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## Cathedrals, Casinos, Colleges and Classrooms: Questions for the Architects of Digital Campuses \*

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**Abstract:** The bricks and mortar classroom has a long and storied history. The digital classroom is so new and different it may be wrong to even call it a “classroom”. The authors argue that architecture influences behavior. So in constructing our new digital classrooms we must pay attention to the architecture and what job we want that architecture to do. In thinking about the relation between instructional design and our pedagogical aims we must keep in mind that this new type of “space” may require us to rethink our views of both teaching and learning.

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The bricks and mortar classroom has a long and storied history. The digital classroom is so new and different it may be wrong to even call it a “classroom”. The authors argue that architecture influences behavior. So in constructing our new digital classrooms we must pay attention to the architecture and what job we want that architecture to do. In thinking about the relation between instructional design and our pedagogical aims we must keep in mind that this new type of “space” may require us to rethink our views of both teaching and learning.

Freud famously said that anatomy is destiny (Freud, 1995). Architecture is also destiny. It makes us move, it causes us to stop, its colors and materials can excite or calm. It can focus the mind or leave us feeling scattered (Hall, 1995). The digital classroom is a relatively new kind of learning space that, in some ways, is not in space at all. If architecture influences our behavior in ways we are not always conscious of, then what elements must we include in the construction of the digital classroom?

The Free Masons claim their origins in the guilds of the stonemasons who built the great cathedrals of the Middle Ages. Masons paid a great deal of attention to the layout of cities and the design of buildings. The Masonic logo shows tools of the architect (MacNulty, 2006). The very word architect comes from two Greek words that we translate as “master builder”. In some of the great cities of the world there is a well-documented secret architecture that uses elements of astrology and sacred geometry (Mitchell, 2008). The Masons did this because they believed that architecture influences behavior and social interaction. For them, building character and building structures had a great deal in common.

The Masons are not alone in thinking that we are prisoners to the secret language of architecture. In the design of Japanese gardens (Keane, 2007), it was discovered that smaller stones in the walkway cause the visitor to the garden to walk more quickly while larger stones cause the visitor to stop and admire a waterfall or pond filled with multi-colored koi (Lochner, 2012).

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Frank Lloyd Wright understood how to make hallways narrow so that they were not places to linger while he opened up the great rooms where he wanted the residents of a house to feel at home (Maddex, 2003). People are pulled along and stopped by the secret language of architecture, a language many don't understand, although it influences behavior. Just as big data can show patterns that have been hidden, so architecture starts and stops people, pulls and repels them often without being aware of how this is occurring (Hall, 1995). Color, building materials, and dimensions all move persons in ways that, for the most part, are never noticed.

The architecture of the physical classroom is well known. Since the founding of the University of Bologna in 1088 until today, its architecture has remained remarkably consistent. (Hunt 2003) Except for the introduction of the blackboard into Europe in the 16th Century from India (that technological innovation arrived in America in the Ninetieth Century at West Point Military Academy), there has been little change in the structure of the classroom (Hunt 2008). The classroom in which someone's great grandfather sat in Scotland was almost exactly the same as the classroom in which their children sit today (Brubacher & Rudy 1997). From 1088 until this very day, the physical "bricks and mortar" classroom has a consistency that is calming and reassuring. If people were asked to close their eyes and think about the word "education", many will imagine a physical classroom. In mythology and literature, the classroom is that place of learning, anxiety, authority, and nostalgia that we associate so much with learning. Because school is often associated with tests, failures, bullying, difficult teachers, and other unpleasant memories (Boys, 2001), it has a powerful hold on how we think about education, learning, and conformity. The online classroom is different. It is as different from a physical classroom as the spirituality of a Japanese garden differs from the spirituality of the great European cathedrals. Like any architecture, it can restrict or liberate us depending on how this new "space" is constructed.

Before continuing the discussion about the architecture of the classroom, both online and physical, it is convenient to take a brief look at the architecture of cathedrals, casinos, and campuses, as it informs the discussion. The great cathedrals of Europe were built not only to inspire but also to instruct (Taylor, 2005). The carvings, stained glass windows, paintings, and design are all meant to teach lessons to those who at one time could not read written script but could read the lessons in a stained glass window or understand about the suffering and death of Jesus through the stations of the cross. The faithful did not need books because the elements of their faith were presented not just in the words spoken in the pulpit but in the construction of the very building itself (Taylor, 2005). Even the placing of the pulpit is not accidental. In the great cathedrals the pulpit is elevated and off to the side. It is elevated because the priest is closer to God in Roman Catholicism, and it is off to the side because the mass is in the center and is the central event on the Sabbath. After the Reformation, certain protestant churches lowered the pulpit to show the minister was not spiritually superior to the congregation and placed the pulpit in the center of the church as preaching displaced the mass. The materials the pulpit was constructed from also changed. Once made of marble, gold, and other precious materials, it was now being constructed out of wood. All throughout protestant churches subtle changes in position and material signaled the change in theology (Kilde, 2002). The nave of the church, where the parishioners worshiped, had its etymological origins in the Latin word "navis" for ship. The church is a ship that transported souls out of this world and towards God and heaven.

The great cathedrals were often placed on sacred sites where primitive peoples had worshiped before the coming of Christianity (Stroik, 2012). For instance, the Metropolitan Cathedral of the Assumption of Mary of Mexico City was constructed on top of the sacred precinct of the Aztecs that in turn was built on an earlier sacred site. Cathedrals were situated with the four directions clearly in the mind of the builders. They were often constructed with the floor plan in the shape of the cross as an architectural reminder for the parishioners. In Chartres Cathedral in France there is a labyrinth on the floor that people can walk while they meditate on their journey through this vale of tears on their way to the promised paradise. Every stone, every image, every direction has a symbolic as well as functional meaning (Von Simson, 1988).

Cathedrals are not the only places with an architecture meant to influence behavior. Every designer of supermarkets and department stores knows where impulse is more likely and how to use shelf space to move certain products. The use of space, materials, and design has also gotten great attention in the design of casinos. Casinos are places where people go to bet money against any odds that they will make more than they spend. The “house” has a great advantage. However, people return again and again and some gamblers lose every cent they have betting against astronomical odds. Why do they do this? Casinos have spent a good deal of money researching what makes people gamble (Friedman, 2000). It is commonly known there is no natural sunlight or clocks in a casino. But research has also been done on how crowds impact gambling, how the ratio of males to females impacts gambling, how colors impact gambling, how scents impact gambling, and on and on (Miller, 2012). People that have spent any time in casinos will notice the number of gambling opportunities they have to forego in order to get to the hotel room. Casinos are designed to stimulate the desire to bet money against the odds and they do this very well. Just as there is a sacred geometry to the great cathedrals, there is an equivalent formula in casinos. One invokes the urge to pray and reform, while in the other the words “Change and Redemption” have a very different meaning.

The first colleges in the Northeastern states of the United States intentionally copied the architectural styles of their older relatives in Oxford and Cambridge. If one looks at the selection of style, building materials, roof tiles, and campus layout, the imitation of the great English universities will be seen (Tolles, 2011). The quads at Harvard and Yale imitate the quads of Oxbridge. The location of libraries and chapels mimic their older cousins that were models in all ways for the colleges of the New World. The primacy of the library in the quad conveys the importance of books, reading, and scholarship. It was the physical space where scholars spent their time.

When Thomas Jefferson founded the University of Virginia, he thought a series of matched buildings would energize the learning space. The campus is set up not on the model of the colleges of Oxbridge, but a miniature Roman Pantheon where pavilions are connected by colonnades (Tolles, 2011). Each of the ten pavilions was architecturally distinct so that they could be lessons in architecture to the students while at the same time creating a pleasant and quiet environment in which to learn. Quite different from the architecture of the older colleges in New England, the University of Virginia’s Georgian style (an ironic name when you think of what Thomas Jefferson and his pals’ relationship to England and King George was) of red brick and white trim was imitated in countless colleges across America (Nichols, 2001).

A third architectural style was sometimes called “collegiate gothic”. This style goes back to 1829 at Kenyon College in Ohio and examples of this type of architecture can be seen at Trinity College, The University of Pennsylvania, and the Washington University in Saint Louis. Perhaps the finest example of this type of architecture is the stunning Pembroke Hall at Bryn Mawr College that was designed by the architectural firm of Cope and Stewardson in 1894. This architectural style continued mirror and pay homage to the origins of collegiate architecture (Morgan, 1989).

The college campus is designed to connect the modern world with old tradition. Just as titles such as “Lecturer” “Provost” and “Registrar” connect the past with the present, so do the lessons of stone and ivy that define our oldest colleges as part of the ancient tradition. At graduation, when the faculty and students don medieval gowns and mortarboards, the faculty marshal carrying the university mace leads them. All of these trappings tell us a story (Brubacher & Rudy, 1997).

Now, returning the discussion back to the classroom, its architecture has stood unchallenged for almost a thousand years. Every innovation and every change was simply a variation on the ancient theme (Altbach & Gumport 2011).

Just as the architecture of college campuses imitated more ancient forms, so the classroom was a place of constancy even though knowledge, pedagogy, and the professorate were in a constant state of change. This constancy gave stability to thinking about university education. Probably the only difference between a first grade classroom and a graduate classroom in college is that the desks are bigger and there is no alphabet posted over the blackboard (Boys, 2011).

Enter the digital age. Welcome the digital classroom, the e-book, digital libraries, and the digital campus. For the first time in history, there is an alternative to the physical classroom. As the digital classroom was born and grew, there was a natural suspicion about this new kind of classroom. There were questions whether this new classroom was really a classroom, there were questions about the quality of digital education, and there were questions about the security of testing.

The 1990s saw the growth of the online digital classroom and the first glimmerings of the digital campus. In the beginning it was natural that the first efforts to move classes online simply took a syllabus, put it online and then had a “discussion” by typing in answers to questions. In the beginning it was a simple transfer of the teaching of the physical classroom to the online format without too many changes.

It quickly became clear that the experience of the physical classroom could not be transferred “as is” to the online classroom. Some practices of the physical classroom would not work online (McCluskey & Winter, 2012). A lecture that students would sit through for an hour in the classroom would not hold the student’s attention for that period of time online. Typing text is not the same as speaking. The inflections of physical speech are absent in the online world.

At the same time there were advantages to the online classroom. Professors could integrate audio, pictures, maps, and videos in a way to truly utilize multimedia in their teaching.

There is no back of the class where students can hide. Stronger students do not dominate the conversation because many students can “talk” at the same time and there is more opportunity for peer-to-peer learning. For a generation before online learning began to take hold, there was talk about active learning, the star on the stage being replaced by the guide on the side and empowering learners. In the online classroom, the professor is no longer in front of the class and no longer standing behind the lectern while the students sit. The professor is no longer the only one in class dressed for business while the students are in jeans. Suddenly all of our text entries look alike and we all share the same fonts.

The new architecture of the online classroom gives us an opportunity to think about education in a whole new way. Just as Frank Lloyd Wright helped to think about houses in a new way, people have the chance now to think about education in a whole new way. A starting point could be a quote from Marshall McLuhan, who said, “Anyone who tries to make a distinction between education and entertainment doesn’t know the first thing about either” (McLuhan, 2005).

The classroom evolved with modern culture on the factory model. Charles Dickens made the analogy between school and the factory in his novel *Hard Times*. For Dickens, both the classroom and the factory are modeled on each other, the first to produce workers for the second. Discipline, punctuality, rote memorization, order, and conformity were the virtues of both school and the factory. The classroom in which many grew up was still propagating these same values in the 1950s and 60s (Dickens, 2013).

The digital revolution came and, like the industrial revolution before it, it swept away many of the practices and habits that anchored the world. The old world of work has gone away. The digital revolution has changed the way persons shop, find love, communicate, and read. It has also changed how they go to school. The new digital world calls for a new set of skills, new ways of sending and receiving information and has set a new pace to how we work. The nine to five, 5-day workweek has been destroyed by the digital revolution that now streams information into cars, homes and cell phones. There is a new media ecology and, if the medium is the message, then the messages are now very different (McCluskey & Winter 2012).

Most colleges today have online classes, but many of these classes are just the old classrooms moved over into the online format. To remember McLuhan again, education is heading into the future looking in the rear view mirror. What is needed is a new architecture for online classes (McCluskey & Winter 2012). But it is not just classes. If someone from New York City were to go to school virtually at an institution in Florida, one they may never physically visit, the whole campus must be online (Brynjolfsson & McAfee, 2011). A virtual campus that will prepare students for the world of virtual work is needed. Through our work with a variety of higher education institutions we sought to find the key drivers that were transforming the sector. In our research we have developed a series of questions that any university might ask itself as it rethinks its mission and focus for the new age.

1. How much does the virtual campus resemble Amazon.com? If not, why not?
2. Is the analogy of the physical classroom restraining you from rethinking the virtual classroom?

3. What elements or patterns must be present in a virtual class that might be different from a physical class?
4. Has your college thought about way-finding experiments to see how students are navigating your virtual campus?
5. How much user-control do the students have and if they don't have much, why not?
6. How can you construct "spaces" where students can gather, stop or move on?
7. How connected are you to the rest of the virtual universe?
8. With fantastic content available are you reinventing the wheel in every virtual class?
9. How aesthetically attractive is your virtual quad?
10. Is your virtual library a place where information can be sorted and presented in different ways?
11. What new thing can you do in an online campus you could not do on a physical campus?
12. Are there places for students to socialize and faculty to exchange ideas?
13. Who owns the virtual campus?
14. Who governs the virtual campus?
15. What new things are possible which were impossible before?

Architecture influences our behavior in ways we are not always conscious of. The elements included in the construction of the digital classroom are vital to all aspects of the learning process. It is important to make the shift from the bricks and mortar classroom to the digital realm. What jobs students will do and how they will work has all been changed by the digital revolution. There is an opportunity now to reshape universities to reflect these changes. The online world is a new universe and campuses and classrooms need to be designed to prepare students to live in this new world.

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