

# Millennials and Design Education

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All schools of design - including architecture, planning, industrial design and other allied disciplines - are communities made of faculty, staff and students. Of these groups, students are by far the largest and most dynamic constituents. Entering the second decade of a new century, design academies find themselves shepherding a new and unique group through studios and classes. This group, the so-called Millennials, are the children of the Baby Boomers, themselves a notable generation. Most significant, the Millennials are the first generation to have matured with both the computer and the internet. They are distinct, in command, and leading the digital revolution around us.

The authors of this document come from different backgrounds. Richard Sweeney is NJIT's University Librarian who has conducted extensive research on Millennials through focus groups and surveys. Darius Sollohub is the Director of the New Jersey School of Architecture at NJIT, who recently organized a colloquium on Millennials in design education and has also published on service-learning and collaboration in studio settings. Together they ground this paper in both recent literature focused on both Millennials and design education, combined with surveys, focus groups and other outreach. The authors organize this paper in response to generalized findings on both the behavior characteristics and personality traits of Millennials, dividing those into two categories: those **supporting** design pedagogy and those **challenging** it. Where some characteristics and traits straddle this binary division, the authors discuss them in both sections. And while other research has examined common behaviors and traits that distinguish Millennials from previous genera-

tions at the same age in different environments such as business or medicine, this paper selects and discusses the largely unexamined performance of Millennials within the context of design education.

## MILLENNIAL BEHAVIORS AND THEIR PERSONALITY TRAITS

Millennials - those born between 1980 and 1999 - are the second largest distinct demographic group in US history, smaller only than their boomer parents (born 1946 - 1964).<sup>1</sup> More than half have or will attend college, more than in any previous generations, and their number in the US workforce will reach 58 million by 2014.<sup>2</sup> 61% of Millennials say their age group is unique and distinct, 12 percentage points higher than their predecessor generation, Generation X (GenX).<sup>3</sup>

Several Millennial behaviors and traits mark them as statistically different from previous generations at the same age. These traits are likely to become part of their lifelong culture. While several tallies of these behaviors have been made by others,<sup>4 5</sup> the authors expand those lists based on their own previously unpublished research. Broadly characterized, Millennial tend to be:

- Selective and Option Focused
- Experiential and Exploratory Learners
- Flexible and Convenience Driven
- Desirous of Personalization and Customization
- Impatient
- Practical, Results-Oriented
- Multitaskers
- Digital Natives
- Gamers
- Nomadic in their Communication Style

Media/ Format Agnostic  
 Collaborative and Respecting Intelligence  
 Focused on a Balanced Life  
 Less Inclined to Read

One long-term, longitudinal study in a medical school completed in 2006 shows that Millennial's personalities differ in some significantly measurable ways when compared with GenX students on 10 of 16 personality factors on a standard personality test (16PF).<sup>6</sup> Other research supports these personality traits, and because this is the only long-term study related to Millennials in professional education, the authors use it here. According to the study, those traits show Millennials to be:

warm and outgoing, (Warmth)  
 more abstract than concrete, (Reasoning)  
 adaptive and mature, (Emotional Stability)  
 dutiful, (Rule Consciousness)  
 socially bold and adventuresome, (Social Boldness)  
 sensitive and sentimental, (Sensitivity)  
 self-doubting and worried, (Apprehension)  
 open to change and experimenting, (Openness to Change)  
 organized and self disciplined, (Perfectionism)  
 less solitary and individualistic, (Lacking Self Reliance)

While these behaviors and traits paint with broad brushstrokes a general portrait of a typical Millennial, the fact that some are socially bold while others more apprehensive suggests that the age group subdivides into distinct subgroups based on differences in one key area but otherwise shares many other characteristics. Readers should also note that behaviors and traits, depending on the situation, can either benefit or undermine design education.

## **MILLENNIAL BEHAVIORS AND TRAITS SUPPORTING DESIGN PEDAGOGY**

### **Collaboration**

After many years of collaborating at schools, day care, soccer teams, orchestras, peer-to peer networks, games, and other programmed activities, Millennials know how and when to work effectively with others. Even those who do not prefer collaboration typically do so, if they think it gives them a practical advantage.<sup>7</sup> This may be one of the benefits of "helicopter parenting," a term first coined in 1990 describing the practice of parents providing substantial structure to their children's upbringing.<sup>8</sup>

Because of their collaborative upbringing, Millennials respect merit systems over others such as seniority.<sup>9</sup> Continually working together from an early age has inculcated a natural tendency to divide labors according to proven skills and knowledge. A corollary to this is that Millennials appreciate intelligence and education; overall believing that it is "cool to be smart."<sup>10</sup> As a result, they are electing to go onto college and graduate work in far greater numbers than previous generations. In fact, some evidence from intelligence tests suggests that Millennials score higher than previous generations, most likely due to better nutrition but also from improvements in cognitive stimulation.<sup>11</sup>

The design professions are highly collaborative and their licensure-granting bodies such as the NAAB have maintained that collaboration be a key component of design curricula, especially in studios.<sup>12</sup> These professional organizations value collaborative learning in the belief that it hones the basic communication skills required to practice professionally in an integrated manner. Millennials excel in and seem drawn to the camaraderie formed in close-knit environments such as design studios, which stress collaboration through joint efforts such as site models in architecture. Millennials especially appreciate peer to peer, just-in-time collaborative learning, especially when it involves technology.

### **Practical, Results-Oriented**

Millennials are interested in processes and services that lead to results with an emphasis on speed. Having grown up with a vast array of choices, Millennials have honed criteria that trend toward the practical and essential. They favor what can give them the results they want at a particular time. Millennials have little patience with the extraneous; they want to learn what they need quickly and move on. They are generally more goal-oriented than previous generations, which may also be a result of helicopter parenting. They are also quick to adapt strategies that meet their goals. Their goal-focused tendencies also make them less susceptible to peer pressure.

As institutions that teach a 'practice,' design schools clearly embrace the practical and functional aspects of design. Moreover, as places that teach how to 'make,' they are by definition, product-oriented. The growing offerings of service learning and design-build studios such as those catalogued in

Mary Hardin's edited volume entitled *Studio to the Streets: Service-learning in Planning and Architecture*<sup>13</sup> show evidence to both the practical, results-oriented preferences of this generation in design schools as well as their attraction to experiential learning offerings described below. That these experiences are also typically collaborative adds to their appeal for Millennials. Impatience, a negative corollary to a results-only emphasis, is described further in the *challenging pedagogy* section below.

### Experiential Learners

Millennials strongly prefer learning by doing, engaging through active learning and effective experiential processes such as games, case studies, hands-on experiences, and simulations. These experiences all speed their learning and hold their interest as if they were personally tutored.<sup>14</sup> Their preference increases when these experiences are goal-oriented and collaborative. The experiential learning that Millennials prefer is rooted in the pedagogical constructivism of John Dewey and Jean Piaget who posited that the content and the experience of learning are one in the same.<sup>15</sup> The studio setting in design educations abounds with the educational experiences that Millennials desire, allowing for significant amounts of interactivity and feedback about what works and what does not.<sup>16</sup> Further refining constructivist learning through the collective work of the Boyer Report<sup>17</sup> and the design by the knowing-in-action strategies of Donald Schön,<sup>18</sup> studio-based education today seems as if it were custom-tailored for Millennials. Design education also integrates the experiential, collaborative and practical in ways consistent with David Kolb's Experiential Learning Theory, which emphasizes a student-focused, collaborative, problem solving approach.<sup>19</sup> Most relevant, Kolb's characterization of the paradigmatic experiential teacher as the coach or facilitator, and not a disseminator, closely describes the role a critic plays in design studio. That American business schools such as Stanford started so-called 'D-Schools' within the last decade, adapting a form of studio curricula focused on creativity, suggests that other disciplines have recognized this as a fertile learning environment for Millennials.<sup>20</sup> Similar recent adaptations of studio-based education in engineering and medicine also support this trend.<sup>21 22</sup>

### Digital Natives

Millennials clearly adapt faster to computer and internet services because they have always had them. They expect and take full advantage of the speed, convenience, flexibility and power provided by digitally provided services and resources.<sup>23</sup> Through social media, they have also created a parallel connectivity that utilizes synchronous and asynchronous text communication blended with images, video and references to other information centers. These channels have supplanted written materials (snail mail) and even email with constant texting and always being logged into Facebook.<sup>24</sup> As digital technology continues to transform every aspect of design, this generation will have a distinct advantage because of their intuitive understanding of how to use it.<sup>25</sup> Their skills are such that they typically master CAD software even before their faculty. The future is open and full of possibility, but a tantalizing pedagogical question remains: how Millennials will they deal with the analog systems their computers replaced? Are they mutually exclusive or should a balance be struck between the digital and analog? A 2006 survey of second year design students showed a strong preference for hand drawing over computer rendering, citing that "hand drawings are more successful in reflecting authorship, one's ability, and warmth in terms of artistic expression."<sup>26</sup> Others skeptics claim that overuse of the computer and lack of hapticity may over time cause the areas of the brain where design resides to atrophy.<sup>27</sup> With the recent refinement of touch-screen tablets, it stands to be seen whether 'designing with a pencil' as Alvar Aalto referred to it, can be transposed to these devices. If it can, it is almost certain that the Millennial generation will arrive there before their instructors.

### Natural Multitaskers

Millennials excel at juggling several tasks at once since this an efficient, practical use of their time. Multitasking can enable them to accelerate their learning by permitting them to accomplish more than one task at the same time.<sup>28 29</sup> It also allows the Millennial mind the ability to look at issues more holistically, with less proclivity to get bogged down in the details. Architecture is the "coordination of everything" as Ezra Ehrenkrantz used to say, recognizing that designers must simultaneously advance and interweave complex ideas. Design-

ers have always been generalists and multitasking is one attribute of that. The embrace of Building Information Modeling may be nothing more than multitasking made manifest through software.

Some recent research however suggests that this holistic thinking seldom materializes and that multitasking leads to a distracted mind.<sup>30 31</sup> That 64% of Millennials admit to texting while driving<sup>32</sup> may make their distraction-prone tendencies potentially lethal. Parent-reported diagnoses of Attention-Deficit / Hyperactivity Disorder (ADHD) increased by 22% between 2003 and 2007,<sup>33</sup> making Millennials historically the most highly medicated generation. Social critics and researchers seem divided on whether multitasking is a virtue or a social disease that for many requires medical intervention.

### Gamers

Millennials have spent thousands of hours playing electronic, computer and video games. They love the constant interactivity, full motion multimedia, colorful graphics, the ability to learn and progress to higher levels, and the ability to collaborate with friends in their learning and competitions. The emotional stimuli that games offer trigger higher levels of commitment. Games continually refine the goal-oriented, experiential and collaborative tendencies described above that Millennials prefer in their learning environments.<sup>34 35</sup>

The stunning proliferation of computer games over the last two decades has revived interest in the feedback loop that resides at the core of a game's appeal. Simply described, the feedback loop has four distinct phases. First, **evidence** introduces a setting in the form of background information. Second, as one begins to play, the information becomes **relevant** to a user. Third, one discerns the **consequences** of a decision through repeated success and failures, which, fourth, leads to continued **action** that leads to higher and higher skill levels.<sup>36</sup>

That games encourage spatial thinking, problem solving, the ability to progress to a higher level and an ability to collaborate with friends - all within a constant feedback loop cycle - describe skills and attributes that all design schools could support. While the default for many educators is to see games as a time-wasting, addictive distraction, many advocate for their use in education.<sup>37</sup> The connection between

games and design schools runs deep as the creators of gaming's virtual environments have historically come with design school training in Maya, 3DS Max and other 3D software. The traditional design competition, as practiced for centuries, triggers many of the emotional responses that today's video games to tease out creativity. Rather than categorically dismissing the value of video games, design educators would do well to carefully examine gaming and how it advances learning on a fundamental level, while remaining careful not to avoid their superficial environments and gimmicks.

### MILLENNIAL BEHAVIORS CHALLENGING DESIGN PEDAGOGY

#### Impatience

Millennials have far less patience than previous generations. They have grown to expect instant gratification and by their own admission, have little tolerance for delays.<sup>38</sup> Their worst nightmare occurs when they are delayed, required to wait in line, or have to deal with some other unproductive process. Millennials are furious when they feel they are wasting their time; they want to learn what they have to learn quickly and move on.<sup>39</sup> As found in Richard Sweeney's focus groups, Millennials consistently say they find their average lectures boring. As much as Millennials may favor experiential, collaborative and goal-oriented learning, they are bored and frustrated with lecture classes which lack the immediacy and stimulation they expect. Many prefer taking a 'distance learning' course than sitting in a lecture hall. Responding directly to the Millennial's distaste for large lecture courses by making them smaller may be too expensive for many schools to afford, as large 'talk and chalk' lectures offset the high cost of studio teaching. Recording these courses to be web delivered may be the only affordable alternative but may be risky as seeing the movie is never as indelible as reading the book. The answer may lie in imbuing large classes with the active learning and effective experiential processes that Millennials relate so well to, perhaps integrating live lectures with video, simulations, field visits and even some form of gaming.

The Millennial's generational tendency toward impatience poses a serious challenge to the slow, iterative process found in design education. Millennials may *literally* have little patience for the content of Le

Corbusier's book: *Creation is a Patient Search*. For a goal-oriented generation, to complete a project only to have instructors inform them that there is more work to be done, or that it is never 'finished,' can be deeply frustrating. A critical pedagogical challenge to design educators will be to stress the importance of process even if its pace may seem glacial. Faculty will need to distinguish for students between necessary and unnecessary frustration. Frustration with the design process is necessary to draw out a designer's creativity while frustration with flawed course delivery is justified and faculty should be called upon to correct it. If Millennials could experience creativity in the way they appreciate video games as described above, that is if the creative process could "encourage spatial thinking, problem solving, the ability to progress to a higher level and an ability to collaborate with friends, all within a constant feedback loop cycle," perhaps their frustration could convert to excitement.

A disturbing byproduct of their impatience is that Millennials are reading literature and newspapers far less than previous generations at the same age.<sup>40</sup> In fact, reading is down for most age groups but the decline has been greatest among the youngest adult population. Coming as a surprise to many, reading comprehension levels bottomed out in 2007 and are on the upswing.<sup>41</sup> While the reasons for this change are unclear, the fact remains that reading comprehension levels of students today are still far below those of their teachers when they were the same age. That Millennials read less than previous generations concerns many design faculty, who wonder whether this constitutes a real or perceived shallowness of thinking. In focus groups many Millennials admit to never reading directions. Given that they score high on intelligence tests, the larger question may be whether reading or even retention really matter if information is only a few keystrokes away on a device that is always at their side.<sup>42</sup>

Millennials may not read newspapers but they stay connected through multiple sources including video - whether on TV or through the web- social networks and blogs. If Millennials really need to know something, they can find it instantly. News of the recent death of the entertainer Amy Winehouse travelled virally through the social media of twitter and Facebook faster than through the websites of major media outlets. Admittedly, entertainment news may not be essential news, but the larger argument may

have less to do with the eclipsing of analog media such as newspapers and books as primary information providers, than with the relevance and accuracy of content. The issue becomes where to look: websites of traditional media, social networks or the blogosphere - and more important - who to trust. In addition to seeking out new knowledge, a future role of academia may be to sift through and certify the vast realm of knowledge already online.

### **Flexibility/Convenience**

Millennials prefer to keep their time and commitments flexible longer in order to take advantage of better options. They also expect other people and institutions to give them maximum flexibility. Increasingly, Millennials return to live at home after college, not because they are slackers, but for strategic and economic advantage. Why should they pay expensive rents when they have guaranteed free room and board, transportation and connectivity at home? They seem to get along fine with their parents, socially and politically, and their parents are generally tolerant of their dating habits. The generation gap that made cohabitation irksome for previous generations has largely vanished.<sup>43</sup> The maximum flexibility that Millennials demand often exasperates those of older generations in institutions and businesses. In design schools this becomes most apparent when deadlines loom. That Millennials seldom read directions extends to syllabi.<sup>44</sup> Faculty continually need to remind today's students of deadlines and that they are final. Stressing that these deadlines correspond to the threshold when a student should shift from design to production mode may respond to the Millennials preference for clear, organized guidance. They perform best when their instructors perform some degree of helicopter parenting, but the academy's role may also be to wean them from this practice, as their continued disrespect for deadlines may be professionally catastrophic.

Millennials are both digital natives and digital nomads. They will take "distance learning" courses even if they prefer the face to face course with a charismatic teacher because they can do so at their preferred location and time.<sup>45</sup> They opt for the convenience and flexibility and expect services on their terms. Through the web, they desire to do whatever they need to, obtaining any services independent of their geography or distance. Optimally, these services should come on the smallest device

possible.<sup>46</sup> The nomadic preferences of Millennials may seriously undermine studio culture if they find little reason to be in the studio outside class time. Network-delivered software may become extinct if students want to stay 'off the grid.' The Millennial's nomadic proclivity will challenge design academies to build activities into their curricula that maintain the need to physically stay together to maintain some semblance of studio culture. That Millennials seem drawn to collaborative and peer to peer learning may become the basis of these activities.

Millennials practice and also demand 24/7 contact. Millennials love and expect communication mobility; to remain in constant touch wherever and whenever, un-tethered.<sup>47</sup> To a Millennial, the notion of sacred time is so twentieth century. Deep sleep may be the only excuse for a peer to ignore a text or Facebook posting, as over 83% sleep with their digital device on their bedside.<sup>48</sup> Millennials take constant connectivity as a given and are increasingly expecting their faculty and bosses to do the same. Focus group discussions yield that while younger faculty may find this acceptable, many older faculty are offended by the intrusion on their privacy and sacred time.

### Balanced Lives

In her book, *Keeping the Millennials*, Joanne Genova Sujansky recounts the following story:

When a harried office manager recently announced to his team that an evening of overtime was going to be required in order to finish an important project, he expected to hear a general round of grumbling. But he was shocked when a new member of the team, a 22-year-old recent college graduate, told him he couldn't stay because he had concert tickets that evening.<sup>49</sup>

Millennials don't want to work 80 hours a week and sacrifice their health and their leisure time, even for considerably higher salaries. Yet they expect to earn incomes exceeding their parents.<sup>50</sup> In design faculty focus groups, participants felt that Millennials do not put the time into studio that they did. In these sessions, faculty wondered how any school could possibly streamline the patient, iterative process of design education to meet the Millennial's expectations. But design teachers can also consider what if the opposite were true, what if the young employee described above went to the concert and came back to ultimately improve the project at hand? Given that technology has removed much of

the drudgery of 'ink, don't think' all-nighters, perhaps this generation will give that time to better acculturate themselves or spend more time with their families or go to the gym, instead of redesigning yet another time. Time (and further research) will only tell whether this reallocation of time will be for the better or worse.

### OPPORTUNITIES AND CONCLUSION

A stark demographic reality of the Millennial generation is that its numbers are now in decline. After 2008, the number of students entering college has and will continue to drop, only rising again to the 2008 population level in 2018.<sup>51</sup> While the very large Millennial immigrant population to the US and local birth rates will vary the impact times on schools, this coming precipitous decline in the pool of prospective undergraduate students is likely to have a dramatic impact on some schools. The weakness of the global economy will only exacerbate this, especially if governments curtail funding for education. To forestall shrinkage, schools may need to seize the opportunity to specifically attract and engage Millennial students.

Millennials are a distinct and unique demographic group who find themselves leading an epochal transition in human history, one from analog to digital. This paper discusses the behavior characteristics and personality traits of Millennials that both support and challenge design pedagogy, finding a largely supportive convergence between the Millennial generation's educational preferences and those practiced in design schools today. None of the challenges to pedagogy cited are insurmountable if design schools restructure their curricula with consideration toward Millennial's recognized needs. Accommodating Millennials should come naturally to design schools, although additional research will be required to further address issues of patience, gaming, multitasking and distance learning in the context of design education, something this paper's authors are committed to doing. Overall, the design academies have much to gain if they take this generation seriously. That Millennials thrive in design-based environments may offer a strategic advantage for schools to expand beyond traditional professional design preparation into new disciplinary frontiers focused on creativity, collaboration and experiential learning.

## ENDNOTES

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