The Transformative Educational Experience

A New Building Paradigm for Higher Education Campuses

by Marjorie Chan, Elizabeth Main, and John McNary

INTRODUCTION

In the fall of 2009, University of Utah President Michael K. Young and his cabinet set a major priority to ensure that all students have “transformative intellectual experiences” that help direct them toward pursuing their passions. “When we put students front and center,” he said, “remarkable things happen” (Vogel 2011, ¶ 3). The administration’s priority was to strengthen the university’s mission to educate its students and support a student-centered culture in order to ultimately ensure every student the best possible university experience. The working title for this effort became the “Signature Experience Project.”

The University of Utah had already embarked on a major building program that included construction of a new building for the College of Mines and Earth Sciences. The chair of the Department of Geology and Geophysics (author Chan) developed a vision for a building that could be more than just another academic “box.” She envisioned a building that could engage, inspire, and teach students, which dovetailed precisely with the desired “Signature Experience.” This landmark building changed the design paradigm for future buildings at the university, and the university’s Campus Planning staff recognized the value this approach could bring to the many new constructions to follow. The Sutton Building’s success demonstrates how simple yet innovative approaches to enhancing academic buildings can have an immediate and transformative effect on campuses and their students and faculty.

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In this article, we present a framework developed at the University of Utah by which a campus can build and modify the built environment to foster enhanced teaching and learning. Our specific goals are threefold:

- Provide a brief history of the planning and implementation process for a signature building at the University of Utah.

- Present a “road map” guide for how to create buildings and a campus that contribute to the transformative educational experience and create a new sense of community to strengthen colleges and departments.

- Demonstrate the outcomes and applicability of this new paradigm. While this demonstration uses the “grass roots” case study of a newly built geosciences building, these concepts are easily applicable to campus retrofits, renovations, and even display additions.
BEGINNINGS: THE SUTTON GEOLOGY AND GEOPHYSICS BUILDING AT THE UNIVERSITY OF UTAH

In April 2009, the Frederick Albert Sutton Building, home to the Department of Geology and Geophysics at the University of Utah, opened its doors as a unique and innovative built environment on campus (figure 1). The discipline of geology and geophysics is rich with artifacts that are a traditional part of the educational experience. This abundance of artifacts inherently suggested a range of artfully designed learning tools that could be put on permanent display, catering perfectly to the desired “Signature Experience.” Such artifacts included fossil fish and plant specimens, large polished rock slabs, colorful geologic maps, and a seismology station to name a few (Chan 2010). These artifacts were arranged and displayed throughout the building in such an engaging and saturated array that the entire building became a learning environment that engages, teaches, and inspires students and non-students alike.

Figure 1 The Frederick Albert Sutton Building

A transformative Frederick Albert Sutton Building inspires and excites students to give them a memorable educational experience.

The 91,000-square-foot building quickly became a showpiece for the department, illustrating the academic field and its exciting relevance to global issues through a cohesive branding strategy that runs throughout the design. The building’s successes as a teaching tool and living laboratory made it a prototype for future construction on campus, and the bar set by these accomplishments proved to be a high standard. Campus Planning encouraged similar revolutionizing strategies in future construction on campus, as well as in a few buildings that were already in the early design phases. These additional building examples are presented later in the article.

POSITIVE OUTCOMES

Outcomes related to the Sutton Building’s unique design elements have been impressive and positive beyond expectations. For instance, departmental enrollment significantly increased corresponding with the occupancy of the new
building. Over the last decade, undergraduate enrollment in the department had increased steadily by about four to seven students per academic year. However, the enrollment growth quadrupled the year after the building’s completion with continuing growth anticipated. While other earth sciences departments in the nation have typically sustained a modest growth rate of 10 to 20 percent over the last several years (American Geosciences Institute 2012), the University of Utah’s departmental undergraduate enrollment rate has doubled since the completion of the new building (figure 2).

**Figure 2 Undergraduate Enrollment in the Department of Geology and Geophysics**

This graph depicts increased undergraduate enrollments in geology and geophysics (green) by comparing enrollments from before the Sutton Building was completed to enrollments a few years after building occupancy. The college is composed of four departments. This growth relative to other departments and total college enrollment shows the potential influence of a transformative building in attracting new majors.

In the building’s first year, faculty, staff, and students of the Department of Geology and Geophysics gave tours for over 2,000 non-departmental visitors from within the university and off-campus communities. Specific groups who came for tours completed surveys to assess the building’s impact. Surveys of one group, academic counselors who regularly give tours of the campus to new students, illustrate the positive effect of the building. In the survey given to the counselor group before the tour, over 90 percent of respondents thought that university buildings in general were “not inviting and need improvements.” After the tour, surveys showed that two-thirds of all respondents improved their understanding of geosciences disciplines through building displays by “a measurable increase,” and every participant agreed that the building “exceeded ... expectations.” Over 80 percent of respondents believed the building created a “more positive work environment for faculty,” “differed from the vast majority of university buildings,” contained displays considered to be “inspiring,” and created a “nurturing and welcoming environment” for students (figure 3).
University student counselors were asked about characteristics of a good campus building. Survey results show how their ideas changed from before to after their visit to the Sutton Building. The responses indicate that after seeing the Sutton example, they had raised expectations of what a good building on campus ought to be like.

In early 2011, the governor of the state chose the Sutton Building as the place to unveil Utah’s 10-year energy plan. As a LEED (Leadership in Energy and Environmental Design) Gold-rated building featuring artifacts of the state’s geological and environmental history and the world-class Rio Tinto Earthquake Information Center (figure 4), the building provided an excellent backdrop for a discussion of the state’s energy plan, which is closely connected to its geology.

As a research unit, the Rio Tinto earthquake center within the Department of Geology and Geophysics facilitates real-time data displays for visitors to view.
To handle the high demand for detailed and explanatory tours of the Sutton Building, author Chan initiated work to incorporate QR (quick response) codes into the building’s future displays. These codes, accessed via the smart phones common among university students, link to web sites with information about displays, donors, or any other topic that will engage students. These types of innovations are paramount to the success of the campus buildings that are to be part of the “Signature Experience.”

Significant outcomes were apparent only three years after the construction of the Sutton Building as an initial prototype of a building that can teach, engage, and inspire. Thus, even greater outcomes seem possible for future buildings on campus. However, extending and translating the successes of the Sutton Building to other buildings requires a framework of criteria that provide direction, yet allow creative flexibility on the part of architects and designers for disciplines that are generally less associated with physical artifacts.

A ROAD MAP TO CREATING A BUILDING THAT SUPPORTS A TRANSFORMATIVE EDUCATIONAL EXPERIENCE

Our creative team generated a seven-step “road map” for the creation of buildings that contribute to the transformative educational experience. The seven steps are described below and are summarized in figure 5. These guidelines apply to both new and existing buildings.
A seven-step road map helps designers create a transformative educational experience in future campus construction.
1. UNDERSTAND THE VISION

Two design elements drive the vision of each building that is to be part of the “Signature Experience”: academic branding and showcasing. Similar to a commercial brand, an academic brand speaks to a college’s or academic department’s personality, interests, and mission. It is developed through a design schema that helps students understand the relevance of the academic enterprise and the passion of those involved in it. The brand enhances the academic environment using visual clues (sometimes subtle) that manifest throughout the overall look and feel of the facility. Examples of branding can include color palette, signage, patterns, logos, and academic symbols that help unify the complexities of a particular academic discipline. The objectives of branding are to provide consistency to the building themes, entice engagement, and spark interest.

Two design elements drive the vision of each building: academic branding and showcasing.

Showcasing, on the other hand, dives deeper into the discipline than does academic branding. It focuses more purposefully on displaying tangible artifacts, telling academic stories, and revealing the inner workings of the discipline. Showcase displays reveal core elements of the discipline as well as its relevance and application to the real world. For example, these may be specific displays that highlight successes of the discipline or windowed laboratories where visitors can see work in progress. As an integral part of the design schema, the showcasing objective is to remind students of why their studies are exciting and worth pursuit.

Each design driver is not only present, but also plays a significant role in defining the character of the building. These drivers act to draw users’ attention to the academic and research enterprise happening within the building. The vision of each building is to create an educational environment so inspiring and engaging that students enter the building and find attraction, fascination, and interest in the given academic field or discipline. The design drivers distinguish the buildings as part of the “Signature Experience.”

2. SHARE THE VISION THROUGH COLLABORATIVE PARTNERSHIPS

Helping everyone understand the vision is a monumental task. It requires many meetings and discussions because the changed design paradigm is initially difficult to comprehend for many people accustomed to the traditional academic building. Implementation requires a commitment of time and resources that is uncommon in the development of a new building, yet which is needed despite shrinking budgets and increasing time demands. Those who do not understand the long-term vision and potential payoff risk sacrificing resources for their own personal comfort or short-term priorities. There must be a common understanding and commitment to the vision by everyone.

To achieve the most effective and highest quality results, partnerships should form across campus and throughout the local off-campus community. For the Sutton Building, the creative team consisted of designers, users, campus and state representatives, and members of the academic community to ensure completion of the most useful, sustainable, and engaging building possible. Not only did multiple parties participate in meetings, but design suggestions were also gathered from students, donors, faculty, and interested companies to mold solutions that would benefit a diverse and dynamic community. The successes resulting from this method were quickly evident, creating a strong precedent that encouraged the development of other signature buildings on campus. Design of the building required collaboration from
the earliest stages to ensure that design elements pertinent to the academic discipline would be included in every bit of design, from the internal structure to the exterior finishes to both permanent and temporary exhibits.

To address the needs of the building’s everyday users, academic faculty members and students met with campus facilities management representatives. Through many meetings and a specially offered semester course, students in the department voiced suggestions for sustainable built amenities that would truly enrich their experience in the building (figure 6). A design team that sought opportunities to creatively implement sustainable ideas heard these suggestions. In addition, the Utah State Department of Facilities Construction and Management participated in the process from an early stage. Interactive and ongoing dialog greatly improved rapport during the design and building process.

Figure 6 Involving Students in the Design Process

Students presented proposed energy-efficient projects (A), which led to the implementation of light tubes in the new building (B).

Donors and alumni, who typically are not involved in campus design processes, were used as resources for information, commentary, and support. Departmental friends and alumni shared their stories of the college’s early history and even loaned or donated displays to be used in the building. One alumni couple donated their extensive personal petrified wood collection for display, while another alumnus shared a collection of plant fossils that are prominently displayed in a main corridor art-like installation. A display of antique paleontology lithographs acquired added meaning when alumni recalled...
how these teaching tools were used in classes half a century ago. When the original outdated building was torn down, a time capsule from 1927 was found in the building’s cornerstone (figure 7). The capsule, after being opened and explored, was re-encapsulated with an additional new 21st-century time capsule box. Both time capsules are stored in a bench located at the first-floor entrance, giving a historical “base” to the building. Many examples of “signature” design elements, described later, show how to seamlessly connect the past with the present.

Figure 7 Time Capsules: 1927 and Today

The original 1927 time capsule (A) and some of its contents (B) found in the old building are now incorporated into a new time capsule memorial bench (C).
3. ENGAGE A LEADER

A leader within the academic or research team must seize the vision and emphasize the integral wonders and fascinations of his or her academic world. The leader must be visionary in sharing his or her discipline and willing to help the team see and understand what uniquely defines this world. The leader must be empowered to devote financial resources, give time, and encourage the project. Without a leader, it is difficult to uncover all of the interesting and engaging aspects of the discipline that the building should extoll. The leader enables the faculty perspective and encourages the imbedding of their academic fingerprints into the building’s design. In this way, the fascinating research interests of many of the faculty can be memorialized in the building.

4. FUND THE VISION

Unfortunately, because dedicating academic and research buildings to the transformative educational experience involves a new design paradigm, it is usually considered a costly, add-on expense. As long as that perception exists, it will be an uphill battle to get and keep the resources needed to include building features that brand and showcase the academic and research enterprise. Several approaches help mitigate the “added expense” mentality:

- **Help those who fund the project see the vision and understand its importance from the very beginning.** Private donors often understand the opportunity and support the effort because it helps them make a visual connection between their financial backing and the program they support and allows them to contribute to the permanent impact of the building. State agencies are more difficult to sway and must be convinced of the importance of this initiative to the mission of the institution. The potential for increased enrollment, improved recruitment of students and faculty, and other mission-centric issues should be brought to the table to convince the state agency of the importance of the initiative.

- **Request grants as a logical source of funding.** Potential grant proposal opportunities could involve teaching environments, student engagement, and development of transformative educational experiences. The showcasing of unique, rare, or particularly interesting or educational collections of artifacts and images that reach multiple audiences are also potential opportunities for approaching funding agencies. Depending on their restrictions, state-funded percent-for-art programs can also be devoted to academic branding and showcasing.

- **Seek valuable in-kind donations.** Individuals as well as companies often willingly donate artifacts, elements, and products that can be included in an artful display. Care should be taken to ensure that the artifacts directly speak to the academic or research enterprise in an appropriate way that will be attractive and engaging over the long term, unless used for a changing or rotating display. Faculty need to vet the appropriateness of in-kind donations to ensure they are germane to the overall academic mission.

Financial support must be developed early enough to ensure that design features and elements are considered in the beginning stages of the project.
5. IMPLEMENT DESIGN ELEMENTS THAT TYPIFY A SIGNATURE EXPERIENCE

The vision for each signature building manifests through a series of design elements in that building. Each element reinforces at least one design driver and contributes to the overall success of the building as an experiential environment. As new design features and elements are identified in each new project, the working “kit of parts” grows and the design process, in turn, becomes more efficient. These elements do not stand alone as keys to creating transformative educational experiences, but act best when grouped thoughtfully and with appropriate density throughout a building. A saturation of signature design elements in key places throughout the building brings these learning moments to the front of users’ consciousness and immediately impresses upon them the unexpected uniqueness of the space. Each element is described below with examples of its implementation in the Sutton Building.

- **Displayed artifacts** allow students to understand real-world applications of their learning. These artifacts may be primarily two-dimensional, but they share important and detailed information nevertheless. For example, antique lithographs formerly used as teaching aids decades ago are given new life in the Sutton Building, now attractively framed and used as educational artwork on various floors of the building (figure 8).

**Figure 8 Using Displayed Artifacts**

![Antique lithographs show the history of evolving thought in science.](image)

- Modern technology has created a variety of options for exhibiting *encased displays* with protective, cost-effective plastics. Some displays must be encased because of their value or fragility, but they still yield precious educational information. By displaying these artifacts prominently, students can examine them as learning tools and enjoy enhanced learning opportunities. In the Sutton Building, for example, a skeleton in the hominid display stands in a 360-degree-view case, allowing curious viewers to investigate the bones from every angle (figure 9).

**Figure 9 Using Encased Displays**

![360-degree-view case showing a skeleton.](image)
An early hominid skeleton display showcases the research of faculty.

- **Historical vignettes** highlight research and projects from the college’s past, creating a chronological bridge between former and current students. These vignettes can take any form that effectively displays the contributions to the discipline by students or faculty. In the Sutton Building, one example displays recent projects from students alongside historic seismographic charts from the western United States.

- By allowing hands-on involvement, *interactive elements* engage students and convey concepts in a uniquely concrete manner. These elements become teaching tools that often promote learning at multiple levels of understanding. Interactive elements may be sculptures, interactive technologies, or kinetic figures. In the Sutton Building, for example, users can touch and rotate a stainless steel cast of a Utah-native Allosaurus skull to understand the skeleton’s features or run a magnet over an ironstone slab to determine which minerals are magnetic.

- An *integrated landscape* provides alternate study spaces for students, which expands the built environment beyond physical walls and out to the lawns and xeriscape rocks surrounding the building. This landscape can reflect the discipline through plant species, art installations, and other purposeful landscape design features. In the Sutton Building, large rocks and pieces of stone are positioned in ways to expose their layers and structure, as well as to support environmentally sustainable storm drainage into a water retention pond.

- **Themed finishes** reinforce academic concepts and cue visitors to the purpose of the building. Identifiers such as thematic materials and patterns make each signature building unique from construction framework to interior design. A winding resin and pebble tile “stream” running through the Sutton Building replicates a riverbed much like those that shaped Utah’s natural landscape. In the building’s northern foundation elevation, a relief cross-bedding pattern replicates the internal structures of natural river deposits (figure 10).
Themed finishes in a pebble riverbed (A) and cross-bedding pattern in the concrete foundation (B) create a strong geoscience theme for the Sutton Building.

- **Donor recognition** creates ties between the current and past academic communities. Along one corridor of the Sutton Building, the major donor and the building’s namesake, Reverend Martha Sutton Weeks and Frederick Albert Sutton respectively, are highlighted with large portraits and a paragraph describing the contribution of each to the college. Only steps away, the central atrium is cupped by a curved installation of fish fossils arranged as though swimming as a school toward the classrooms. A set of plaques acknowledging additional donors to the building is artistically placed within the fish fossil installation (figure 11). Current members of the academic community can gather inspiration and encouragement from the successes of these donors, who are both alumni and friends of the college.
Donor acknowledgment and recognition, an important element in many university buildings, can be innovative and can contribute to the overall transformative educational experience just as powerfully as other elements when integrated into the branding and showcasing strategy. Instead of taking a backseat to the other exciting design elements in the building, donor recognition can be integrated in equally energetic and educational ways that are integral to the overall atmosphere of the building. Properly done, this can create a stronger association between the donors and the academic programs.

- **Biographical narratives**, much like donor acknowledgements, honor and memorialize the successes of departmental friends or alumni. These narratives inspire and encourage current community members to share their own academic experiences. These efforts also make donors feel ownership of the building, which encourages them to invest their support further in the college’s programs and the building’s success. Throughout the Sutton Building and at a variety of scales, biographical vignettes are presented as placards, posters, and raised print placed along walls at strategic points, especially beside openings to the building’s sponsored rooms.

- **Visible workspaces** engage casual passersby as they witness in-progress studies and projects. From laboratories to studios to simulators, many workspaces can be made visible through windows, catwalks, and
atria or common spaces. These visible spaces create excellent opportunities to showcase the current academic and research initiatives, especially when accompanied by signs, posters, or displays that explain the activities.

- **Communication hubs** display current research and events to engage even peripheral users of the college. These hubs may be as simple as bulletin or magnetic boards or as complex as monitors with rotating video clips, event calendars, and announcements. However these hubs are manifested, they help all building users stay up-to-date with the activities and interests of the academic community. A lounge space slightly off of the Sutton Building’s main lobby displays a monitor with events and updates for the college and the building (figure 12).

Figure 12 *Displaying Information in a Communication Hub*

Students gather around a communication hub where a monitor displays real-time information concerning geosciences events and sustainable practices.

- **A collaboration center** creates the perfect common space for students to join together and teach one another. These interactive spaces are located near labs and faculty offices, which creates regular happenstance meetings between various students and faculty. Whiteboards, a variety of seating options, wireless Internet, and other helpful learning and information tools enliven study spaces.

6. **TRACK SUCCESS**

Success begets success. To maintain a visionary program, demonstration and documentation of success is important. Trends in enrollment, a record of tours and visits from the public, demonstrated community interest, and comments from visitors from other universities all contribute to the documentation of success. Surveys can be designed to detect changes in attitude and opinion and to evaluate the effect of a new design initiative. Documentation of success supports the validity of the design initiative and is important in sustaining the momentum of the initiative, particularly to a university administration.
7. DUPLICATE SUCCESS

Each building project is different, often involving new consultants and different stakeholders, academic units, and funding sources. Thus, each implementation will be different, and the process of developing the design initiative for each building begins almost from scratch. However, there must be a consistent voice or sustained leadership throughout each project to ensure that the underlying objectives remain the same: creating experiential environments that engage, inspire, and teach through both passive and active physical interactions. All of these steps require many meetings, but the time spent early on will be worthwhile once each project is completed.

Although the Sutton Building sparked a great deal of excitement, it is merely a beginning place for a revolution in campus design. Two additional new buildings that are nearing completion are the L. S. Skaggs Pharmacy Institute and the Spencer Fox Eccles Business Building. Both of these buildings incorporate various elements of the transformative educational experience. Repeating this design process with multiple buildings allowed the Campus Planning team to understand the successes and challenges associated with implementing transformative elements. Future buildings will benefit from these precedents, gleaning the most successful components of each predecessor.

The Skaggs Institute, which is currently under construction, will feature graphic elements that display the wide range of career and research possibilities for pharmacy students, from deep sea exploration to cellular investigation of compounds. Large displays use colorful, enlarged textural elements of microscopic features to allow visitors to sense the importance of scale and structure (figure 13). A large screened “Rx” transparent pharmaceutical image is visible from the street and indicates the building’s purpose even from a distance. Interactive computer monitors throughout the building will unify the academic branding and showcasing themes. Primary learning laboratories are positioned to physically jut through a central atrium to visually connect students and faculty with engaging space.

Figure 13 Transformative Educational Elements in the Skaggs Institute

Enlarged textural elements of microscopic features create an artistic and engaging veil in the Skaggs Pharmacy Institute.
The Eccles Business Building, which has been partially completed, displays a centrally placed graphic that interprets real-time international market activity as a glowing map of the Great Salt Lake called the “E Oculus.” The map appears stormy when markets are down or sky blue with occasional clouds as the market improves. Near one of the building’s main entrances, a large rotating collage of images gives visitors a sense of the history and evolution of business over time, as well as representations of the most important business advances in the state. Movement in many displays captures light in different ways and makes the displays seem more dynamic than their typical static counterparts. Future planned spaces include a simulated student trading center, a behavioral research laboratory, and a number of versatile single and group study spaces.

By constantly rethinking and updating teaching tools, each of these buildings will continue to engage students, revolutionizing how students experience higher education at the University of Utah. Each design team can use the “Road Map to Creating a Transformative Educational Experience” to imagine endless possibilities for future campus buildings that will undoubtedly continue to evolve with each new innovation and interpretation.

**SUMMARY**

The higher education experience is in transition, and campuses must create a new paradigm of campus design and planning to meet societal needs and changes. College campus buildings can enrich a student’s education by showing the intrinsic value of interactions in stimulating learning environments. It is important to design our buildings to produce the best outcomes and maximize those long-term benefits that will pay off in substantial rewards. The innovative use of academic branding and showcasing within a discipline can reimagine campus buildings to engage, inspire, and teach the next generations. The costs and process are not out of reach if there is a clear vision supported by strong leadership and trained, enlightened campus and state representatives who can help implement that vision. This is both a new business model as well as a new educational model that will help transform campuses and sustain the future of higher education.

*The costs and process are not out of reach if there is a clear vision supported by strong leadership.*
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AUTHOR BIOGRAPHIES

Marjorie Chan is professor of geology and was chair of the Department of Geology and Geophysics at the University of Utah during the programming, design, and construction of the Sutton Building. She is an advocate for women in science, with a 30-year career on the faculty distinguished by a strong record of teaching and research. Her current projects explore Earth analogs to understand landscapes on Mars. She continues to support campus initiatives that utilize the built environment to inspire and teach students.

Elizabeth Main graduated from the University of Utah this summer with her master of architecture. She spent five semesters documenting “signature” buildings on the university’s campus as an intern for Campus Design and Construction. After graduation, she relocated to Kansas City, where she is an intern architect for Pulse Design Group, a firm that focuses on healthcare architecture.

John McNary grew up in Midland, Texas. He received a bachelor of science in industrial engineering from The University of Texas at Arlington and a master of architecture from The University of New Mexico. He has worked for firms in New Mexico; Ft. Lauderdale and West Palm Beach, Florida; and Utah. He has worked at the University of Utah for over 20 years as a project manager specializing in healthcare and as the director of campus design and construction during the largest construction program in the university’s history. He currently serves as director of campus planning.

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