Micro-Intervention and Co-Creation at a Family Shelter

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Micro-interventions can powerfully disrupt the systems that preclude an empowering experience in family shelters. Through co-creation, families can actively participate in the design research process. Valuing lived experiences of unhoused families removes the power imbalance between those with and without design training. Co-creation at the micro-scale prepares architecture students with skills to usher in change in the design practice.

Undergraduate students in a collaborative studio fabricated 66 folding beds incorporating the suggestions of the families at an emergency shelter. Extensive prototyping was the primary method of co-creation. Students held themselves accountable to the families and developed a shared purpose to guide the process.

EMERGENCY CONGREGATE FAMILY SHELTER

The Stay Over Program is an emergency congregate family shelter located in the gym of the Buena Vista Horace Mann K-8 Community School (BVHM) in San Francisco. The shelter's 69 beds comprise 79% of all available congregate family shelter beds in SF.[1] Congregate shelters are used as a last resort for families when there is no other temporary housing option available. The number of unsheltered families fluctuates, so an estimate is based on a Point-in-Time (PIT) count. Conducted every two years using the HUD criteria, the count includes people in shelters, cars, and sleeping rough. The most recent PIT count was conducted on 2/23/2022 between 8pm and 12am. On this night, 7,754 people were counted of which 605 people were in families. Seventy-eight people in families were found to be unsheltered.[2]

SFUSD counts its unhoused students using a broader criterion, the McKinney-Vento Act, a federal law.[3] The total count includes families temporarily staying with another family, living in homes without power or water or heat, in shelters, in weekly rate housing or motels, in abandoned buildings, cars, trailer park, campground, or on the streets. In 2022, there were 2,370 students experiencing homelessness.[4]

FAMILY SHELTER AT COMMUNITY SCHOOL

At the BVHM Community School, social workers connected behavior issues in three kindergarteners with their stays in congregate shelters for the general population.[5] To improve student learning by providing wrap-around services for the unhoused families at the school, the Stay Over Program was created in 2018 as an emergency family shelter. The non-profit shelter operator, Dolores Street Community Services (DSCS), worked closely with BVHM to create a warm and supportive culture leveraging the

Figure 1. Stay Over Program Shelter at BVHM School. Photo by Author.


Figure 2. Stay Over Program Shelter Set Up. Photo by Author.

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shared commonality of parents with school-aged children and their familiarity of the school grounds.

NEED FOR MICRO-INTERVENTIONS

San Francisco public school capital improvements are frequently delayed by several years even after funding is approved. BVHM facilities are a century old and in dire need of improvements.[6] In 2022, the school received $40 million in funding and construction was projected to be complete by the end of 2025.[7] Due to unforseen issues, the schedule has been revised with a new completion date of 2028.[8]

In the meanwhile, families with children sleep in the emergency shelter in less-than-ideal conditions each night. Improving the conditions is urgent as it impacts vulnerable young children during their critical developmental years. Micro-interventions, nimble and fast-paced, can leverage available resources to bring relief on a timeline of months.

WHAT NOT TO DESIGN / WHAT TO DESIGN

In February of 2023, we started a co-creation process to test how micro-interventions can empower families, bring design identity to the shared spaces, and remove pain-points in the operations. Operationally, the dual use of the school gym is challenging. During the day the gym is used for PE classes and at night it is used as a shelter. The daily set up and break-down of beds is labor intensive. In addition, a severe lack of storage means that families must leave the shelter each morning and return each evening with their suitcases.

Additionally, the Stay Over Program, the most innovative component of this Community School, stays hidden from the day users of the space. The lack of visibility isn't representative of the deep sense of community among the families.

In the absence of a design brief, we began with observations at the shelter paralleled with research on design constraints. The project scope was defined by asking what to design as well as what not to design. Physical renovations were quickly ruled out due to asbestos abatement issues.

There was a long list of what should be done given the dire conditions at the shelter. The obvious needs of the families were overwhelming during initial visits, so the project scope was further defined by sorting must-have's from nice-to-have's. This process led to the decision to make folding beds on wheels with storage compartments in the quantity matching the shelter capacity.

EMPOWERMENT THROUGH CO-CREATION

Recognizing that levels of design literacy can create a power imbalance, full-scale prototypes were used to remove barriers to co-creation. Most of the families at the shelter were not English speakers which made the prototypes the most effective means for communication providing direct hands-on experience.

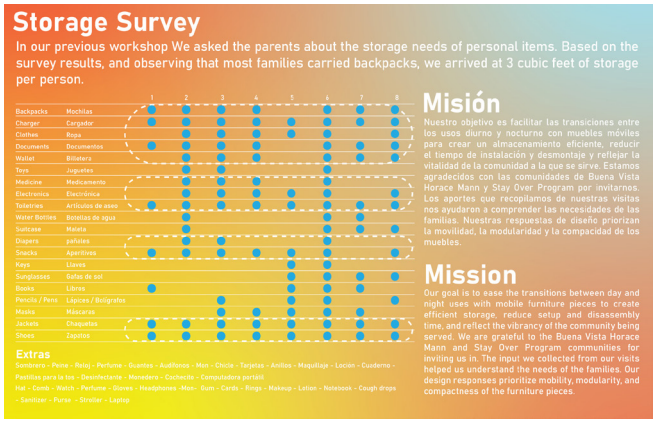

Figure 3. Survey of Storage Needs. Image by Author.

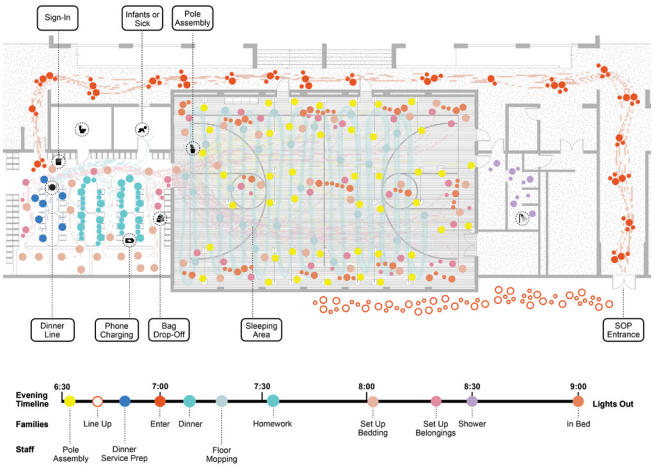

Figure 4. Evening Timeline and Space Usage. Image by Author.

Figure 5. Early Cardboard Prototypes. Photo by Author.

Figure 6. Fabrication Process. Photo by Author.

Figure 7. Mobile Folding Bed. Photo by Author.

There were three formal workshops during the Spring and Summer semesters as well as several informal visits for observations and volunteering. Parents and children offered their design input by trying out the folding bed prototypes and then sharing their comments verbally through an interpreter. Students observed the families interacting with the beds to identify areas for design refinements.

Simulating the daily routine using the prototypes made it possible for the families to provide valuable design insights that could only come from "situated expertise of the people."[9] An example was a compartment for shoes in the folding bed which took up too much space in the suitcases.

To build trust with the families, and with DSCS, we documented our observations and presented design proposals as direct responses. Due to fluctuations in the shelter roster, it was critical to establish clear connections between feedback from families and design responses.

PROTOTYPE AS EVALUATIVE TOOL

We adapted Sanders and Stappers' three approaches to codesigning, "cultural probes, generative toolkits, and prototypes," to the realities of the family shelter. The "generative research phase" was abridged due to the unpredictability of participants.[10] The families stay for different durations at the shelter. In between workshops, separated by months, some families had left the shelter upon being placed in housing or they happened to be off-site for appointments. Documentation of previous

Figure 8. Community Workshop. Photo by Author.

Figure 9. Community Workshop. Photo by Author.

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workshop sessions provided continuity when there were no returning participants.

STUDIO CURRICULUM

Undergraduate students in their 4th and 5th years worked on this project as part of the B.Lab Community-Based Design Studio. Launched in 2018, the B.Lab program has completed several micro-interventions rooted in participatory design methods.

The studio operated like a small office with students taking on various tasks such as design, budget, material ordering, prototype fabrication, drawing, fundraising, communication with clients. Leaders organically emerged based on each student's strengths which included fluency in Spanish, familiarity with shop tools, ability to connect with kids, in addition to design and technical skills. Once the individual strengths were identified among students, the collaboration became fluid.

Faculty guided the overall process and facilitated when the team needed to reach consensus on design direction or on how best to meet budget. Structural engineers, an industrial designer, and an architect with expertise in shelter design were consulted for their input. The shop staff served a critical role supervising fabrication in the shop and training students in new skills such as welding.

The students held themselves accountable to the promises made to the families during the workshops. The visits to the shelter helped students cultivate relationships with the DSCS staff and the SOP families. This created a shared sense of purpose undergirding the collaboration. Their commitment to the families translated into conviction when explaining the project's mission to wider audiences for fundraising and volunteer recruiting. By focusing on the transformative ability of architecture in a community to meet real needs, students are in a unique position as listeners, partners, and designers to be advocates and to challenge the status quo while newly envisioning the architect's role.

LOGISTICS

When the project kicked off in the Spring 2023 semester, seven students split into three teams to work on subcomponents of the overall project – one of which was the folding bed. During the fall semester, a decision was made to fabricate all beds inhouse to save cost. The production of 66 folding beds necessitated a compressed design timeline, selecting durable readily available materials, and reassigning tasks to prioritize the beds. All students lent a hand during the final push and recruited their friends and family as volunteers.

Design was modified to reduce the CNC milling time and to make mass production easily replicable. Cabinet grade plywood and industrial grade casters were used to withstand the wear and

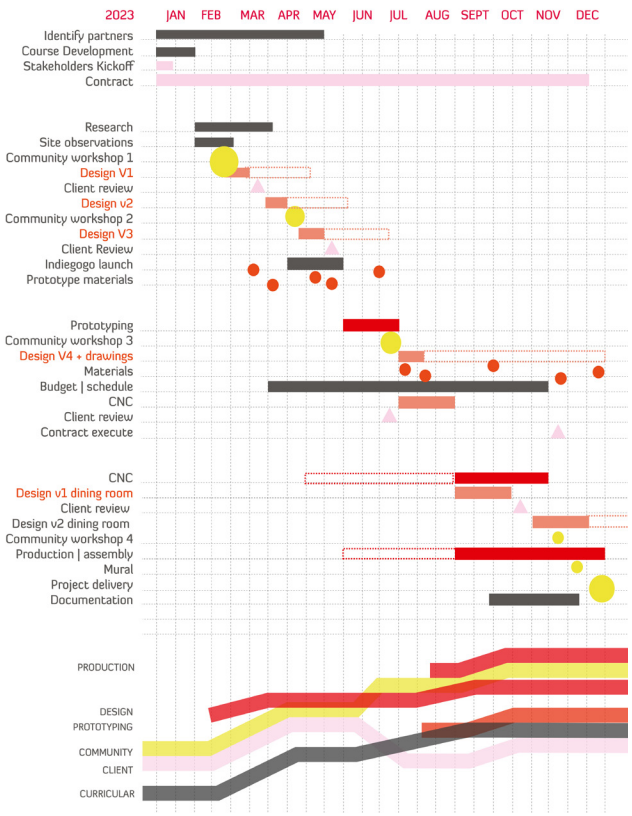

Figure 10. Project Timeline and Milestones. Image by Author

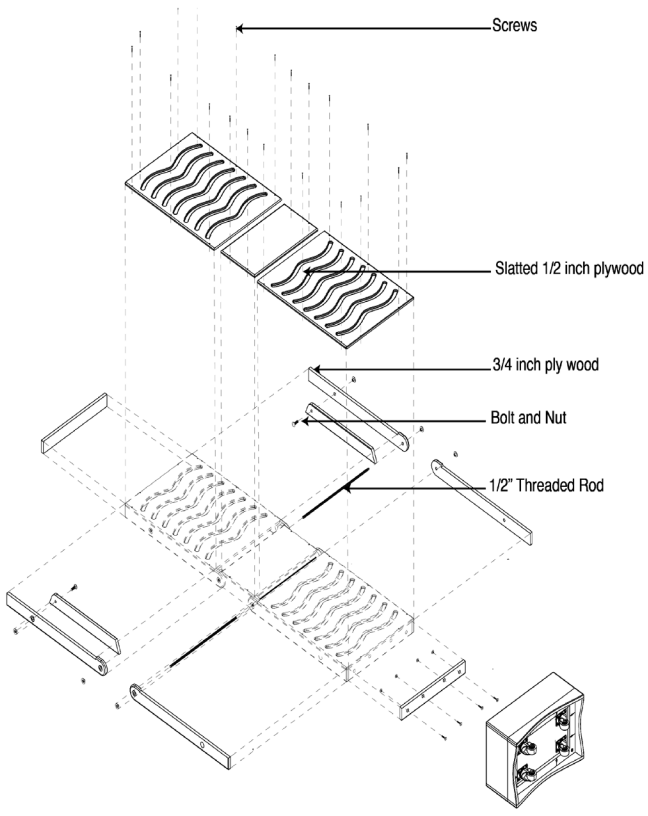

Figure 11. Folding Bed Assembly. Drawing by Author.

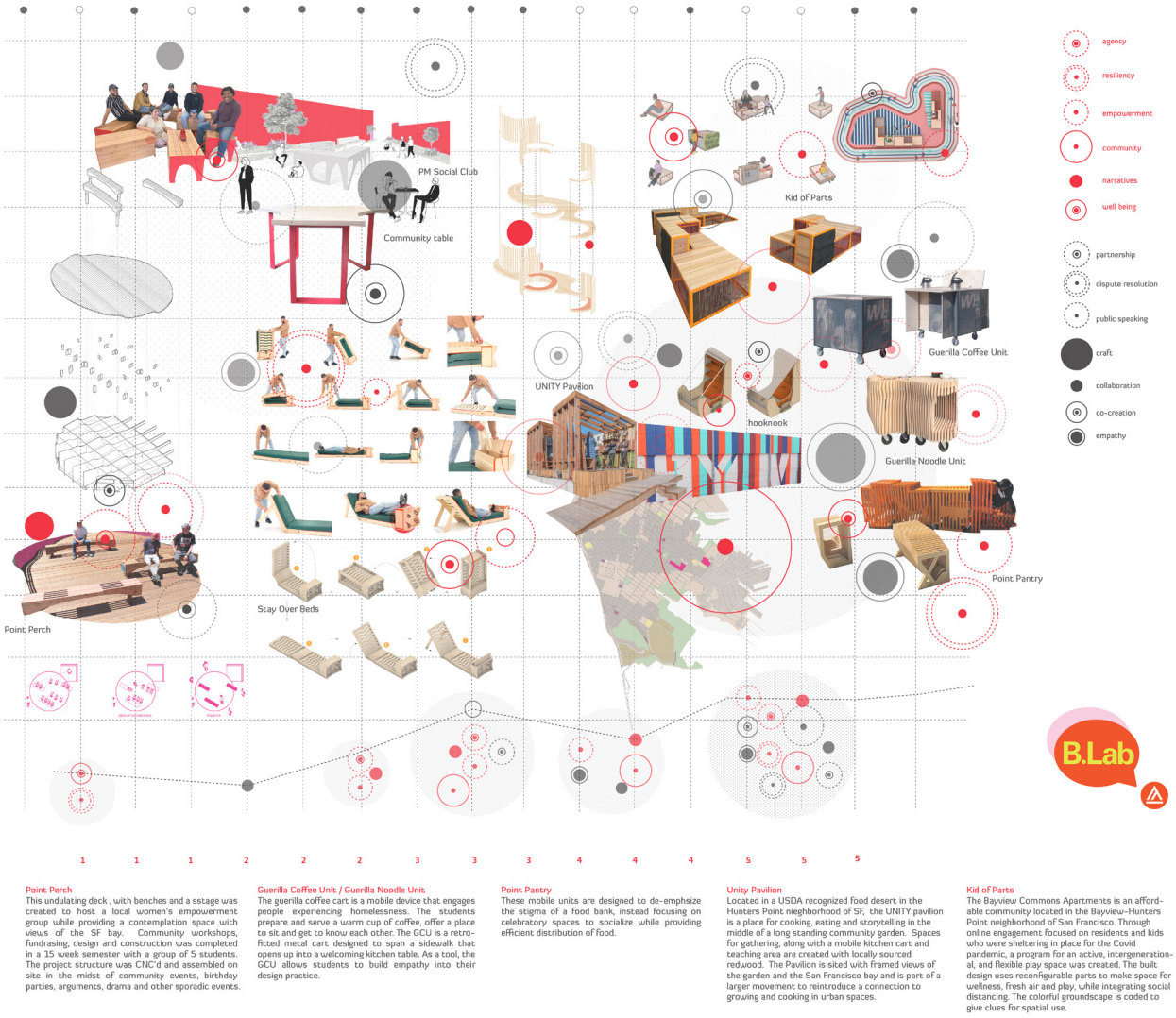

Figure 12. Micro-Interventions from Past Years. Image by Author.

tear of the daily set up and break down of the folding beds. Local vendors offered steep discounts for materials. Budget and schedule were tracked weekly with living documents to track expenses and task completions. To explain how to use the bed, a visual operating manual was provided. A list of parts and the respective vendor information were also provided for future repairs.

EXPANDING DESIGN PRACTICES

Co-creation is not new, but it should be more widely embraced as one approach to tackle systemic problems. Paired with micro-interventions, it can reach those who are furthest away from the design process. Humility is needed to develop a co-creation method that fully benefits from widely different lived experiences.

In addition, there must be room in the curriculum for developing skills that may not align with accreditation requirements. During the "fuzzy front end" phase when project scope is being determined, design skills should be used on behalf of the co-creation team to develop tools for exploration and expression.[11]

Knowledge of material costs and fabrication processes will be essential to assess budget and schedule feasibilities. An added reward in working with children is the opportunity to introduce them to careers in design. Architecture students who develop co-creation skills can lead the change to include more people we advocate for in design processes.

STUDENT REFLECTIONS ON CO-CREATION

Pausing to reflect, students shared what they learned about co-creation:

> Prototypes were compelling tools to communicate with the families. The co-creation process revealed that our assumption is not always correct. We are inexperienced in their

situation. We are the tools that users need to craft their needs. (Mohamed Meawad)

Our objective was to empower the families, rekindle their sense of ownership in the use of the spaces, reestablish their visibility, and instill hope. (Andrew Hart)

Interacting with the families and getting to know them helped the project move forward. (Mazen Ghaly)

It was crucial to engage the families because they know the realities of living without a home and could offer valuable insights. Art and community-building activities help families feel connected to the design process. They gain a sense of control over the project's direction and have a say in the decisions that affect their lives. When unsheltered families are seen as partners in the design process, it sends the message that homelessness is a societal challenge that we can all work together to address. (Kim Ebueng Estacio)

CONCLUDING THOUGHTS

On a final note, we found video storytelling an effective way to build empathy for families experiencing homelessness. Several families were eager to share their stories. Tragedies rendered them temporarily unhoused, but their hopes for their children connected us. The video stories we collected helped families feel heard and highlighted the compassion and hope that the SOP program provides.

On December 22, 2023, we delivered 66 folding beds to the Stay Over Program shelter with a promise to deliver 14 more in the upcoming semester - the shelter recently received approval to increase their capacity to 80 beds. While working on custom storage units during the spring semester, we will have

Figure 13. Delivery of Beds, December 2023. Photo by Author.

Figure 14. Delivery of Beds, December 2023. Photo by Author.

an opportunity to conduct post-occupancy evaluations of the folding beds. The final weeks proved hectic but spotlighted the commitment the students felt to this community as they worked through tough deadlines, fabrication hiccups, and logistical roadblocks.

When the distance between the students and the families, the end users, is removed, design clarity is sharpened. The schedule and budget helped the team reach consensus efficiently. With such a small team, each student needed to identify their strengths to contribute which in turn allowed a variety of soft skills to be valued in addition to design and technical skills.

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