Small and Smart Prototyping Examples

Created by Small Libraries Create Smart Spaces Libraries

Now that you have arrived at the ONE IDEA* that you'd like to implement at your library, you're ready to order furnishings and start constructing the space, right? *Not so fast!* **Pause** and **Prototype**.

The participants in the *Small Libraries Create Smart Spaces* project provide a wealth of examples of the many forms a prototype can take and the advantages of taking this step.

*Did you use the Idea Rating Cards to narrow down to one exciting *and* feasible idea to implement?

Be BOLD!

"I was a little hesitant about this exercise.
However, I really really enjoyed this process. I completed
my prototype in one sitting and had a blast doing it.
I've showed it to several people who have been so happy to
actually physically see the plan that's been floating around
in my head."

—Smart Spaces Participant

First, be bold!

Having seen some of the "professional" prototypes crafted by design firms, engineers, or architects, you may feel intimidated about your ability to create a useful prototype. Keep in mind that the main benefit is to get ideas out of your head and out of a flat dimension into a tangible form. You'll see from the examples that it doesn't have to be fancy or polished to serve that basic purpose.

And you may find that you have fun doing it.

From Sketch to 3D Model

Many people start with sketches or blueprints that lay out a floor plan in two dimensions. It may feel more familiar and comfortable to start there but it's not really a prototype until it becomes three-dimensional.
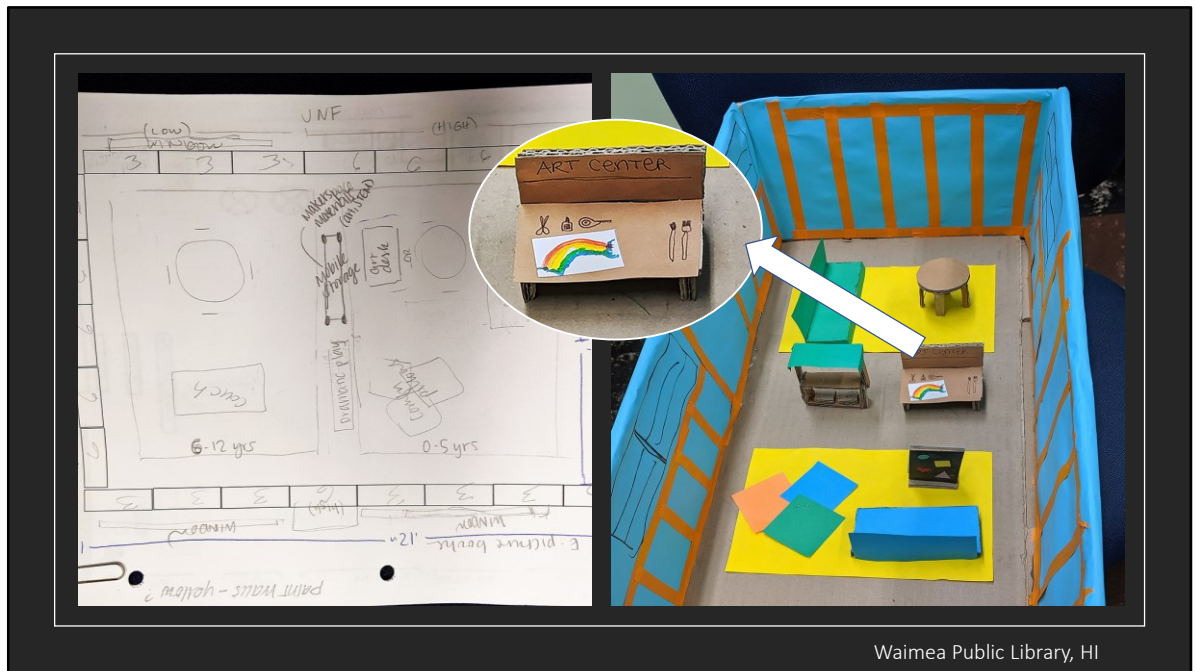
Waimea Public Library, HI

The example from this library illustrates the contrast between 2D and 3D. What are just marks on a sheet of paper take on form, color, and presence in the 3-dimensional model. The crafting process encourages small experimental flourishes like the rainbow painting on the "art center" desk.
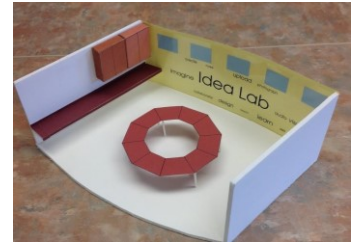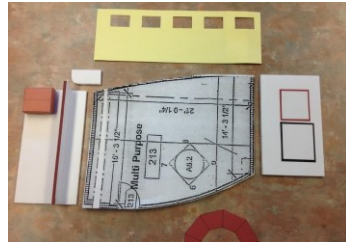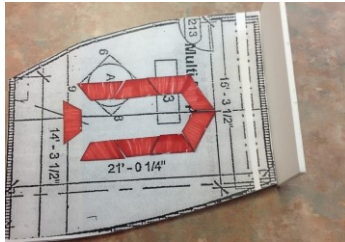
2D to 3D progression

This example shows a direct progression from 2D to 3D. A library staff member first laid out the space in a digital drafting program (left photo), then used that paper floor plan to define the proportions and cut pieces to form the 3D model. The size and proportion are the same from the flat floor plan to the model. However, the visual impact is so much more concrete in the photo on the right. Now it's possible to move the pieces of the modular table around to see how they work in the space.

Working from photos

Cornwall Public Library, Cornwall, NY

Another way to start sketching out ideas is to take photos of the space to be transformed and mark them up with suggestions for reconfiguring. Paste in pictures of furnishings or tack on color samples. It can be a useful first step to break down the current use of the space, to insert new ideas and fresh thinking.

However, it is still challenging to think clearly about possibilities for the space when it is full of the existing furniture. When you build a prototype, you'll begin with an empty space. Your mind will be cleared of the clutter of limitations – "we can't move that table," "we'll have to keep those shelves," etc. With an empty space and some miniature mock-ups of furniture, let go of preconceptions and move things around freely to test and reassess.

3D modeling program

Surgoinsville Public Library, TN
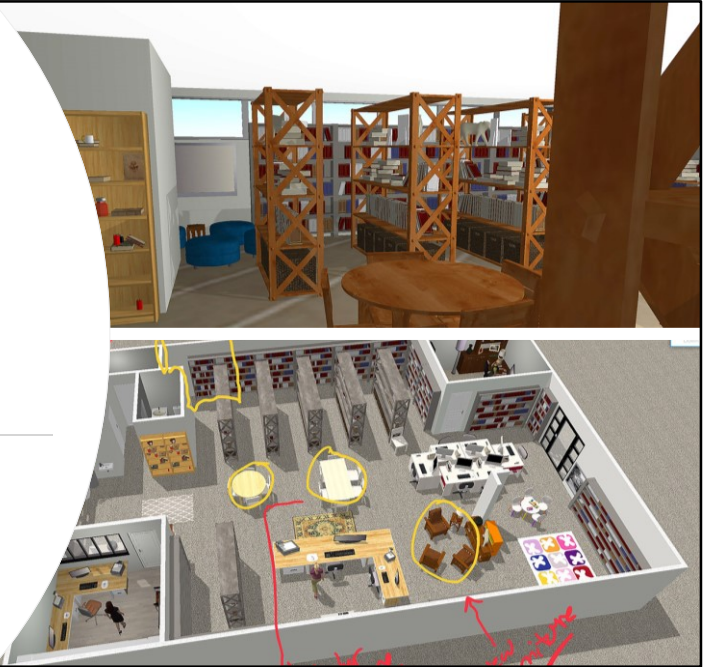
The director of this library had access to digital 3D modeling software. She was able to measure the entire library and the existing furnishings and enter it all into the computer program. By moving things around virtually, library staff could try out some ideas for a teen space and for re-configuring the library to allow for more activities both in larger groups and one-to-one. "Now, we can get a feel for the new space as we flesh things out."

Sophisticated 3D modeling software can give the viewer a sense of moving around in the room and seeing it from various perspectives. However, it's still in two dimensions. It's not as direct and tangible as a physical model. There's something about the crudeness of a cardboard-and-colored-paper construction that is more inviting to patrons to interact with.

Prototype Building Materials

There is no prescription for what materials to use to create a prototype. It's likely that you have a variety of craft items already at hand. Use your imagination and get inspired by the creativity of the Smart Spaces participants.

The prototype pictured here uses Origami folding techniques to create a graceful miniature furniture arrangement out of just paper. The director of this library was daunted by the idea of building a prototype until her teenage daughter stepped up and offered here paper-folding skills.

Cardboard is a popular choice

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Cardboard is a favorite choice of many prototypers. It's ubiquitous, cheap or free, and very versatile. You can cut it, bend it, paint it. In this example, the director of Glenns Ferry Public Library had never made such a thing before. She overcame her reluctance, put her makerspace model together one step at a time, and had a blast doing it.

Cardboard has structural strength and can even be engineered to hold significant weight. It works especially well for full-scale prototypes, like building worktables or counters to actual size to see how users interact with the structures and the space around them.

Shoebox strategy

Greenwich Free Library, Greenwich, NY

Greenwich Free Library Director Annie Miller dubbed her library board member Teri the "cardboard artist" after she transformed an ordinary shoebox into a makerspace-computer classroom. Teri made the movable desks and chairs to scale, then cut out pictures of laptops from magazines to add to the effect of the scene.

Paper and pipe cleaners

A local woodworker built a nice, sturdy plywood room, but it was the library staff playing with paper, pens, and pipe cleaners that brought this prototype to life. The hand-painted area rug shows what a jazzy colorful design adds to the space. The beanbag chairs made of wadded up pipe cleaners show proportion, color and flexibility.

Library director Jeanne Williamson learned something valuable in the process:
"When we started to make the sectional furniture to scale, we realized that it would be too big, so we went back to the drawing board and settled on 2-seat & 3-seat sofas. We also realized that the new tables we considered would take up too much space."

This is exactly why it's a great idea to make a prototype before you go out and purchase the furniture and *then* find out it doesn't fit.

The dollhouse

Caruthersville Public Library, MO

At Caruthersville Public Library, director Teresa Tidwell got out her dollhouse furniture and started playing.

There is enough room in this library to create two Smart Space areas, one of which is a former theater room that will be dedicated to culinary literacy. The cooking cart is positioned on a low stage, with chairs arranged theater-style. After seeing her prototype, Tidwell realized what a static arrangement that was, too much of the "sage on the stage," so she decided to roll the wheeled cooking cart to the middle of the room and swap out the chairs for stools "to be more like a perch, less permanent seating, to encourage standing up and moving around." Another good lesson learned from a prototype.

The LEGO solution

"I tried to make a carboard prototype. I was extremely frustrated with this prototype process after four hours.

However, my children's librarian offered me her Legos and I was able to make the same basic design in 30 minutes."

Redfield Public Library, ID

Redfield Public Library director Sarah Jones-Lutter ran into frustration trying to construct a cardboard model of her imagined Creativity Studio. After trying for hours to wrangle some cardboard and paper cutouts into a model, she was rescued by Lego. She kept her paper triangle table and round chair cutouts, but built the room and peopled it with colorful and easy-to-assemble LEGO bricks.

More LEGO

"I have trouble visualizing changes, so we've spent a lot of time working on the prototype.

…[it] has helped me figure out what we can and can't do in the space we have."

Dodge Center Public Library, MN

"I have trouble visualizing changes, so we've spent a lot of time working on the prototype" admitted the director of Dodge Center Public Library, MN. So she took a multi-pronged approach, starting with sketches on paper and ending up with a layout in Legos.

"It's been a lot of talking to patrons, talking to staff, walking over to the space, taking measurements, putting it on paper, arranging it, then rearranging it. I really think that doing the prototype on paper and then in 3D has helped me figure out what we can and can't do in the space we have."

Let the Community Help Build
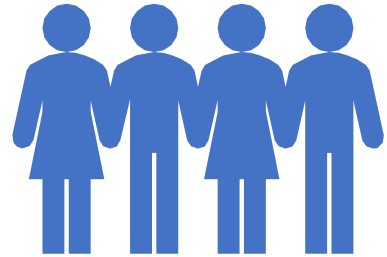
Community collaboration extends into all phases of space and service design. Why not open up the prototyping fun to community members, especially those who will be using the space?

"This is YOUR LIBRARY, YOUR SPACE
– please tell us what you want."

Ronan Public Library, Ronan, MT
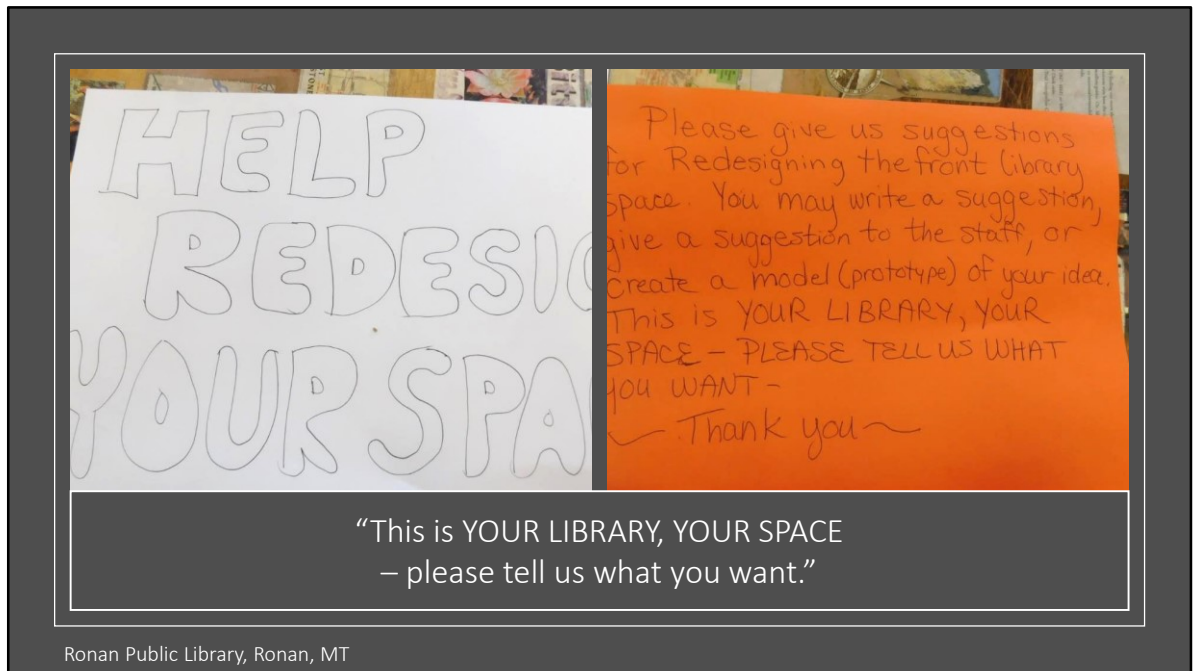
After coming up with an initial design, Ronan Public Library (MT) asked the community to play along. They put signs up next to their first model with a direct ask: "Help redesign your space… This is *your library, your space* – please tell us what you want."

Patron ideas

Ronan Public Library, Ronan, MT

Patrons of all ages responded to Ronan Library's challenge. They crumpled up green paper into beanbag chairs, made miniature books, and even suggested building a reading nook directly into a bookshelf. This idea was not implemented in a literal sense, but the ultimate design of the space did capture the essence of wanting to feel more intimate and interactive with the books and learning materials.

Teen design challenge

"We are still in the playful prototyping stage right now."

Lopez Island Public Library, WA

At the Lopez Island Public Library (WA), the Library Programs and Art Director invited the tweens and teens who would be using the future Smart Space to apply their creativity to crafting prototypes. They made it a bit of a competition.

"I had a fun, somewhat impromptu prototyping session with a group of tween/teen girls. I set it up as a design challenge and the group divided into two teams to design the active learning space. They came up with some great ideas including:

- a beaded curtain for visual privacy
- colorful area rugs of different shapes to designate different activity areas
- chairs that hang from the ceiling
- a sewing machine on-site
- bean bag chairs (of course!)
- smaller side tables in the comfy reading area, (rather than one large coffee table)"

"We are still in the playful prototyping stage right now" says Malia.

The LEGO club gets in the act

Show Low Public Library, AZ

Lisa Lewis, director of Show Low Public Library (AZ) took a similar approach, tapping her Youth Services librarian to get it started.

"My youth librarian has a weekly LEGO club and enlisted the help of the kids who participate to help us design this space."

The project goal is to bring in mobile furniture that has bright, fun shapes that can easily be moved to create a large programming area. It looks like the kids met that goal with their prototype.

Action Prototyping

Prototyping is not just about making models and mockups. "Action prototyping" aims to test ideas and assumptions about how users will occupy a space physically and how they might respond to programs intended for the space.

Testing teens' use of "their" space

Madison Public Library, SD

The Madison Public Library (SD) tried "action prototyping" to test out the viability of attracting community teens to see the library as a place to gather and collaborate. Before the new space had begun to take shape physically, library staff encouraged a group of teens to try planning an event at the library. This dynamic group took the initiative to produce a fabulous Harry Potter Holiday Party. They designed and planned all the details, including creating the entry to Platform 9¾ through a brick wall, Harry Potter-themed decorations, games, prizes, and treats. The party was a huge success, bringing in a number of teens who didn't frequent the library.

The prototype event was resounding evidence that this teen group was ready to own and enjoy their new space and take the lead in creating programming.

Another teen test

Prototyping is not necessarily about instant success.

It is intended to discover weaknesses and faulty assumptions that need some rethinking.

Laurel Public Library Youth Services librarian Abby opened up an unused small closet/room and filled it with crafting materials and other engaging, hands-on supplies to see how older kids and teens would use it if she let them have agency over it. The idea was that they could pull out any of the materials on their own, and they would be responsible for clean-up.

For two weeks, it worked beautifully. During the third week, the kids who were in the library all day slipped into patterns such as taking out tons of supplies, starting a project, and then running upstairs to play on the computer....not putting anything away because they'd "be back." The storage space became cluttered, creations and craft items were left lying around. Library staff created signage and had multiple discussions with the patrons. But after three weeks, it was time to close the room down and reconsider their approach.

Prototyping is not necessarily about instant success. The whole point is to discover weaknesses and faulty assumptions, rethink the strategy, and iterate with another prototype. On the next round, the library tried limiting the supplies available at any given time. Instead of giving kids access to anything and everything, they established week-long craft themes, keeping the materials simple. For example, they had Origami week, with just paper and instructions. With this approach, the experiment went much better.

"I was most excited about the buy-in from the community. Initially there was a definite lack of understanding about what we were trying to accomplish… until people started coming in and saw the prototype and had one-on-one conversations. Then they really got excited."

– Smart Spaces Participant

Prototyping is another stage in the ongoing engagement with your community. It generates excitement and lets everyone feel invited to be part of the library's transformation. This kind of buy-in and investment is good for the library's future and sustainability.

Acknowledgements

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Thank you!