Access + Opportunity = Empowerment: Overcoming Impostor Syndrome Through Hands-on Material Exploration

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Keywords: Access, Opportunity, Empowerment, Awareness

Equitable access to deeper learning[1] is essential to the discipline of architecture. But what happens when opportunities are stifled in an evolving architectural education? This qualitative research reviews the role a theoretical process plays in empowering upper-division Historically Black College and University (HBCU) architecture students to engage in material-based architectural learning to help reduce impostor syndrome in a post-pandemic digital culture. HBCU students, like 84 percent of university students across the United States[2], were part of the 'Covid-19 remote learning' generation. During and post completely remote learning, several students - approximately 50 percent surveyed during this course[3] - missed their opportunity to access the experiences and knowledge that come with hands-on material exploration. By bypassing their opportunities to engage with analog materials, many students lacked the confidence to discuss architectural materiality, which could ultimately lead them to prolonged intellectual insecurities. So, as educators and practitioners, how can our pedagogies provide better access to knowledge and overcome the root causes of impostor syndrome? Through using inclusive theories and equitable experiences in a transformative way, I believe we can better adapt academic tools to reinforce a sense of belonging while continuing to promote diversity in our communities and environments.

To empower through access and opportunities, the process below describes how a group of eleven students gained direct experience through a series of prompts used to transform their knowledge into over 150 unique physical objects. The required course began with presentations and group conversations reviewing Donald Judd and Michael Benedikt's theories and exploring the psychological significance embedded in tangible objects. Written commentaries and in-class dialogue became a venue to critically analyze and validate the connections between architectural space and materiality through the lens of time, value, and reality. To further instill self-assurance, the students engaged in the physical material exploration of new and found building materials. Each student used their experiences to create individually unique wood, cast masonry, metal, and composite 'Objects' (2.5"x2.5"x10") that emphasize their design process. A 'process,' as described by Gail Peter Borden[4], provided a physical outlet for personal growth. Several students went from only using materials in a digital environment[3] to demonstrating fabrication skills beyond basic cutting, carving, casting, and welding. During the exploration process, many students expressed their greater appreciation for the mental and physical difficulty of material manipulation.[3] And, similar to Enzo Mari's thoughts on 'understanding,'[5] this deeper learning empowered the students to develop transferable knowledge[6] and confidently convey their design intentions at the intersections between critical analysis and the physical manifestations of their ideas.

Ultimately, over 85 percent of the students surveyed expressed that using physical material expanded their self-assurance, and they foresee using their expanded observation and making skills in the academic and professional architecture environment.[7] At the completion of the course, the students understood that access to opportunity and essential knowledge facilitates our ability to communicate and emphasize architectural experiences. And, through the process of discovering the transferable knowledge inherent in analog material implementation, we are empowered to reflect ourselves into equitable built environments.

ACCESS

The initial pledge was to guide HBCU architecture graduate students through a 16-week course focusing on the making of architecture. While creating the semester's outline, a recurring theme developed: How can a required in-person architecture-making course provide students with equitable access to elements of an education that might have been hindered by remote learning? Options for lectures on materiality, weekly conversations about the architectural design process, or possibly digital-only detailing projects were reviewed. Each topic was relevant, but the issue that continued to arise – from previous design studios and lecture courses – was the student's lack of opportunity to experience and gain knowledge achieved through direct hands-on material exploration. With this insight, the course was steered away from purely digital research to become the vehicle to convey the importance of the speculative

Figure 1. Exhibit, *Process in the Making*. Photographer: Author

process of making. Empowerment becoming the main goal. Through an evolving pedagogical process based on inclusive dialogue and mitigating assumptions, this premise of architectural making allowed for the theoretical introduction of empowerment as an action to alleviate the possibility of impostorism. This transformation of philosophy also came from the sentiments of in-course students. Below is one student's description of their thoughts at the onset of this course:

> "On the first they [sic], I was not overly sure in my ability to discuss the content, but I also wasn't underconfident. Despite the fact that I was familiar with the fundamentals of various topics, I was hesitant to dive too deeply for fear that I wouldn't be able to explain or respond to a question."[8]

To address this perceived or actual lack of experience and subsequent self-doubt, the course developed into an empowering method of using the transferable knowledge of the hands-on material processes to overcome *impostor syndrome* through equitable access and opportunity.

Impostor Syndrome (IS), also known as Impostor Phenomenon, *"is a behavioral health phenomenon described as self-doubt of intellect, skills, or accomplishments among high-achieving individuals. These individuals cannot internalize their success and subsequently experience pervasive feelings of self-doubt, anxiety, depression, and/or apprehension of being exposed as a fraud in their work, despite verifiable and objective evidence of their successfulness."[9]* This self-doubt can be exasperated from beyond the academic environments, particularly for students at HBCUs. In the Journal of Black Psychology article 'The Relationship Between Racial Identity Attitudes, Worldview, and African American Graduate Students' Experience of the Imposter Phenomenon,' the authors write about the experience of African Americans in graduate programs. *"Along with the general difficulty of adjusting to the new role of graduate student, these students are often faced with a lack of adequate financial aid, a need to work to support themselves in school, and a lack of role models and mentors. In addition, many African American students are the first in their families to consider a graduate education."[10]*

Education does not happen in a vacuum; the importance of acknowledging and addressing ingrained challenges in our institution of learning contributes to creating safe places to learn and being comfortable with oneself. According to the authors of a 2019 article in the Journal of Vocational Behavior, 20 percent of college students in their sample study experienced strong feelings of impostorism.[11] To overcome possible combinations of anxieties, this course was also structured to promote diversity and inclusion in our academic and professional communities while reinforcing values and a sense of belonging through these goals to address impostor syndrome.

Knowledge: *Providing access to group-centric dialogue and observations to gain the confidence to talk about different topics, processes, and theories centered around making.*

Experience: *Adapt academic tools to promote opportunities to enhance tangible experiences through the process of discovery.*

Ownership: *Empowering the use of knowledge to emphasize self-assurance, practice, and the implementation of an individual's unique process.*

When empowered with knowledge, our access and opportunity to experience adapted academic tools can place our imaginations at the edges of reality, and the process of making facilitates our ability to transform possibilities and limitations into discovered self-assurance. Additionally, through the appreciation of material fabrication and use, architecture can be experienced through the lens of time, ownership, and emotion, reflecting on architecture, art, and what is 'real.'

OPPORTUNITY
To implement the pedagogical goals of empowerment through access and opportunities, the course developed a methodology that focused on the use of transferable knowledge inherent

Figure 2. Metal Objects. Photographer: Akil Webster.

in analog material implementation. And to relieve possible anxieties, the required six-phase course began with presentations and group-centric dialogue about how we perceive and use architectural materials. During the Phase 01 conversations, Gail Peter Borden's book 'Process: Material and Representation in Architecture' was used to provide a succinct explanation of process logics:

> "The dialogue between material and representation establishes the parameters of form. The techniques from which things are made (either representational or built) are dependent on their media. The substance by which thought is manifest into form influences the nature of the thought itself. In the same way that words affect meaning of speech, marks affect the visual capacity and interpretation of a drawing. The transition of drawing into built form engages materiality. Materials, and their process of fabrication and assembly, further determine the morphological characteristics of architecture."[12]

This dialogue about the 'process defining material' was a segue from the theoretical and digital world into using analog materials to embed psychological significance into tangible objects. However, after the early course conversations, it became apparent that multiple students had missed out on the experiences created by working directly with a spectrum of architectural building materials. While several students did learn drawing and physical scale modeling skills, the necessary shift to virtual education stifled these corporeal skills and left the students

working with digital software until they reached the final year/s of their architectural education. Here is one student's description of their experience:

> "Every student was influenced by Covid in a different way, and I did experience negative effects because I spent my entire career as an architect without ever creating a model. In my senior year, I built a model for the first time ever. which [sic] made me afraid since I was aware of how poor my craftsmanship was."[13]

Like many of their colleagues, this student became a part of the 'Covid-19 remote learning generation' during their foundational years, where they missed out on the in-person, hands-on material explorations that could have stayed their hesitance about the course. Learning about these student challenges confirmed the genuine concerns that these students would enter the professional and/or academic environments and feel prolonged intellectual insecurities. So, the pedagogical class goals were adapted to prepare these students for current and future dialogues about architectural materiality with Architects, Designers, Contractors, and Fabricators.

To facilitate access to transferable knowledge through the acts of using iterative processes, material implementation, and questioning assumed realities, Phase 01 transitioned into the reading of two texts describing the process of engaging and defining the boundaries between the disciplines of architecture and art. The first text was by the architectural educator Michael Benedikt. His 30-page book, 'For an Architecture of Reality,'[14] provided the opportunity for elemental reflections about architecture, art, and what is 'real.' Each student read and then wrote a 500-word opinion piece about the act of making architecture based on the book's text and imagery. These initial opinion pieces were intended to stimulate a continued dialogue about architecture, social/ecological citizenship, and cultural values. The second text reviewed was by artist Donald Judd. The short essay, 'It's Hard To Find a Good Lamp,'[15] describes his thoughts regarding fabrication and the connections between art, architecture, and value. This particular essay was chosen because of Judd's comments about art and architecture, along with course-relevant stories about context and material use. Continuing the analytical process, the students wrote a 300-word opinion piece about the essay and the act of making architecture. These opinion pieces exposed unique viewpoints and continued dialogue about liminal spaces between architecture, art, and materiality. The analysis of both writings expressed the student's knowledge and awareness of the cultural relationships in contemporary built environments and architectural places.

Following the access and subsequent conversations about the process of varied architects, artists, theorists, educators, and historians, our connections to the 'real,' and how constraints empower creativity beyond design parameters, we moved into the next phases of the course. With the primary pledge being

Figure 3. Concrete and Wood Objects. Photographer: Akil Webster.

the practical use of theory in the making of architecture, for the remainder of the semester, the course used the opportunity to engage a series of new and found materials – wood, concrete, steel, and material composites – to create and fabricate over 150 physical objects that tested the student's assumptions about typical building materials. The sizes of the objects (2.5" Wide x 2.5" Long x 10" Tall) were based on previous inquiries that allowed for the possibilities of dimensionally uniform multiples while also allowing minimal fabrication footprints. With limited access to the fabrication lab and each class only being an hour, the prescribed size of the objects also facilitated versatility in which the students could work and store each iteration.

To integrate the goals addressing impostor syndrome in Phase 02, wood was the first tangible base material from which the students created four objects that spanned between architecture and art. Emphasizing an opinion, realness, and/or visual resemblance, the first three individual objects were provided in cedar (irregularity and sensory properties), basswood (softness and consistency), and maple (common hardwood), with the fourth object being supplied by the student. To alleviate any early insecurity, wood was used first because of the student's general familiarity. The opportunity to start with wood empowered them to engage with the material intuitively. Four more objects were created in Phase 03, where the students were tasked to

achieve the same parameters using concrete. They began with drawings and small low-failure-rate casting projects before moving into creating the final objects. During this exercise, the students had the opportunity to work with embedded objects, 3D-printed forms, carved shapes, and more. In Phase 04, the students used metal as the base material. Here, they were encouraged to push their boundaries and work with found materials, transformed objects, and assembled shapes. Reviewing material opportunities/limitations and testing fabrication – cutting, folding, fastening, and joining – techniques alleviated apprehensions and provided context before creating their four unique objects. Phase 05 focused on creating objects using a combination of materials. The object parameters remained the same, but the intent was for the students to create objects that could represent what they were interested in expressing in their Design Studio project.

The last part of the course, Phase 06, included an exercise where students proposed a layout for exhibiting the objects. This was followed by each student setting up and laying out their objects, allowing them to observe the connection between the viewer, designer, and space.
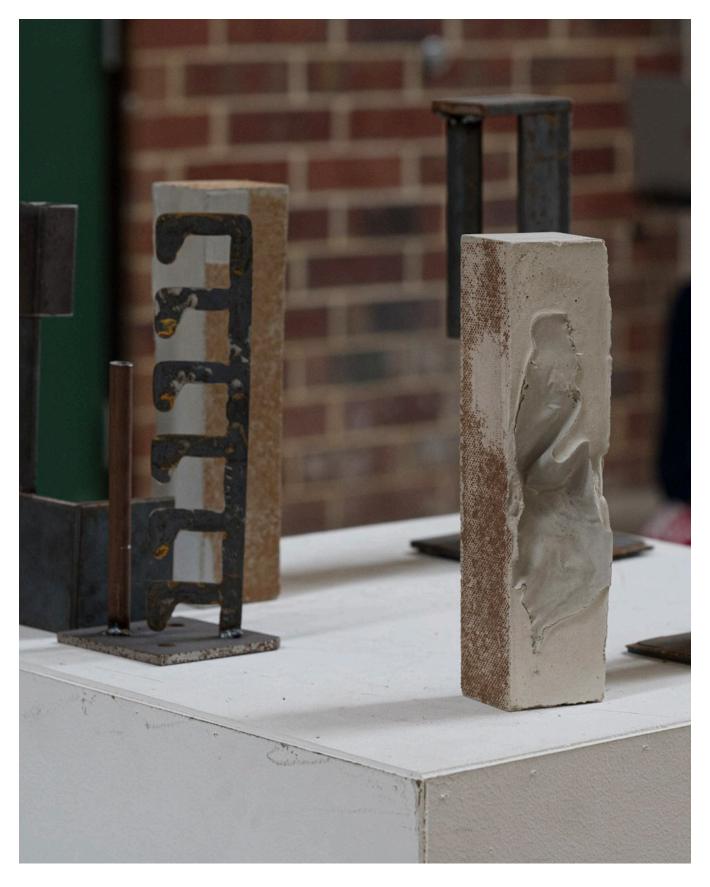
Figure 4. Concrete and Metal Objects. Photographer: Akil Webster.

EMPOWERMENT

Reflecting on the course's desired outcomes – access, opportunity, and empowerment – the role of a theoretical process brought to light the successes and challenges that occur when upper-division HBCU architecture students are provided the knowledge, experience, and ownership to express their unique personal design voice. These series of outcomes, from the theoretical process and overall pedagogical goals, did change to specifically encourage students who displayed elements of impostorism, facilitating a critical thinking education and the self-confidence that can put the students ahead in an architecture office and future conversations with industry partners like contractors and fabricators. The qualitative results of reinforced knowledge extended the realization that a direct connection to analog materiality and detailing can script the opportunities of creating architecture through the lens of process, material, and reality. And, as the students worked through the gambit of actions/exercises to hold back impostorism, the course provided access and the opportunity to explore moments in their education where galvanized lessons promoted personal interests, dislikes, confidence, and empathy. The following results describe the outcomes of a transformed teaching process.

From the start, the students were receptive to the conversation about 'process.' Being architecture students, the topic of process was familiar, but the conversations about objects/materials and the making process promoted dialogue about the goals of the course. On the first day, the students knew they would use their architecture education – design courses and theory, along with materials and methods – to create objects of different materials. Still, some students expressed excitement while others had their apprehensions. Here are two comments from the group of students:

> "My first day of class my confidence level was pretty high because I enjoy making things and experimenting. I was excited because some of the materials like metal I had never worked with so I was excited about getting to do that."[16]

> "I was unsure how the course would go being that I didn't have much experience working with the materials that were assigned. …"[17]

Though these sentiments reinforced the pedagogical goals of alleviating some students' hesitations about engaging with physical building materials, one aspect that could've been expanded was the analysis and following conversations about Michael Benedikt's book and Donald Judd's essay. From feedback and surveys, the students stated that the texts were helpful and that the combination of these texts worked well, but the theory was not completely understood. While some sections resonated with observed academic topics, it was unclear whether the concepts fully facilitated the acknowledgment of the division of architecture and art and the advantages of using pieces of each creative discipline to progress explorations. However, these texts did open up a dialogue about several unexpected topics. They provided the opportunity for other ways to talk about context, objects, and spatial experiences before, during, and after class. The framing of the relevance of the text promoted awareness and communication skills to convey confidence when speaking about theoretical architecture/art topics, including reality, values, and context. Through access, equitable communication, and the removal of assumptions, the course became a safe space to express opinions and values.

Following Phase 01 was the first test of empowering the students through a material-based architectural learning process focused on different known materials. The intended efforts of the assignments were to digest the sensation of being discovered as a fraud and replace them with feelings of success or external proof of individual competence. Once the students moved past the limited access and time with tools and lab space (which was essentially closed for renovation), without hesitation, the students began to modify their wood objects, and their self-doubt transitioned to empowerment. Material access can be a barrier, but with wood being one of the most attainable and easily manipulated solid materials, it didn't disappoint. The early dialogue about 'process' did come into play as they revealed the difficulties of working with irregular materials and hardwoods. Still, the student's efforts were rewarded with eclectic figurative objects that expressed a diversity of critical thinking. The student's injection of personal elements began to show some of the indicators of impostor syndrome fade. Though they needed help accomplishing some tasks, the students took ownership of their goals without step-by-step support. The sense of intellectual fraudulence was being dusted away as the students' knowledge, interactions, and opportunities with materials grew. When working with the next material, concrete, the processes implemented their initial ideas with transferable shapes and textures placed onto and within the four full-size cast concrete objects providing insights into the creation of additive plastic amorphous masses beyond virtual manifestations and digital software. The confidence in making with steel was the main challenge. Being one of the main materials used in architecture fabrication, these expressed apprehensions reinforced the need for additional efforts in explaining the process of creating with steel. Here is a student's comment about the process:

> "The fact that you actually get to interact with the material and can weigh the benefits and drawbacks of various options firsthand had a significant influence on my opinion. One instance that comes to mind is when I was designing with metal and started to sketch some challenging or impractical designs, but I was unable to execute them because I underestimated the material and how it interacted with other things."[18]

These challenges were alleviated through continued dialogue and direct interaction with the material. At the end of this phase, most of the students had gained the confidence to assemble,

manipulate, and weld steel. Once the end of the semester loomed, the student's interest in combining the composite object studies with their studio projects dissipated. So, the Phase 04 composite objects became purely about their interpretation of experimental form-making, and I feel this is when ownership and self-expression took hold. Each student had a different take on the process and produced an eclectic pairing of materials. During this process, it was also communicated that transitioning to the students providing their own materials left some of the students floundering with options.

> "I believe giving us the freedom to pick our own materials is great! But sometimes it could be too overwhelming. I felt like I did better on the assignments when materials were provided to me, rather than me searching for new materials."[19]

At the completion of the course, the greatest outcome was seeing the growth of the student's progression, confidence, and empowerment on display in the final Phase 06 exhibit, *Process in the Making,* (Figures 1-5). The objects were well received and gathered interest at all levels of the program, from the freshmen class to upper-division professors and students. With the addition of the exhibit, the course's student had an additional moment of validation and empowerment when the Dean of the Department praised the work and requested that the outcome of the student's work be exhibited for an additional 6 months in the school's main atrium.

IMPLICATIONS

As architects, artists, designers, and educators, our interaction with materials can provide an understanding of opportunities and limitations while also providing – ourselves and others – an awareness and appreciation for fabrication and use. We place our imaginations at the edges of reality, and the process of making facilitates our ability to transform discoveries into values and experiences. The qualitative results of this course acknowledged the inequalities of education and utilized the opportunities of a making process to suspend into the realm of material exploration where the students could use the space between architecture and art to think critically about materials and access additional views about cultural values and use. By seeing the advantages that access to material exploration can provide to the self-confidence of a student's education, future pedagogical processes will strive to include more analog exploration into proposed design studio projects and become more diligent in describing the material opportunities in lectures and in formal and informal feedback. This exploratory process also allowed for the opportunity to reflect on the roles a theoretical pedagogy contributes to the student's empowerment; the acknowledgment of the elements to overcome were surveyed to confirm that engaging in material-based architectural learning helped to gain self-confidence and suppress impostorism in a post-pandemic digital culture. The student's confidence became evident in their descriptions and feedback about the mental and physical difficulty of material manipulation within

the end-of-course survey. Below is a student's description of their opportunities and if they believed their experiences would benefit them in the future:

> "I believe it will help because before I knew the materials but this helped me earned [sic] a respect for the application and construction of the buildings that surround us, which are made using them."[20]

Figure 5. Metal and Composite Objects. Photographer: Akil Webster.

The purpose of this course was to prepare the students to enter the practice of Architecture. Through the implementation of this pledge, the course goals transformed to include a methodology and process that took action against the possibility of impostorism to encourage knowledge, experience, and ownership to investigate the dialogue between form, material, and value. And ended with an evolving pedagogy, based on inclusive dialogue and mitigating assumptions, transforming the premise of architectural making to allow for the theoretical introduction of empowerment.

With acknowledgment, equitable access, and a venue for diverse opportunities, academic tools can adapt to strengthen tangible experiential knowledge, and this empowerment confidently conveys design objectives within academic and professional architecture environments. At the completion of the course, the students understood that access to deeper learning and experiences facilitates our capability to communicate and promote design intentions. And through the process of revealing the transferable knowledge, inherent in analog material implementation, we use self-confidence and empowerment to reflect ourselves into equitable built environments.

ENDNOTES

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