



Immersive Design Challenge  
Project Report • January 2016



SMU | LYLE  
SCHOOL OF ENGINEERING



## Hands-On Learning for Long-Term Patients Immersive Design Challenge January 2016

In early January 2016, the Deason Innovation Gym hosted a seven-day Immersive Design Challenge. Immersive Design Challenges (IDCs) are client-driven, open-ended projects our students intensively work on for 5-7 days. We recruit both corporate partners and projects with social impact, and craft a challenge for a student team to build something for the real world. Students thrive on the intensity of these projects, sometimes voluntarily working through the night. Students often cite IDCs as one of the most impactful experiences from their time at SMU.

For this IDC, we partnered with a local K-12 school, Parish Episcopal School, which was interested in establishing a science, technology, engineering and math (STEM) outreach program for children confined to hospital rooms for long stays. We asked the student team to develop solutions to the question: How might we bring engaging, hands-on learning to children who have been admitted to the hospital for long-term care?

Thirteen SMU students – twelve from Lyle School of Engineering and one from Cox Business School – volunteered to work on this project during their winter break. They did not receive class credit or other compensation for their time (other than all-they-could-eat cereal). The IDC brought in collaboration and expertise from across campus. Director of the DIG Katie Krummeck headed the effort and was joined by Director of Design & Innovation Kate Canales, who provided key lectures and coaching for the human centered design process. Five SMU students and alumni from Lyle, Meadows School of the Arts and Simmons School of Education volunteered their time as well. These participants worked with the student team to coach them in project management and collaboration, help with more technical and pedagogical questions, and work alongside them to further the project. Education Professor Rob Rouse also joined for a session to give an introductory lecture about designing STEM learning activities.

In the short span of a week, this team engaged in intensive design research to design, develop, and prototype a meaningful program model. The final deliverables included thirteen unique curricular modules, a working cart, recommendations for tools and supplies, a budget, a marketing and social media strategy and a website, all informed by what they learned from utilizing the human centered design process. Parish Episcopal School is currently working with two local children's hospitals to launch a pilot of the program in the fall of 2016.

## Design Principles

The design research the students conducted and synthesized into design principles were vital to our process. This part of the human centered design process ensures that the solutions we create meet the needs of the users we are designing for and the unique context they are in.

1

### **Engaging kids in the hospital is about much more than just a cart.**

By engaging patients in hands-on learning, we aim to empower these students and give them a sense of control and autonomy when they are otherwise disempowered by the hospital context and their illness.

2

### **We should focus on kids in isolation.**

Children who can't leave their rooms are not able to take advantage of all that the hospital already has to offer. Some students choose not to leave their rooms because the activities available to them feel like they are designed for younger children.

3

### **Kids who are in the hospital for long-term stays want to feel like normal kids and they want to connect to the outside world.**

Making and sharing what they make is a natural way for children to connect and collaborate with others, either in the hospital or back at home. Through a website and social media channels and hashtags, kids can connect to something bigger than themselves. On the website they can also access extension activities and additional resources.

4

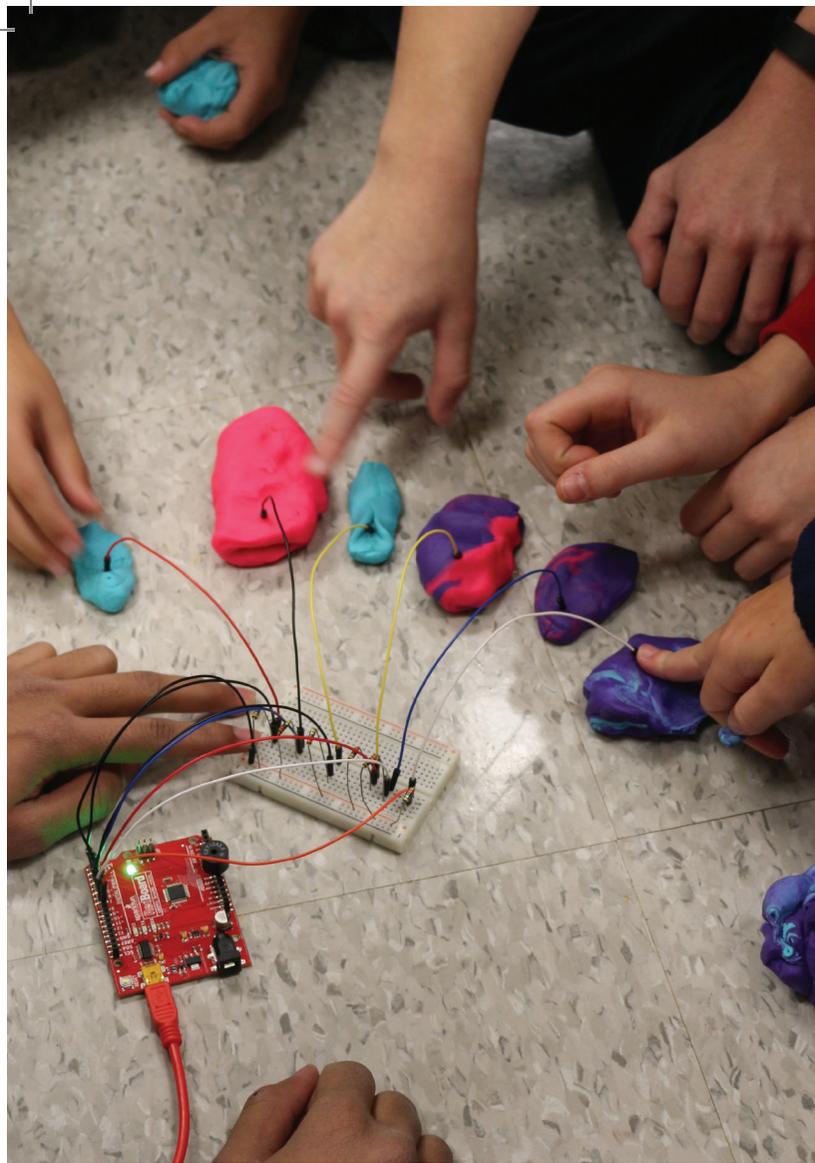
### **Curriculum should come in the form of single-use kits that can be used without a facilitator.**

Single-use kits take care of issues of sterilization and cross-contamination while also allowing the child to keep and reuse whatever comes in the kit. Kids are encouraged to use materials found in their rooms already. Modules build on each other, so that once a kid has finished one module, they can "level up" with the next one.

5

### **Parish Episcopal School (our IDC partner) plays a critical role in implementation.**

Parish staff and students should remain the experts on the content and operations of the cart. Parish staff collaborates with hospital staff to restock and maintain the cart. Parish students can volunteer to assemble kits and coach kids through activities, either in person or virtually. Parish could also host design competitions for kids in the hospital to share their creations and win prizes and recognition. Parish faculty will play a critical role in designing new modules.





## Learning Outcomes

Despite not being compensated for their work, students fulfilled their commitments to the team with everyone staying motivated and engaged throughout the project.

Keep reading for some of the reflections about their learning that the students shared after the project was completed.

“I have never done an IDC before this and I loved every minute of it. I loved the challenge of the scope and I thought the scope was just perfect. I think the biggest motivator for me was the social impact. I loved being a part of something that I knew was going to make a difference. As a result, the project was compelling, intrinsically motivating, and overall exciting to be a part of.”

– IDC Participant





“I had never used human-centered design methods before and I absolutely fell in love with it! So much of the work we do in school, and in engineering in general, lacks that human element. I would love to do more human-centered design projects to see how my education can truly help people.”

– IDC Participant

“I noticed that I didn’t get as tired. I loved what we were doing so much, that time did not seem to matter. I love that!”

– IDC Participant

“I thought the work was compelling in a personal way because the project idea and planning was driven by social impact. The format of this IDC stresses more the ability to design for people, and as a result, I feel like I have genuinely helped some hospital patient despite not actually having done so yet.”

- IDC Participant

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## Impact on the Community

Parish Episcopal School is now in the process of moving forward with this project. They have had initial conversations with two local hospitals and are planning to launch pilots in the fall of 2016.



