Designing Learning Experiences to Support a Maker Culture

Learning experiences that happen within:

• Physical space
• Robust maker culture by designing the:

We aimed to support students engaging in a:

• Focus on human-centered design
• Encouraging student ownership

are critical to developing a maker culture:

We focused on three elements we believe contribute to a healthy maker mindset, we canvassed the DIG with suggestions for behaviors that we believe contribute to a healthy maker mindset. The sign below reads, “This may not work.”

Designing the Physical Space to Support a Maker Culture

Figure 1: We encouraged student ownership by hosting community-wide social events. For example, we invited students to “hack” food by printing pancakes on a computer numeric controlled griddle.

Figure 2: To foster a maker mindset, we canvassed the DIG with suggestions for behaviors that we believe contribute to a healthy maker mindset. The sign below reads, “This may not work.”

Figure 3: One way students showcased their achievements was by earning badges to demonstrate their proficiency with various tools, such as the vinyl cutter, laser cutter, 3D printer, and CNC router.

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Real-World Design Challenges (RWDC)

Real-world design challenges are open-ended projects derived from student needs. During these projects, students design and build a physical artifact meant to solve the challenge. Real-world design challenges promote students using a range of technologies, tools, and materials; working independently or in small groups; and creatively solving student-driven problems.

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Community Design and Build Challenges (CDBC)

Community design and build challenges are complex collaborative projects. During these projects, students build a tangible artifact either for the DIG or the SMU community. Community design and build challenges introduce students to tools, promote students building technical skills with those tools, and foster collaboration and project management skills.

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Discussion

• Implementing structures and procedures that encouraged student ownership, fostered a maker mindset, and allowed students to build and showcase artifacts, contributed to supporting a vibrant maker culture and motivated students becoming invested in the space.

• The nature of the challenges we developed allowed students to draw on their personal experiences and generate a sense of pride in their work.

• With a diverse group of students participating in each design challenge, there was significant variability in the ways students approached and solved design challenges.

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