

Design Process in a Digital World

As rapidly as technology is changing, so are our students. Commonly referred to as the “Millennials,” or the “Net Generation,” these students are entering our universities, equipped to excel in an increasingly connected digital world. As a group, the digital realm is seemingly embedded in their DNA.

As “native speakers” they comprehend the digital language of computers, video games and the Internet.¹ For them, as stated by the computer visionary Alan Kay, “Technology is ‘technology’ only for those people who are born before it was invented.”² Having been raised entirely in a world of digital technology, they are a catalyst leading us further into the information age. They embrace technology with a remarkable willingness to construct new virtual worlds that blur our traditional understanding of space, time and human socialization. With this explosion of innovation, human interaction and sensory experiences are poised to be reimagined. It is the contention of this paper that the challenge in educating future architects does not necessarily reside in the ability for them to use technology, but rather that the next generation is able to learn to effectively operate in a world increasingly cluttered with enormous amounts of digital distraction.

A DIGITAL WORLD

The design studio is no longer alive with the sounds of twirling lead pointers and sliding parallel bars. Instead, the sounds of clicking mice and spinning hard drives now dominate the landscape of architecture students working at their desks. We are constantly flooded with technologies that change our world. In the span of just a few decades, we have witnessed the most rapid advance in information technologies the world has ever seen. Information that once was shared only through analog technologies - books, magazines and newspapers can now be exchanged almost instantaneously through electronic mediums. Through email, texts, blogs and websites the digital revolution is reshaping the world in which we live. As the world changes and adapts to the advances of communication and digital technologies, questions remain at the forefront of architectural Design-Build education. How can digital technologies be embraced in Design-Build education? Can we better adapt these technologies to better shape the projects of tomorrow? Should the ‘new’ digital technologies equal ‘new’ pedagogies? At the School of Architecture and Planning at Morgan State University our Design-Build studio is exploring the

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1

Figure 1: Smart phone screen shot, *social media is used to document the installation at Artscape in Baltimore, MD.*

Figure 2: Client Meeting, *students present design concepts and initial prototypes for the project.*



2

relationship between these new tools and how they can complement learning that was predominantly focused on construction and building.

EMBRACING TECHNOLOGY

One question so often posed within the academy relates to the extent and appropriateness to which technology is and should be employed in architectural design. Inherently a topic that often festers pedagogical divisiveness among faculty and curriculums, this debate remains pertinent, yet non-exclusive to our age alone. Though it may seem that resistance to technological transformation is indigenous to the digital age, avant-garde methods and processes have been challenged throughout history when they seek to interrupt the status quo. Throughout the ages, revolutionary technological advances have been met with stubborn resistance. From paper replacing slate to pens replacing pencils, advances in instructional technology, historically been met with bias towards the preceding tools and methodologies.

Past modes of architectural creation need not be expunged from our design lexicon but should be embraced as the intrinsic link that provides the conceptual starting point for the advancement of our architectural craft. It is here that each subsequent generation stands on the shoulders of those who came before. Therefore, it seems inappropriate to disregard the analogue, but rather find ways in which both the analogue and digital can mutually advance the profession.

THE ERA OF THE DIGITAL STUDENT

We are in the midst of a new era. Students entering the university are members of the largest generation in the history of our nation.³ But unlike the generations that have preceded them, they are a group that knows only a world filled with micro-processors, mobile phones and the World Wide Web. From cradle to grave, this generation will be the first to spend their entire lives in the digital era. For them, the digital eco-system that connects our daily social, civic and business activities is simply a way of life.

In this new age, never has one generation been privy to so much information and knowledge. The opportunities to learn and engage with the world have never been

greater. With this abundance of available information, are these new technologies creating an imbalance, cluttering the ability to learn? Are we in danger of information overload?

At the forefront of this new reality is the pervasive attunement to the machine and screen. Though certainly not limited to the Millennial Generation, our digital devices – laptops, mobile phones and tablets are recasting our expectations of speed, convenience and flexibility at the touch of a finger. These seemingly innocuous devices are the backbone of the communication highway in our world today. However, despite the seemingly endless features and apps, providing everything from construction calculators to emergency flashlights, these digital Swiss army knives are covertly inflicting harm in the classroom and studio. Preying on our insatiable appetite to be “connected,” a recent study published in the *Journal of Media Education*, examined how students are using devices during class time for texting and social network-



3

ing. Conducted by the University of Nebraska-Lincoln, the study discovered that the typical college student “plays” with their digital device during class an average of 11 times per day.⁴ According to psychologist and author Daniel Goleman, these “interactions mold brain circuitry; the fewer hours spent with people – and the more staring at a digitized screen - portends deficits.”⁵ With this ever-increasing bond with the digital machines, the question is, are we more connected or is the minted digital world alienating our interactions with people?

Beginning with research and subsequent books authored by Howe and Strauss in the late nineties, much debate has been volleyed over the identifying personality of the Millennial generation. In the article, *Millennials and Design Education*, Sollohub and Sweeney suggest that Millennials are “leading an epochal transition in human history, one from analog to digital.”⁶

AN OPPORTUNITY TO EVOLVE

With the digital transformation of society and the ensuing clash that is occurring between old and new design processes, our program is exploring how these two

Figure 3: Destination 1, *Morgan State University* completed 2013 Design-Build installation.

methodologies can better integrate to meet the evolving practice of architecture. Because our summer Design-Build studio naturally interweaves design with construction, we believe this course is uniquely structured to equally embrace the shifting digital paradigm. The studio is structured to harmonize the art of making with both traditional (by hand) and digital techniques. The students focus on addressing the design problem through a diversity of standard, time tested representational techniques of drawing and modeling. These explorations are then coupled to explorations involving digital modeling and fabrication of full-scale assemblies to test the hypothesized solutions. While this format of the Design-Build course has as familiar pedagogical structure common to many architectural programs, the uniqueness of Morgan State's program lies in the added expectations of the students to hone their digital skills in other areas related to the real-world challenges to effectively bring a design to life.

Each year, since the studio's inception, the selected project is developed in conjunction with a yearly regional public arts festival. With festival organizers serving as the "client," it provides students a tangible, hands-on experience interacting with professionals. Using both virtual and face-to-face methods, students develop skills and techniques in professional communication. While to some this may seem elementary, most students have little experience using digital communication tools for anything other than social interaction with their peer groups.

Serving as a major attraction for the festival, each built installation created by the studio innately draws the attention from the public as well as the press. As part of the requirements of the project, the students are responsible for building a project website and maintaining a social media campaign to allow the public a glimpse into the studio and project. This provides digital documentation as the project progresses and permits the public an opportunity to be an active participant in the process. It is expected of all students to routinely photograph the work as the project progresses and contribute to the digital archive. Posting to social media sites like Facebook, Twitter and Instagram is encouraged. The students create a cloud-based file system to organize and manage the massive amount of digital documents that are created and exchanged during the course of the project.

Students are also involved with the marketing of the project and public outreach. To begin, the project team designs an identity package which includes the project name, logo and team apparel. Teams of students work to create press releases and media information packages that help to increase awareness and visibility for the project. In the most recent studio, the students worked with the University's digital video production studio to create two short information videos promoting the studio's current project. This interaction provides yet another avenue for the students to explore the potential impact digital technology can have as we push the profession forward.

But as easily as the students adjust to the ways in which digital technology can complement the process and realization of a Design-Build project, one glaring issue still remains; how can students raised in our cluttered world of digital chatter maintain focus in a profession unaccustomed to rapid progression. In an interview with Icon Magazine, Rem Koolhaas spoke of this endemic problem as "a discrepancy between the acceleration of culture and the continuing slowness of architecture." In the Design-Build studio at Morgan State, this long-standing paradigm is being challenged through the pace at which the project must be executed. During the course of 7-week summer session, the Morgan State Design-Build studio most operate within the constraints of the University summer session schedule. While to some

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this may be considered detrimental to the design process, the condensed schedule has become an asset to the program by providing a mechanism necessary to seize the attention of our “digitally” distracted students. At a pace that flirts with impossible deadlines, testing the mental and physical endurance of students and faculty alike, the process stems the negative effects of society’s attention deficit.

MOVING FORWARD

Historically, there has been a rift between design and construction in architecture.⁸ As technology continues to permeate our world and challenge analogue design & construction processes, dissent within our profession threatens progress on multiple fronts. By providing Design-Build studios like the one at Morgan State, the opportunity exists to provide an academic model that illustrates how both ‘sides’ can synergistically interact to transcend by far their own individual strengths.

Through the structure of the Design-Build studio at Morgan State, the embedded process works to accommodate student strengths while obscuring the challenges of distraction inherent in the digital generation. Furthermore, by structuring the studio so that the end product is delivered for a public audience, it raises the students’ sense of responsibility to deliver a successful project.

By requiring the students to assume diverse roles in support of the project, the students are able to immediately contribute to the project through their ‘instinctive’ digital talents and abilities. More importantly, they assume reciprocal learning/teaching relationships, as students typically have advanced technical knowledge of the digital devices when compared to the faculty and mentors. This leads to fostering a learning environment that is more conducive to collaboration.

Certainly much remains to be learned as the Design-Build studio at Morgan State continues to mature. While the program is relatively young when compared to its’ Design-Build peers across the nation, the success and growth shared by the students and faculty, have created a foundation built on compromise, acceptance and understanding as the backbone to completing future projects in our digital world.