

Furniture Urbanism: A Pedagogy for Fabrication and Social Engagement

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***Furniture Urbanism* is a fabrication-oriented design studio conducted to provide our students with an experience of engaging the realities of full-scale fabrication and the complexities of designing objects for public urban spaces. Co-conceived and co-led by an architecture professor and a fine-furniture maker who manages the university makerspaces, this course highlighted their varying yet complimentary pedigrees of furniture, fabrication, and material insights.**

Furniture Urbanism is a hypothesis that is related to *urban furniture*, the human-scaled urban objects and infrastructures that populate the public realm. It also draws from *Everyday Urbanism*, the activation of common and unconsidered urban spaces with periodic events and opportunistic uses (Crawford 2008). It also has affiliations with *Tactical Urbanism*, low-cost, high-impact urban interventions to transform public behavior and use of city spaces (Lydon and Garcia 2015). Furniture Urbanism is meant to stimulate social interaction by engaging people not only with the designed object but also with the other urbanites who are drawn to it.

The studio was composed of two phases: *Furniture* and *Urbanism*. In the Furniture phase, each student produces a finished furniture object, building skills alongside an awareness of furniture from a creator and user standpoint. This immediately engaged students in improvisational thinking and a ‘designing-through-making’ process. Prototyping early and often supported student improvisation while increasing their confidence in navigating the undiscovered.

In the Urbanism phase, students formed design teams to conduct a collaborative process of merging the individual designs into purposeful propositions. The final Furniture Urbanism objects were then deployed as finished prototypes across our urban campus. Through this sequence of individual and collective projects, the students learned to balance what craftsman and author David Pye describes as the “workmanship of risk” that is dependent on individual dexterity and the “workmanship of certainty” that is rooted in systems of production (Pye, 1995).

FURNITURE URBANISM: A HYPOTHESIS

Furniture Urbanism is a hypothesis that well designed and fabricated furniture posited in an urban context can generate social interaction and a sense of community. This is the pedagogical question we pose to our Furniture Urbanism Design Studio, and we ask our students to test this hypothesis through individual and collective design iterations and full-scale fabrications. Through the dual processes of design plus fabrication we reinforce the idea that thinking-through-material at full scale is a powerful form of design research, and that engaging the realities of full-scale fabrication and the complexities of designing objects for public urban spaces emulates the considerations for the design of buildings.

The success of this studio is a function of its underlying dualities the two instructors impart, from the instructional modes to the content and student workflows. Specifically, the call-and-response effect of dual instructors allowed one instructor to reinforce or challenge the historical and contemporary context presented by the other, while also generating experiential value through contrasting tactile study. Bridging Furniture and Urbanism, two contrasting scopes of study, was “especially fulfilling because its materiality anchors the craftsman’s understanding” from other representational modeling techniques typically fashioned in architectural education (Korn, 2013). Embedding a purposeful shift from independent to collaborative work within this hybrid class exposed students to the benefits of individual self-expression and discovery alongside group work reinforcing trust of their peers. Lastly, the Covid-19 pandemic context compounded the studio’s hybridity by posing unique problem-solving opportunities for students who were both in-person and remote. Not only were they asked to discover accessible materials, methods, and collaborative roles for 1:1 scale making not typically found in the architectural design studio, but also they needed to collaborate their design processes with remote students through digital media. This paper, co-authored by the instructors, aims to celebrate this interstitial space explored by the students and we welcome the reader to navigate our interpretations as a result of our collective dialogue.

Furniture Urbanism is related to *urban furniture*, the human-scaled quotidian urban objects and infrastructures that populate the public realm, such as bus shelters, hot dog carts, park

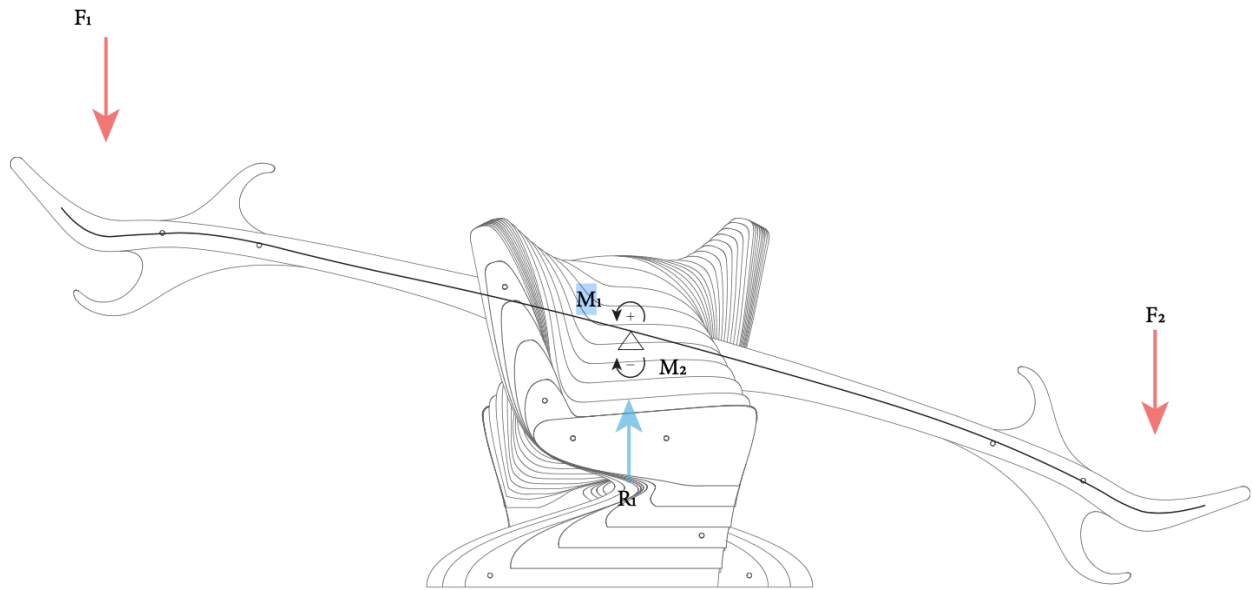


Figure 1. *Wooden Wave*. Image credit: Adrian Ramon, Alexandra Batiste, Adele Biehl, Mark Lewis.

benches, bicycle racks, access ramps, waste bins, fire hydrants, traffic signs, telephone poles, etc. Although both are composed of objects that can withstand the wear and weathering of the exterior urban environment, Furniture Urbanism seeks to nurture vitality and social interaction among citizens, while urban furniture is the exposed elements of urban systems and infrastructures, such as electrical, water, sewer, traffic control, and public accommodation. A clear distinction is that Furniture Urbanism has a social agenda, whereas urban furniture simply serves the operational needs of a city. As this paper will demonstrate, Furniture Urbanism and its pedagogy also draw from *Everyday Urbanism*, the activation of common and unconsidered urban spaces with periodic events and opportunistic uses (Crawford 2008). And it has strong affiliations with *Tactical Urbanism*, low-cost high-impact urban interventions that can transform public behavior (Lydon and Garcia 2015). Like these two urban theories, Furniture Urbanism can activate neglected and residual urban spaces by engaging people not only with uniquely designed objects but also with the other urbanites who are similarly drawn to them.

DESIGNING THROUGH MAKING

At the forefront of this course, we established the premise that our students will redirect their focus from the typical *representation* of materials prevalent in architectural education to the study of real materials and the fabrication of finished objects. It is widely documented that humankind is innately making-oriented—historically out of necessity and efficiency—developing utilitarian objects to serve community good such as woven baskets made of regional husk for transporting goods, carved bone utensils for cooking, or even millstones for grinding seasonally-harvested

grain. Peter Korn expands upon this notion in *Why We Make Things and Why It Matters: The Educations of a Craftsman*: “The conversation of object making has coursed through the emergence and decline of civilizations. New voices have interrupted it, new technologies have influenced it, and changing economic and political circumstances have reoriented it, but the conversation never abates...as they evolve and, eventually, dissipate, the conversation will no doubt continue undiminished, for we are an object-making species” (Korn, 2013, 33).

Throughout this studio, we iterate through phases requiring both concept sketches, representational modeling as well as joinery and material tests. The students recognize the specificity of material properties and the critical role they play in both furniture and urban artifacts. The notion of *craft* becomes integral to the students’ process early on – not as duty to an end user or purchaser of a utilitarian good, but rather to “address the spiritual needs of its *maker*” (Korn, 2013). Furthering our support of both remote and on-campus work, we encourage our students to embrace avenues which challenge our preconceived notions of applicable materials and means. While one remote student in the course developed techniques for altering and stuffing recycled denim clothing for both seating structure and form, another sought out advice and training in a workshop setting from a family member’s business in order to realize her design. These unique navigations by students welcomed rewarding conversations about problem-solving and discovery. By pairing these physical processes with an ethos of inclusivity for all people, the students ground their logic, ideation, and decision-making for both single furniture prototypes and collective Furniture Urbanism propositions.



Figure 2. *Soda Can Seat Improvisation*. Image credit: Megan Arsenau.

By offering pointed demonstrations on manufacturing techniques in person, paired with virtual lessons on the evolution of material manipulation, students gain an understanding of not just how but why furniture archetypes like Michael Thonet's No. 14 Café Chair in bent beechwood, Alvar Aalto's Paimio Chair with molded plywood and laminated veneer, or Charles and Ray Eames's molded plywood leg splint from World War II exist as innovations of wood technology and scalable manufacturing. In *Fewer, Better Things*, author Glenn Adamson expands upon how these designs at times were "distained as cheap and shoddy" due to exposed plywood or unadorned componentry, but were in fact celebrations of material properties and results of efficiencies in manufacturing (Adamson, 2018, 193). So much so, that the Victoria and Albert Museum has categorized its furniture collection "not according to stylistic progression—baroque, rococo, neoclassical—but along the much more interesting lines of process [like] carving, veneering, and joinery...and moulding" (2018, 192). Students were introduced to the foundational principles of safe workshop practices as a foundation to foster their analogue tactile experiments and were later complimented by pointed demonstrations on techniques of certainty, such as additive manufacturing and computer numeric control (CNC) operations. Ultimately, by engaging in experimental workmanship of risk and complimenting it with that of certainty, students discover how the act of making reinforces how craft can in fact drive design resolution in material application, performance, and user response (Pye, 1955, 20).

FROM EXPERIMENTAL TO PURPOSEFUL

Formally, this studio is composed of two sequential halves, Furniture then Urbanism. Each starts with a short design charrette followed by an informal critique and concludes with a formal critique with invited furniture designer-fabricators and architects. This binary structure establishes a dialectic between the human scale of furniture and the urban scale of cities, one that the students' design and fabrication work ultimately bridges. It also aligns with the modes of working in the two halves: in the Furniture half, students are designing and fabricating individual projects; and in the Urbanism half, they are working collaboratively by fusing their individual design and material strategies into a collective project. The informal and formal critiques are defined in the syllabus and schedule as iterations to reinforce the necessary continual evolution of the students' design thinking and making. It is important to emphasize to the students that design is a heuristic, non-linear, subjective, and iterative process of discovery, analysis, auto-criticism, and progressive exploration. Each iteration is further subdivided into weekly Themes that are defined by short presentations by each instructor.

The Furniture half is design research into the interrelationship of material, form, and performance, plus a personal exploration into how students can construct their own design methodologies and agendas. The semester starts with a one-week charrette based on the theme of Improvisation that challenges the students to design and fabricate an object to facilitate the act of sitting using only found, secondary, recycled, and reused materials and objects (Figure 2). To sensitize the students to artistic practices based on found and repurposed elements, this theme is introduced through a presentation of the Readymades of Marcel Duchamp and his appropriation of manufactured objects, the Dadaist collages of Joseph Cornell of familiar objects, and the environments of Tara Donovan that are composed of common consumer products. To contextualize this span of diverse practices towards furniture design, we also introduced the work of contemporary designer Pini Leibovich. He describes his work of using ordinary materials and objects such as unfilled balloons to create utilitarian furnishings as a process of cultural alchemy. He explains that "to use very rich materials, gold and diamonds, is kind of easy, but if you take low cost material and you can make it into something that people feel is rich for them, then that is magic" (Bloomfield, 2015).

This introductory project immediately engages the students in several complementary and highly specific investigations. For one, they must design through actual materials and objects versus using abstracted representational substitutes or digital imagery. Also, they must develop an affinity for designing for human bodies of all types, shapes, sizes, and abilities. And they must develop a method of assembling their materials and objects in a way that becomes an integral part of their artifactual expression. In this iteration, the remote students have the same design experience as the in-person students because found materials are equally accessible to anyone and their assembly is



Figure 3. Northeastern University President enjoying *Wooden Wave* with students. Image credit: Peter Wiederspahn.

equally ad-hoc. Lastly, these improvisations invite the students to become comfortable with stepping towards unknown design outcomes, to freely experiment with new formal possibilities and to speculate about the inherent cultural connotations that are embodied in any process of aesthetic appropriation. Thus, this initial charrette serves as a microcosm of the course and establishes upfront a design culture that works exclusively at full scale, that suggests making is designing, that human bodies of all types must be welcome to physically engage the work, and that evocative design will stimulate a common curiosity.

The next Iteration leading up to the first informal critique asks the students to extrapolate the essential design concepts and material strategies of the charrette without necessarily abiding by the actual materials, assembly systems, or formal configurations. In this way, the transformations of found objects and materials into artifacts of functional and aesthetic value are translated again into more refined strategies for designing furniture. Themes of *Material Experimentation*, plus *Connection*, *Joinery*, and *Assembly*, and *The Architecture of the Body* are introduced through the modernist furniture of designer/architects of the Czech Cubist movement, Pierre Chareau, Frank Lloyd Wright, Charles Rennie MacIntosh, Eileen Gray, Charlotte Perriand, Alvar Aalto, and Charles and Ray Eames. A dialectic between the explicit tectonic expression of Jean Prouvé and Carlo

Scarpa is contrasted with the atectonic obscuring of construction detail in the early work of Gerrit Rietveld, the furniture of Donald Judd, and the biomorphic design research of Neri Oxman. Presenting this wide array of designers is in part meant to introduce architecture students to the vocabulary, principles, and possibilities of the practice of furniture design, one that parallels architecture and is often practiced by architects but is typically neglected in architectural education.

It is during the third Iteration that the students mainly work with the actual materials—be it corrugated cardboard, plywood, textiles, or even swimming pool noodles—at full scale of their furniture designs, and in so doing become expert in the tools available to them at home or in our Maker Spaces. The students use a full array of manual, power, and digitally controlled tools in the production of their projects, navigating the fabrication process both intuitively and strategically. The remote students had to exert a particular deftness and design objects within their available fabrication means. The particular focus in this phase on the joints, details, and tectonic expression is explained through Marco Frascari’s deconstruction of *technology*, that “the architectural detail can be defined as the union of construction, the result of the logos of technè, with construing, the result of the technè of logos” (Frascari 1984, 23).



Figure 4. Wooden Wave fabrication. Image credit: Patrick Kana.

The embedded physicality behind their furniture studies reinforces the value and historical impact of object making. Objects such as wooden bowls, shovels, tools or even a Shaker-style ladderback chair may be viewed as mundane, but these objects' existence and more importantly *permanence* forces our reflection on past societal trends. In *Shop Class as Soulcraft: An Inquiry into the Value of Work*, Matthew Crawford emphasizes the impact of objectivity with cultural development: "The reality and reliability of the human world rest primarily on the fact that we are surrounded by things more permanent than the activity by which they were produced, and potentially even more permanent than the lives of their authors" (Crawford, 2009, 16). Furniture and wood—the dominant medium for this design studio—are notably accessible due to their human scale, high tactile user response, and low barrier of entry with fabrication. By creating finished objects, students experience their impact through acknowledgements by viewers and users as their object stands as a mark of their hand, mind, and even the zeitgeist within which it was made. In response, our students are pleasantly surprised by their classmates and community members' authentic excitement to their prototypes, reinforcing that "an object is most likely to speak audibly with its maker's voice when we engage it in person" (Korn 2013, 55). In order to synthesize new and familiar design practicum to their architectural education, we task our students with maintaining a workflow which balances material study with representational modeling for context, a combination that position them for success as they navigate their professional careers.

Recognizing the value of finished objects, the students are well positioned in their next iteration to conceive of furniture that can stimulate social interaction. The introduction of this theoretical criterium moves beyond the denotation of material and form and defines performance as the ability of furniture to affect human behavior. The "Modified Bench Series" of Danish artist Jeppe Hein becomes another precedent for introducing how furniture in the public realm can modify social behavior (Jacoby-Garrett 2015, 63). His work distorts the archetypal public bench into objects that generate a conundrum for how to physically interact with them. For example, one bench set in a public park is shaped like a roller coaster so you can sit normally on parts of it, but other parts are sloped like a playground slide. The visual disruption of convention and novel ways one is invited to engage the object naturally draws the public to it. The students explore similar strategies of challenging expectations. One project, for example, is made visually curious and physically engaging by providing a wall of 1.5" dowels on a 6" grid that could be pulled out or pushed in to create a myriad of different cantilevered patterns for sitting on, laying down, or used as a work surface. Another project is as simple and poignant as creating a mirrored pair of an asymmetrical chair so two people are welcomed to sit together in dialogue while simultaneously embedding safe social distance in reference to the ongoing Covid-19 context. The most important outcomes of this Iteration include enhancing the students' sensibilities to the human body as the measure for

design, to the nature of materials and their joinery and assembly, and the power of design to bring people together.

FROM COLLECTIVE TO CONTINGENT

The Urbanism half of the semester continues the iterative processes but does so in collaborative groups. At the outset of the fourth Iteration, the pedagogy seeks to disrupt the idea of proprietary design ideas by asking each student to combine their design with those of two other studio projects in a one-hour freehand drawing charrette. This invites the students to see design opportunities in the work of their peers, and to see their own designs as malleable. The students then form working groups for the rest of the semester with each having to decide for themselves how to fuse their individual designs together into one project. Naturally, the culture of each group is quite distinct from each other, and so are their collective results. By design, the instructors made sure that the groups were mixed with both in-person and remote students, and equitable workflow strategies were discussed as an integral part of the students' collaborative efforts. Typically, the remote students took on more of the digital modeling and project management responsibilities affording the in-person students more time to focus on the physical fabrication of their furniture. But the common denominators of highly resolved detail and a plausible assembly process at a 1:1 scale is embedded in all of the students' work whether it be representational or actual.

The theme of *Collectivity* is reinforced by presenting to the students the architecture and design of American Shaker communities. The pragmatic simplicity and elegance that pervade the circumscribed Shaker enclaves is embedded in a belief system that fuses a religious and a design ethos of purity into a level of aesthetic abstraction that anticipates Modernism's embrace of material efficiency and the expulsion of ornamentation. The conjoined Shaker dicta of "not to make what is not necessary," and to "make necessary things beautiful" (Sprigg 1986, 21) are proto-Modern tropes that grow beyond the confines of the Shaker religious compounds and into the main of American building culture and perhaps beyond. If one was not aware that these leitmotifs were generated in a rural 19th century American religious village they might first think it emerged from a 20th century community with a like-minded zeal for simplicity in Dessau, Germany, namely the Bauhaus. For the studio pedagogy, Shaker design is proof of the power that architecture and furniture that subscribes to an underlying commitment to collective engagement as signified through design and craft can indeed change peoples' perception and behavior to support the greater good of the community.

The fourth Iteration also begins speculation of how furniture set in an urban context can move beyond stimulating social interaction and instill an environment of social equity and openness, thereby creating a sense of community. It is at this point in the semester that we define the hypothesis of a Furniture Urbanism by evoking affiliative theories of informal, temporary, or



Figure 5. *Perforated Cloud* as a stage for university celebrations. Image credit: Peter Wiederspahn.

transitory urban interventions for inspiration and guidance. The *Everyday Urbanism* of John Chase, Margaret Crawford, and John Kaliski demonstrates how the unplanned urban spaces between places of formal urban design and planning can be imbued with social meaning by becoming opportunistic spaces for people to conduct the business of their lives, such as selling goods, fixing cars, or playing music. Margaret Crawford describes *Everyday* space as: “the connective tissue that binds daily lives together, amorphous and so persuasive that it is difficult even to perceive” (2008, 25-26). She continues, “In the absence of a distinct identity of their own, these spaces can be shaped and redefine by the transitory activities they accommodate. Unrestricted by the dictates of built form, they become venues for the expression of new meanings through the individuals and groups who appropriate the spaces for their own purposes” (2008, 28). It is within such ambiguous urban contexts that Furniture Urbanism can also transform a space by providing an unexpected focus of attention or a place of repose. It encourages a transaction of delight and desire among strangers as they encounter a strange artifact in the public sphere at the same time. They immediately have something in common—they are simultaneously experiencing

something that is equally new and beguiling to each person. For that moment, Furniture Urbanism creates a micro-community that stimulates social interaction by offering a novel object that is welcoming to anyone and everyone.

The *Tactical Urbanism* of Mike Lydon and Anthony Garcia, described in their book of the same title, also provides a rubric that helps us explain the aspirations of Furniture Urbanism. They define Tactical Urbanism as “an approach to neighborhood building and activation using short-term, low-cost, and scalable interventions and policies... It makes use of open and iterative development processes, the efficient use of resources, and the creative potential unleashed by social interaction” (Lydon and Garcia 2015, 2). In the forward of the book, Andrés Duany describes this practice in more political terms as “decentralized, bottom-up, extraordinarily agile, networked, low-cost, and low-tech. It will be the urban planning equivalent of the iPhone replacing the mainframe” (Lydon and Garcia 2015, xii). The authors catalogue a range of examples from temporarily closing streets to traffic and making them pedestrian only (2015, 3-5), bringing food trucks and picnic tables into a parking lot to

create an outdoor food court (2015, 18), or more permanently slowing traffic in Dutch *woonerfs* by introducing obstructions into the center of streets such as planters and benches that automobiles need to navigate around (2015, 28-30). Such urban transformations demonstrate a range of temporality, from the impermanent to the fixed, and these motifs are similarly at the root of Furniture Urbanism. Furniture implies that an object is for an individual, and is human scaled, comforting, domesticating, lightweight, and mobile. Urbanism implies that an object is public, exposed to all climatological conditions and human activities, and available to everyone. The small-scale interventions of Tactical Urbanism are paralleled by the human scale inherent in Furniture Urbanism, and both are committed to making cities more livable.

Everyday Urbanism and Tactical Urbanism provide a compelling framework for the aspirations of Furniture Urbanism. Their small-scale interventions in residual urban spaces that can bring big change to the way people inhabit the city are very constructive underpinnings for Furniture Urbanism. There is, however, a critical distinction between the expedient practices of the low-cost urban appropriations of Everyday Urbanism and Tactical Urbanism such as hanging goods on a chain-link fence or placing a detour sign to change patterns of use, and the high-design ethos of Furniture Urbanism that is embedded in a culture of material specificity, formal exploration, and craft. Furniture Urbanism externalizes exquisite designs more typically contained within domestic spaces or the confines of art, design, and craft museums.

The fifth and final Iteration is dedicated to making, and the driving theme is *Synthesis*. In the context of the Furniture Urbanism Design Studio, the implication of producing a culminating project extends well beyond representational design and necessarily incorporates real world considerations into their design concepts (Figure 4). The instructors and students of the design studio coordinate with the campus Facilities and Public Arts departments to determine what sites would be safe, allowable, and desirable to install the students' final objects. The students are obligated to present their designs to the university authorities to be sure that they did not create any undo liabilities, such as structural failure, tripping hazards, and issues of accessibility. All of the sites chosen have relatively high pedestrian traffic, but are otherwise under designed or residual spaces, and the placement of each of the students' projects brings a new level of public presence to what are otherwise places to simply pass by.

Other contingent factors that the students must manage include coordinating the team's workflow and skill sets, material costs and lead times, workability of material choices, and the mastery and safe use of the makerspace tools, all of which are quite analogous to producing actual buildings but on a much smaller, manageable, and affordable scale. Similarly, digital communication during the pandemic becomes just as important in the studio as it has become in real world work contexts. Through

these operational processes, the students have to confront the notion that design does not occur in a bubble of concept and representation, but instead they must manage a plethora of contingencies that will have an impact on their designs, like it or not. Ultimately, the students fabricate their final designs, install them on campus, document them in situ, and present them at the final critique.

OUTCOMES

The multi-phase evolution of this studio strategically channels specific outcomes for our students. We emphasize that students must engage in both self-directed and collaborative explorations through manual drawing and modeling with a focus on developing both analogue and digital tactile facilities as a core component to an iterative design process. From the onset, students embraced hypothetical and impulsive processes to expedite discovery around materials and concept. The lack of any pre-determined results in their experimentation helped cement the excitement in this workmanship of risk, the results of which depended "on the judgement, dexterity and care which the maker exercises as he works" (Pye, 1995, 20). Their first two furniture prototypes, each built with analogue means in materials such as corrugated cardboard, recycled aluminum cans, and wood, forced their competencies and highlighted aspects of craft where risk and failure could be displayed proudly as fingerprints of their development.

As the students hone their collaborative proposals for campus installations, the demand for certainty, reliability, and trust in the fabrication process became ever clearer. At this point, students have a familiarity with the analogue processes of risk, yet for the scope of public seating and the performative requirements associated with it, the introduction of digital fabrication and CNC capability becomes a welcome addition to their toolkit to accommodate the increased size, quantity, and complexity of systems (Figure 1). While Pye argues workmanship of certainty is positioned on a spectrum of "quantity production...[to] full automation" driven by economics, in this final phase, we commandeer this logic as a fabrication of certainty, strategically and substantially reducing risk in favor of predictable and scalable results for community members who were our acting clients (Pye, 1995, 20).

Our students installed their Furniture Urbanism prototypes in four chosen locations—a Brutalist outdoor plaza, near a campus quad, adjacent to a prominent academic building, and an underutilized stone garden bed—across our urban campus in April 2020. The impact on campus was immediate. The day after installation our students were met with immediate excitement as the President of the university was found enjoying a ride on a see-saw component of one groups' project, which strategically referenced notions of childhood play amongst a sinuous two-person bench (Figure 3). After a campus tour of the installations, the President felt that the impact these urban furniture interventions had on underutilized space was so effective in engaging

passersby, he commissioned one group to refine their design for a permanent installation of four seating objects across campus. By embracing a heavier ratio of certainty than risk in their final design phase, their object—*Wooden Wave*—was efficiently redesigned and easily outsourced to external fabricators under the guidance of our students.

Collectively, these designs have become places of congregation—students embrace them to relax, take selfies and post on social media, while families have found the spaces as commemorative backdrops for graduation celebrations (Figure 5). Others simply explore the installations as objects of curiosity or choose them as a place of repose. The spaces became destinations for both peers as well as our community neighbors enjoying our urban campus. Ultimately, Furniture Urbanism can bend the attention and curiosity of the public into its influence whether someone is actually interacting with these objects or not. At the same time, the novelty generated from the unique designs of Furniture Urbanism is precisely what we come to expect from our best urban environments: shared surprise, intellectual provocation, and reified views into the imaginations of our fellow citizens.

REFERENCES

- Adamson, Glenn. 2018. *Fewer, Better Things*. 192-193. New York, NY: Bloomsbury Publishing, Inc.
- Afonso, Andre G. 2018. "Urban art as platforms for bodily engagement and social encounters: the Modified Social Benches," in the online journal *The Senses and Society*, 2018 Vol. 13, No. 1. 108–113. <https://doi.org/10.1080/17458927.2018.1425201>
- Bloomfield, Ruth. 2015. "Israeli Designer Pini Leibovich Makes 'Cheap' Look Chic: How one of Israel's leading designers of bold, practical furnishings, makes a living off cheap materials," in *The Wall Street Journal*, November 11, 2015. New York, NY: Dow Jones and Company, Inc.
- Crawford, Margaret. 2008. "Blurring the Boundaries: Public Space and Private Life," in *Everyday Urbanism, Expanded Addition*, edited by John Chase, Margaret Crawford, and John Kaliski. 22-35. New York, NY: Monacelli Press.
- Crawford, Matthew. 2009. *Shop Class as Soul Craft: An Inquiry into the Value of Work*. New York, NY: Penguin Group.
- Fascari, Marco. 1984. "The Tell-the-Tale Detail," in *Via 7: The Building of Architecture*, journal of the Graduate School of fine Arts, University of Pennsylvania, edited by Paula Behrens and Anthony Fisher. 22-37. Cambridge and London: The MIT Press.
- Jacoby-Garrett, Paula. 2015. "Using to Define Our Parks," in the *Journal Parks and Recreation*, vol. 50 (9). 58-63. Arlington, VA National Recreation and Parks
- Korn, Peter. 2013. *Why We Make Things and Why it Matter: The Education of a Craftsman*. 55. David R. Godine: Publisher. Jaffrey, NH.
- Lydon, Mike, and Anthony Garcia. 2015. *Tactical Urbanism: Short Term Action for Long-Term Change*, 2-6. Washington, DC: Island Press.
- Pye, David. 1995. *The Nature and Art of Workmanship*. 20. London: Herbert Press.
- Sprigg, June. 1986. *Shaker Design*, New York: Whitney Museum of American Art in association with W. W. Norton & Company, New York.