to beginning design students.

This paper will investigate how diagrams have been represented in iconic texts used to teach foundation design. A case will be made for the essential role of verbal literacy as a basis for the graphic literacy of diagram-making, and for the importance of this activity as central to critical thinking.
Spatial Definition with Points, Lines, and Planes

This first year interdisciplinary project seeks to explore the possibilities of the expression, dimensions, and scales of a linear sequence of small interior spaces for an individual to move through in a weightless environment. While accomplishing a design problem with several constraints, including form language, and all elements meeting at 90 degrees, students learn to prioritize and shape their design ideas given the constraints found in the built environment. At the same time, students explore the notions associated with a given artistic piece (in this case, a piece of instrumental music, about five minutes in duration) to translate into architectural space.

Students were assigned a dimensional “framework” in which an individual project could “dock” or attach. Students were assigned a short instrumental piece of music and were asked to interpret this selection into a linear series of spaces using only points, lines, and planes at 90 degree angles and not to exceed a 4” x 4” x 18” volume at a given scale. This “space pod” then docked into a framework which in turn became part of a stacked, clustered dwelling colony. Students cooperated in the design and construction of the colony.

This cooperative effort again explored constraints. The given space in the CAP facility (known collectively as the third floor lounge), while featuring views from above, a relatively high ceiling, and an abundance of natural light, was not conducive for 90 students to construct a “colony” of projects. As a result, approximately four to 10 “leaders” were appointed by the student body and several issues of leadership and communication emerged.

Given the personal and linear scale of the original project and its constraints, and accepting the number of projects as predetermined kit of parts made for a lively discussion of how to construct a single composition given the structural and physical properties of the student projects. Students were able to question if the whole was indeed greater than the sum of the parts.

Pictured here are several individual student “space pod” projects contained within frameworks, stacked to form a colony.
New Educational Paradigms

Design is considered by many as the most sophisticated approach for the creative management of problem solving and decision making techniques. In a similar way, studio-based education is considered by many as one of the most versatile teaching/learning environments. If these are true statements, why is it so difficult to propagate the concept of design-thinking and studio-based education into other disciplines? Maybe design-thinking has already migrated into other disciplines but studio-based education has not. Is the design studio still at the core of our knowledge integration paradigm? If studio-based education is indeed that versatile, why do we see so little change on how we deliver content, conduct reviews, and produce projects? Making use of potential symmetries between professional and academic studios, what are the possibilities for professional and academic integration beyond internships? How do we avoid potential conflicts between professional studios that provide continuing professional development credit in competition with universities and academic studios that deliver professional work in competition with firms?

Mahesh Senagala
Department Chair and Irving Distinguished Professor • Department of Architecture • M.Arch., Kansas State University, 1994 • B.Arch., Jawaharlal Nehru Technological University, Hyderabad, India, 1990 • mahesh@bsu.edu

A Studio Is Not a Tree: On Rhizomes, Networks and a New Paradigm for Learning

Are the current methods of studio organization and teaching still effective? Is it time to consider alternative models of studio teaching to better respond to the changing context of social, economic, political, and environmental conditions? The presentation will feature the evolution of a provocative “wall-less,” “rhizomatic,” and “self-organizing studio” that integrates leadership, 24/7 collaborative learning, emerging technologies, novel goal setting and assessment methods. Over the course of the last 14 years, many experiments with the pedagogical methods, assessment methods and organizational strategies were carried out by the author that have led to the “self-organizing studio” model. The author will discuss the effectiveness of this model through measurable achievements, student engagement and potential.
Bruce Frankel  
Professor • Department of Urban Planning • Ph.D., University of Pennsylvania, 1974 • MCP, City Planning, University of Pennsylvania, 1970 • BA, Rutgers University, 1968 • bfrankel@bsu.edu

Forms of Experiential Learning: Controversy and Opportunity for its Export in the University Core Curriculum

Within the progressive paradigm continuum of experiential to immersive learning is presented service learning. Here we integrate studio and internship with professional and public services. In doing so, we incorporate a client, or, at least, a constituent. We approach the truest meaning of professional education but also confront our reluctance to offend alumni and professional relations. The intersection of this central Ball State paradigm with the College's role in professional education presents both meaning and controversy.

Service learning embraces the variety of "pre-professional" and, most recently, "post or extended-professional services." The institutional stake is represented by the studio format, summer internships, client-based graduate assistantships, and the applied research and learning of the College [e.g., CBP, CHP, MUDS, LDI, CAPAsia] and of relevance outside the College [e.g., CERES, BBC]. These institutions depend on sponsors and incentives for the performance of research, inclusive of grants, consulting fees, stipends and course credits. Do they compete with our external constituents as professional service providers, or provide support for their businesses? Does this matter? Why? How?

Second, with the fall 2009 inauguration of UCC-21 we have the opportunity to export various forms of our tested experiential learning paradigms to disciplines outside the College. By collaborating with primarily academic departments we can offer the aforementioned progressive paradigm through the progressive learning tiers of the Undergraduate Core Curriculum. This seminar explores how.

AE Sonne Palmer  
Professor • Department of Architecture • M.S. Arch., Columbia University, 1963 • B.S. Arch., Texas A & M University, 1959 • spalmer@bsu.edu

DESIGN: Where Has It Gone?

The thesis of the new book, The Last Professors: the Corporate University and the Fate of the Humanities, by Frank Donoghue, posits that the academe has adopted corporate values and is moving away from the humanities toward vocationalism. In DESIGN: Where Has It Gone?, a similar hypothesis asks whether architectural education also has been overtaken by corporate agendas where end-products and projects are its primary goal.

The presentation asks if architectural education continues to question “appropriate practices” through investigation and reassessment of today’s globally expansive and technologically dynamic context. Does architectural education seek to empower students’ sense of inquiry, creativity, and responsibility? Are curricula committed to engage emergent social, cultural, and environmental concerns that characterize the expanding definition of 21st century architecture? And, if design is no longer central to these issues, where has it gone?

Since the early 1800s, when architectural education moved from the building site to the classroom, students have been challenged to understand the interrelated complexities of architectural problems, establish appropriate design methodologies for approaching these problems, and communicate and defend their unique and personal resolutions to problems. This process—a design methodology that incorporates as well as challenges all we know—has been the soul of architectural innovation and the heart of architectural education. The question, it seems, is how today’s architectural design become a process-of-assembly that no longer challenges but rather follows rules, criteria, and procedures established by others? And, the solution it seems is reposition design at the center of architectural education.
Digital Technology and Media

The history of digital technology in design and planning is longer than most people assume and it is also richer than most people acknowledge. Going from the days of denial when the idea of computing and creativity was incompatible, to the days of struggle between analog and digital media, and the current pervasiveness of digital technology in almost everything we do, can we now say that we fully understand the opportunities that lie before us? At times, academia has provided leadership in this field. At other times, we have fallen behind and followed the leadership of practitioners. Is collaboration between academia and industry the best way to move forward? We constantly argue that software for designers should be "designed" by the users, but it remains arguable who is in the driver’s seat of developments in the digital domain. We are discovering how we can be opportunistic in the use of digital technologies, but are we aware of the criteria that guide us in that process? Are we trying to be more creative, more efficient, more sustainable…? Can we claim, once and for all that we are over the controversy of "traditional" versus "digital"? Do we know what we need to teach and when to teach it?

Michael Gibson
Instructor • Department of Architecture • M.Arch., Harvard Graduate School of Design, 2006 • B.A. Architecture, Miami University, 2002 • mdgibson@bsu.edu

Armatures: Technology, Experimentation and Performance in Design

Designers deploy a wide range of technologies in engaging design: crafting a formal and contextual response to a particular problem in the world. At the very core of design is the need to reduce, within the framework of this problem, a nevertheless infinite and unstructured expanse of possible solutions to something that is meaningful, organized, and controlled. Technology – providing the so-called “tools” of the designer – has a deep influence on this process from which a design converges. Technology is both the experimental lens from which a designer confronts the world and that which turns the designed thing into a sort of device, a thing which is meant to do a particular thing.

Teaching computer-based design, conventional design studio, and traditional communication media informs a new basis for understanding technology and the creative process it serves. Technology as critical theory reaches far beyond the computer, finding historical relevance as well as present day currency, and informing pencil sketching, model making, digital fabrication, or something as advanced as BIM with the same conceptual foundations.

The proposed presentation will argue this: at the point when the “design” is merely an armature, or an informed framework, is where technology can be engaged as theory. It is at this point in the creative process where the distinctions among technologies, perhaps a computer and a pencil, become blurred. Engaging this blurry territory with design students can establish a critical method toward both "high-tech" and "un-tech" processes – but more importantly, can support a design culture that truly addresses technology as theory, rather than “tool set.” But in the design studio or seminar, how can this territory be cultivated?

Design as an armature where the distinctions among technologies, perhaps a computer and a pencil, become blurred - and technology may be engaged as theory rather than toolset.
Handcraft and the Digital Revolution - In Terms of Endearment

With the availability of new digital tools and ways of making, there is a new attitude toward materiality and form, co-mingling with a pragmatism in architecture of performance-driven buildings. Handcraft, paradoxically, has had to come to terms with this digital revolution and justify a legitimacy to its role in humanizing buildings. What ornament served in the past, sensuality and phenomenology have taken its place. Will this bring about a new endearment to the built environment that handcraft, such as carved stone, used to provide? We now have the ability through the computer and digital fabrication to quickly create objects of stunning preciousness even with banal materials such as corrugated cardboard, concrete, and plywood.

Digital Design through Production Pedagogy

Digital architecture is reliant upon a conversation between digital modeling, visualization, analysis, and production. With the complexity of information generated in process-based digital practices, we need to effectively manage and exchange information. Feedback loops are integral to the formulation of both, process and product, and thus require meeting with and understanding all the players involved in an accelerated design to production process. As such, it is fundamental to pedagogical strategies to get out into the field and meet with all key participants.

This presentation will recount a design studio that dealt with negotiating this “exchange” with multiple industry visits and exchanges throughout the semester. The studio developed a project in collaboration with Muncie’s park department to enhance an existing park space adjacent to the White River, while visiting with local and regional fabricators and material suppliers, and working and exchanging information with industry partners. Design proposals were developed and prototyped using cutting-edge technologies, experimental and digitally-enhanced material, technique, and tectonic investigations—all while relying heavily on advanced digital design and production skills (parametric modeling, scripting, fabrication technologies, etc.).

Since multiple industry visits were necessary throughout the semester, the students were immersed with team-oriented responsibilities to facilitate a seamless information exchange with partners—developing and meeting schedules, fundraising and working within budgets, creating press releases and maintaining a public web presence—all in parallel with the overall task of design + research. This studio structure is a useful alternative to the traditional studio model as a way to prepare students for the profession.
Collaborating in a Virtual Multi-User Environment: The Virtual Design Studio Populates Second Life

This presentation describes exploratory work in the promotion, design, implementation, and use of a “virtual structure” (VS) nested within a virtual multi-user environment (Second Life) and serving a collective of geographically distributed architecture students. The objective of this experience is to identify the potential benefits that such a teaching/learning environment could offer beyond the now common instrumentation of virtual design studios. The paper will answer, at least in part, questions on whether this kind of virtual environment better supports virtual immersive learning with a level of freedom that other media have not been able to provide. This experience will further contribute to the knowledge base that will be needed in the design of virtual architecture.

Following the same paradigm used in the development of non-virtual architectural, the creation of this VS included the participation of the Las Americas Virtual Design Studio (LAVDS), which acted as the client. This year the LAVDS included 10 schools of architecture, more than 150 students, and over 50 design instructors and reviewers. The design and building of the VS was a joint enterprise between the Department of Architecture and the Institute for Digital Intermedia Arts (IDIAA) at Ball State University. A group of architecture graduate students, who belong to the LAVDS class under the mentorship of Professor Guillermo Vasquez de Velasco and Professor Antonieta Angulo, produced the VS design. The students from the IDIAA Immersion Seminar in Virtual Worlds guided by Professor John Fillwalk built the structure in Second Life.

Ribbon cutting ceremony at the LAVDS in Second Life.

Avatars attending virtual presentations and socializing around the premises.
Education for a Sustainable Future

Through massive consumption and excessive waste, we have moved the Earth from nature’s normal condition of resource/energy abundance and healthy/regenerating global and regional landscapes to a condition of resource/energy paucity and rapidly degrading environments. This shift in resources, energy, landscapes and environments is driving social change and shifting core global and regional economic strategies from growth enabled through continuous, accelerating resource consumption, to growth through continuous, accelerating resource performance improvements.

If planners and designers are to help provision a sustainable future, education must prepare them to create communities, buildings and landscapes that partner with nature’s regenerative systems and that continuously accelerate resource performance. To achieve this goal, education that prepares them to operate in the context of limited resources and energy and accelerating environmental degradation must be profoundly different in paradigm, pedagogy, and curriculum than the education that resulted in converting resource abundance to scarcity and healthy/regenerating systems to rapidly degrading ones.

Planning and design education has not changed profoundly during the shift in resource/energy condition (1970’s–present). As a result, major change is urgently needed at all levels of planning/design education. This change is necessary to prepare graduates and practitioners to innovate at the degree and speed required for rapid change and massive mobilization to rebuild America – including its natural and infrastructural systems and built-sites – in ways that provision a sustainable future.

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Design Education in Transition

The imperative of creating a sustainable future mandates major shifts in higher education. Since planners and designers have created our excessively-consumptive, environment-degrading communities, buildings, and landscapes, a sustainable future mandates shifts in planning/design education at all levels. The need is urgent, as little time remains to transform America from consumptive buildings, sites, and communities that overtax nature’s ability to regenerate, into a nation of sustainable communities and built-site synergies that partner with nature to regenerate health and productivity. LDI pursues change in higher education and planning/design education to: understand societal and design challenges, facilitate shifts to whole-systems understanding, create a new generation of universities that teach people to build a sustainable future, and empower planners and designers to envision a sustainable future. Major LDI initiatives directed to leading educational shifts and providing unique immersive learning experiences include: the LDI LandLab as green technology education, research, and demonstration site; and as ecobalance and design innovation laboratory; the education for sustainability (EFS) dimension of BSU’s Global Media Network; the new FIPSE-funded US-Brazil Universities of the Future Consortium (USBUFC); the Sustainability for the Americas initiative (that includes the USBUFC, U.S.-Brazil Sustainability Consortium, and North American Sustainability, Housing and Community Consortium) as the first global cluster of LDI’s sustainability partner network, leading Landscape Architecture departmental adoption and COTE recommendation for BSU adoption of the 2010 Initiative and 2030 Challenge; and co-leading (with CBP in partnership with CERES and BFI) the Green Line Eco-economic and Community Development initiative.
Using GIS in Our Curriculum

The overlay method (popularized by Ian McHarg) provides us with a tangible approach by which to consider multiple factors in making land use decisions. Since the 1960s GIS data has become widely available, and GIS programs have become much more user-friendly. However, using the overlay method (as valuable as it is) with today’s technology (as powerful as it is), falls short of addressing a key component: what happens over time. Most users develop an optimization model using GIS mapping techniques, with the end results showing them how land should be used in one time and place. This is a valid approach when the goal is to be prescriptive, but if the goal is to test and to model, to describe “what if” scenarios, then dynamic simulation models are needed. The complexity of today’s problems requires the ability to model a variety of scenarios quickly, with various inputs. This paper presentation will explore the potential of using dynamic models with GIS technology and the opportunities such models afford design educators.

Digital Game-Based Visualization: Catalyst for Learning in a Sustainable Future

Current literature suggests that today’s generation of students (digital natives) is increasingly better equipped with the skills and confidence in digital technologies to make visualization and learning tasks easier and more effective. The challenge to good design educators (and students) must now be to strategically explore, create, and implement innovative educational approaches that capitalize on the strengths of current and future generations. Innovative digital visualization/media and learning technologies/theories offer us unique opportunities to reform some of our basic educational approaches, while maintaining our commitment to meeting learning objectives. This presentation will explore how such emerging technologies could transform current/traditional sustainable design pedagogies with a focus on contextualized and immersive digital game-based environments. A variety of examples will be presented, from site design and engineering visualization techniques to serious gaming, and these will be discussed in light of their potential value to design education in a sustainable future.
Domain Technical Integration

It is typical for academic accreditation teams to express concern on how technical content fails to find its way into the design and planning studios. Similar arguments are made on how we bring professional pragmatism into the academic studio. Some have argued that the only way to address this challenge is to put technical courses in the hands of studio instructors or bring practicing professionals to teach in our studios. Can evidence-based design and planning help us bridge the gap of “studio thinking” and “research thinking”? Are these legitimate concerns that we need to address or maybe these are issues that our academic and professional internship programs are better equipped to handle. What are we teaching, and where in the curricula are we teaching it? When it comes to the balance of technical and theoretical content do we recognize a difference between graduate and undergraduate education? Our students do very well in the pragmatic aspects of their registration exams, so can we assume that we are doing a good job?

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Filling the Gaps: Teaching Structures as Design

The author has experimented for several years a new pedagogy in teaching structures courses to architecture students including 1) the use of computer technology, and 2) a structural design project. The objectives were essentially: bridging the gap between structures courses and design studio, and emphasizing the process of selection and configuration of structural systems (with a focus on system). Furthermore, the introduction of user-friendly structural analysis software allows doing more with less. Students (as Leibniz was proposing) can now spend less time on mathematical calculations and learn more about structural systems, including statically indeterminate systems such as rigid frames.

This teaching method includes working on design projects with long span systems and multistory rigid frames. This emphasizes the criteria of choice and configuration of structural systems, which students can then bring into the design studio.

The presentation will introduce the computerized structural analysis and open the discussion on the issue of the “black box” (the blind acceptance of the computer output without an understanding of principles and methods). I will argue that this problem is overcome if the students are introduced to structural concepts in their introductory courses on statics, and if the computer modeling is seen as a heuristic method, allowing students to experiment and discover about structural behavior quickly, accurately and easily.
Eight Years Later: Assessing Notable Architecture of the Midwest Using the Vital Signs Protocol

This paper presents an overview of the implementation of the Vital Signs program at our university, including participation by our faculty and students in: 1) Vital Signs module development; 2) instrument acquisition; 3) case study competition; and 4) visiting scholar interaction. Field-based data gathering techniques, methods for data management, methods of presentation and example research findings are excerpted from published case studies.

The pitfalls and complications of helping students to bridge from their “studio thinking” to that of field-based “research thinking” will be discussed. Case studies that are shared include those that represent building type, those of historic significance, and those which fall into the category of signature works. And finally, the presentation includes examples of “full circle closure” wherein students not only developed findings and arrived at conclusions, but also suggested design modifications which were implemented.

With a Little Help from My Friends: The Society of Building Science Educators

The teaching of technical subjects within an architecture curriculum has always offered the potential for interesting faculty configurations. Historically, two distinct approaches have been adopted to deal with this part of the curriculum: technical courses (such as environmental systems, structures, materials and methods) are taught by studio instructors with expertise or interest in the technical area, or these courses are taught by technical specialists with little to no studio involvement. Hybrid arrangements are possible, but these two conceptual opposites tend to define the territory. A common and recurring problem with either approach is topical isolation—very often there is only one focus-area specialist within a program, making a local, informal, and regular exchange of ideas and cross-fertilization among colleagues difficult or impossible. This can be a very frustrating situation, particularly within a rapidly changing and evolving field such as building environmental systems.

Enter the Society of Building Science Educators (SBSE). SBSE was established to provide a support group through which instructors teaching building science courses could exchange ideas and course materials, find sympathetic colleagues, and seek moral and pedagogic support. As the organization evolved the focus informally shifted from building science in general to building environmental control systems (climate control, lighting, energy, environmentally-responsive buildings). As time passed, the focus of the organization shifted from the exchange of physical artifacts (slides, syllabi) to the exchange of ideas (mainly via annual retreats). This presentation will present the Society of Building Science Educators and describe its role as a powerful ongoing influence for technical education in architecture.
Environmental Revitalization

In small towns and large cities, it is easy to draw attention toward the very old or the very new. This is also true about the very rich and the very poor. It is more difficult to draw attention and understanding toward the gamut of situations that stand between these extreme conditions. Urban poverty is as critical in the case of distressed and violent neighborhoods as it is in the case of the homeless. For the people who live and work in older neighborhoods, preserving a decaying 20th century environment is as critical as preserving an 18th century structure. Our school has a wonderful trajectory in the integration of teaching and service. Our outreach agenda is second to none. So with that wealth of experience, what have we learned that may allow us to take our growing concern to the next level of intervention? Beyond the approach of influencing the future through the professionals of tomorrow, can we do more about influencing the present through our leadership today? When fighting for environmental and social justice, what is our framework of reference, what are the challenges we can address and what opportunities we should embrace?

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The Fourth World - A Post-Developing Nation

Despite the fact that the United States is touted as the most developed, industrialized country in the world, many of our citizens reside in conditions comparable, if not worse, to what can be found in so-called “Third World” or “Developing” countries. The “Fourth World,” describes the phenomena of “Third World” conditions in a “First World” environment. It is imperative that these concerns are formally identified, researched, and addressed in order for the United States to avoid ultimate collapse as a direct result of its inability to confront the challenges associated with its institutional abandonment and denial of same. We have documented and reinforced evidence of America’s position as the wealthiest and most powerful country on earth, but have limited knowledge of the scale and magnitude of our nation’s poverty and degradation. The extent of the distress and abandonment in the cores of our cities resulting from de-industrialization, historic segregation and discrimination patterns, suburban sprawl, erosion of a viable tax base, racism, inability to embrace the concept desegregation and civil rights legislation, fear, despair, crumbling infrastructure systems, disinvestment in our urban school systems, and environment justice issues defines our “Fourth World” status. This presentation will explore institutional abandonment of our inner-cities, investigate the causes which have led to the massive disinvestment, attempt to develop a sense of empathy for the citizens who choose or are forced to remain in these environments, and ask questions which may better qualify us, as design professionals, to be engaged in improving the conditions of our inner-cities.
Filling the Gaps—Contemporary Context for Traditional Communities

The 506 Design Studio offers graduate preservation and architecture students an opportunity to work together, sharing distinct tools and know-how — an opportunity for each to learn from the other. To work with real-life challenges, this studio has engaged Near East Side neighborhoods in Indianapolis responding to requests for preservation plans, design guidelines, and infill design. Some of these neighborhoods are historic ones, but most contain traditional structures not yet considered “historic,” and consequently not subject to design regulation.

Last year’s class worked in two early 20th century residential areas, but this year’s addressed design issues on a time-ravaged adjacent commercial strip replete with gaps in the streetscape and ill-fitting out lot development. For both classes the realization of corrective measures through compatible, contextual infill design was most challenging. Few of the architects wanted to design and build replica structures, and few preservationists wanted them to.

The teaching challenge has been to guide the students’ design efforts toward compatible, non-intrusive, but honestly contemporary infill buildings that enhance the neighborhood and its agenda for the future, without losing respect for its past — within the historic context, but somehow emerging from it—in many ways new ground for both preservation and architecture.

Much of the revitalization work in coming years will happen in non-historic, yet traditionally constructed places. Wholesale demolition is not an option in a green world; nor is imitative design. This presentation will explore the design challenges inherent in redeveloping non-historic, but old neighborhoods in a way that respects building traditions, addresses context, and advocates design and applicable new uses for revitalizing neighborhoods.

Midwess Distress and Distress Too

The inner cities of our industrial northern centers, once thriving urban spaces and attractive destinations, have been particularly hard hit by factors including but not limited to: de-industrialization, historic segregation and discrimination patterns, erosion of viable tax bases, social and institutional racism, inability to embrace the concept of desegregation and civil rights legislation, fear, despair, environmental justice issues, crumbling infrastructure systems, disinvestment in our urban school systems, aggravated crime statistics, and significant investment in sprawling suburbs and new towns. The systemic patterns of distress and abandonment in our inner cities are commonplace and negatively impact the quality of life for all American citizens.

Intensive field studies were conducted in the wastelands of Detroit, Flint, Gary, Chicago, East St. Louis, and Cincinnati during the Fall Semester of 2006 and Cleveland, Scranton, Philadelphia, Camden, Braddock and Pittsburgh, PA during the Fall Semester of 2008. The objectives of the field studies were to observe the institutional abandonment, investigate the causes that led to the massive disinvestment, develop a sense of empathy for the citizens who choose to, or are forced to remain in these environments, and explore “positive” development applications (if any) in each city. The term “positive” is not restricted to physical architectural, planning, or landscape architectural solutions to pre-development or revitalization initiatives. Design professionals, as well as scholars, must acknowledge that our tendency to merely focus on solutions without adequate attention to the historic and social context, which contributed to many of these systemic problems, is a formula for failure.
Pedagogical Explorations

Designers and planners operate in a framework of requirements and constraints, but beyond optimization or satisfaction we seek to produce added value through an infusion of creativity. We promote creativity through a variety of methods that go from immersion to abstraction. What is the relationship between the method we use and the subject we serve? Is the choice of method dictated by the design/planning subject or the cognitive profile of the designer/planner? We are all familiar with the approach of asking, “What do you want to be?” We are also familiar with the approach of letting the pencil take us to the-place-to-be. One way or another we open ourselves to be inspired and in that process we invest ourselves. Are these methods consistent with professional practice? Can we produce on-demand design and planning inferences following these methods or should we limit these methods to the arts, installation art and purely academic explorations?

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Science: Partner and Painter in the Art of Landscape Architecture

Landscape architects, working along with scientists and consultants, combine science with other more qualitative planning and design processes and methods. They design “artful” places for people. These places should support sustained, healthy, and thriving environmental systems (natural, cultural and social).

Examples of the sciences integrated within landscape architectural design include the use of geology and soil science for sensitive land planning. Soil erosion science is used to minimize site disturbances during construction. Ecological science guides restoration projects, shaping methods and outcomes that repair and restore damaged environments. Hydrologic science is used to discover and design “green” storm water management and structures. Economic assessments are used to shape sound and meaningful project goals. Social and cultural science assessments reveal community traits, aspirations, and needs (e.g. modeling for optimum open space conservation, recreational programming needs, and educational needs).

Understanding alternative energy opportunities, including incorporation of passive solar augmentation, as well as wind and small-scale low-head hydro generation, drive very unique site design geometries and structural characteristics. Understanding and accounting for embodied energy data generates a basis to choose lower impact, resulting in application of more local and “aesthetically connected” construction materials.

This presentation will share striking evidence that “artful” design solutions “grow” from a landscape architectural design process that fuses natural and social systems sciences early and continuously into the ideation and decision-making steps. Attentiveness to the messages, indicators, and directives that surface from “science” in design exploration yield, generate, and optimize the “art” in design.
Architectural Investigations through Making

This presentation will offer for comparison two case studies which explore the idea of making in different but related ways. Both projects to be presented are architectural installations; done with students at two different schools, each project specific to its own site. Both projects are investigations of “place” grounded in the tectonics of building, and both were intended to amplify the inherent condition of the site through built intervention. In each project student intentions were informed by and grounded in the very real and very tangible demands of constructing a full scale project.

This presentation will provide a brief description and personal account of each project, discuss the varied methods of involvement and outcomes for the students, and conclude with reflection on the impacts of these projects on my own methodology and development as an educator.

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Weaving Geometrical Anatomy / Building Architectural Bodies

The design and creation of two rugs/filters was the essential start point to experience the practical contact with them as well as to observe facts and events on the relationship between objects, the human body, and the environment in a three-hour independent investigation along the White River in Muncie, IN, by four students and a faculty member. The exploration was focused on conceptual understanding of scale, the notion of dimension, the meaning of creating physical and invisible space, and light, studies among other topics as critical values in the process of thinking just as in the process of designing.

The exploration as part of the Pech Kucha Indianapolis Volume 4 at the IMA

Light studies along the White River in Muncie.
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CAP Facilities

Innovative facilities and technology support the diverse learning, research, and service activities that take place daily in Ball State University’s College of Architecture and Planning.

CAP’s primary physical resource is the Architecture Building, located in the heart of the north quadrangle on campus. This unique facility is the academic home for the college’s students and faculty, and it never closes while the university is in session.

In addition to classrooms and conference rooms, the building includes an auditorium, an exhibit gallery, a variety of labs and libraries, and a wireless network. Twenty-five studios provide students with their own personal work space for design and graphics courses. A five-level, glass-walled atrium offers settings for exhibits, special events, and informal meetings in a comfortable lounge atmosphere.

CAP also maintains satellite facilities in downtown Muncie and Indianapolis for urban design studio work and off-campus educational programs.
BSU Campus

Ball State University’s 660-acre campus in the heart of Muncie, Indiana, a mid-sized Midwestern city one hour northeast of Indianapolis, includes 69 academic, administrative, auxiliary, and residential buildings valued at more than $1 billion. The university also has some 300 additional acres of research property. Ball State is a state-assisted doctoral institution. The dynamic residential campus is home to nearly 20,000 undergraduate and graduate students from across the country and abroad.

Our nationally recognized academic programs, hands-on learning experiences, innovative technology, expert faculty, personal attention, and supportive campus environment prepare bright students for professional careers and leadership roles in many specialized fields.

The university’s numerous community projects throughout the state help to spur economic development and advance the quality of life in Indiana.
The College of Architecture and Planning houses the following centers and institutions:

**Center for Energy Research/Education/Service**
The university-level Center for Energy Research/Education/Service (CERES), which reports to the provost, is an interdisciplinary academic support unit focused on issues related to energy and resource use, alternatives, and conservation. The CERES mission is to maintain ongoing programs for the examination of state-of-the-art energy conservation and end-use practices, to investigate alternative solutions to contemporary energy problems, to develop projections and implications of the results of these solutions, to devise means of implementing these ideas, and to disseminate findings to the appropriate publics - professionals, educators, policy planners, students, and laypersons. CERES also serves as secretariat to the Ball State University Council on the Environment (COTE), a clearinghouse for sustainability initiatives campuswide.

www.bsu.edu/eres and www.bsu.edu/cote

**Center for Historic Preservation**
The Center for Historic Preservation (CHP) is an outreach of the master of science in historic preservation program, offered through the Department of Architecture. Graduate students at the center gain valuable hands-on experience working with cities, towns, state agencies, Main Street programs, and heritage organizations. Through CHP, historic preservation is utilized as a tool to promote economic development, to build and strengthen community identity, and to improve the quality of life for Indiana residents. The center provides graduate assistantships and internships to an interdisciplinary team of students, especially those studying historic preservation, architecture, landscape architecture, and urban planning.

www.bsu.edu/chp

**Building Futures Institute**
The Building Futures Institute (BFI) engages Ball State faculty, students, and industry partners in research in a number of domains - open building, building science, computational methods, building culture, innovative practices, and design theory methods. BFI is an association of individuals who choose to identify with these domains while retaining authorship and responsibility for their own work. An important aspect of the BFI mission is to foster work that is strongly linked to firms and organizations outside the university that help shape and fund the research as engaged partners. Increased quality and benefits to all organizations involved are sought by bringing projects and studies into light together. The work associated with BFI meets standard academic criteria for research, contributes to the educational mission of the university, and aims to have a measurable impact outside the university.

www.bsu.edu/bfi

**Institute for Digital Fabrication**
The Institute for Digital Fabrication (IDF) acts as a catalyst of digital design and fabrication techniques for both industry and education related to architecture and allied arts. Through immersive projects deploying interdisciplinary, applied design and fabrication research, the institute is a conduit between students, design professionals, and the manufacturing sector. IDF supports curricular components offering expertise with state-of-the-art software and devices using simulation, analysis, fabrication, and a rigorous examination of the craft inherent in digital design and production. With strategic industry partners, students test knowledge through team-based projects dealing with the translation of bits into atoms, shifting scales between models, prototypes, 1:1 construction, and the development of solutions to real problems by managing a complex set of design constraints.

www.bsu.edu/emade

**Land Design Institute**
The Land Design Institute (LDI) pursues a mission of ecologically and culturally responsible land design through education, research, outreach, and service and through the integration of current and future efforts into a land design agenda. LDI and its mission grew from decades of applied land design research and outreach projects of faculty in the Department of Landscape Architecture, College of Architecture and Planning, and other university units. This work includes land management, planning and design initiatives, and specific projects addressing resource-sensitive urban design, regional planning, GIS mapping and land use planning, greenway planning, urban forestry, historic landscape preservation, recreational design, alternative/sustainable agriculture, ecological restoration, equestrian facilities design, and alternative energy production.

www.bsu.edu/ldi

**Institute for Digital Intermedia Arts**
The Institute for Digital Intermedia Arts (IDIA) is an arts and research center established as part of the Digital Exchange - a digital media initiative at Ball State University’s Center for Media Design funded by Lilly Endowment, Inc. The institute is an interdisciplinary, collaborative research and studio environment that explores intersections between art and technology. students, faculty, and industry engage in projects employing technologies such as virtual reality, visualization, simulation, and human computer interface. Students connect to regional, national, and international partners through this project-based learning center in the production of innovative digital media projects. The centerpiece of the IDIA is an immersive seminar in virtual worlds that provides an experiential, project-based learning environment, investigation the forefront of discourse in emerging media design.

www.idiarts.org