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A PLACE TO PLAY: TEACHING COMMUNITIES HOW TO BUILD PLAYGROUNDS

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This case study focuses on the development of a train-the-trainer program which blends online resources and face-to-face instruction to assist people in leading communities which want to design and build safe and culturally-appropriate play areas. The case outlines the development of resources and the iterations involved in developing and implementing strategies for face-to-face instruction.

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INTRODUCTION

This design case is about a "train-the-trainer" instructional project intended to help people learn how to lead communities in building playgrounds for their children. Developed by the not-for-profit organization Playground Ideas, USA, this instructional effort is still evolving. It currently focuses on training representatives from non-governmental organizations (NGOs) who expect to take what they learn back to the communities with which they work, and then facilitate the design and construction of regionally- and culturally-appropriate playgrounds. Face-to-face training has typically been supported by a Microsoft PowerPoint presentation and supplemented by a bank of instructional resources. Central among these is a series of black and white, print-based booklets that rely almost entirely on illustrations to demonstrate playground construction techniques (Figure 1 and 2). Other resources include a 32-page safety manual (Figures 3 and 4) and a 42-page manual on playground design.

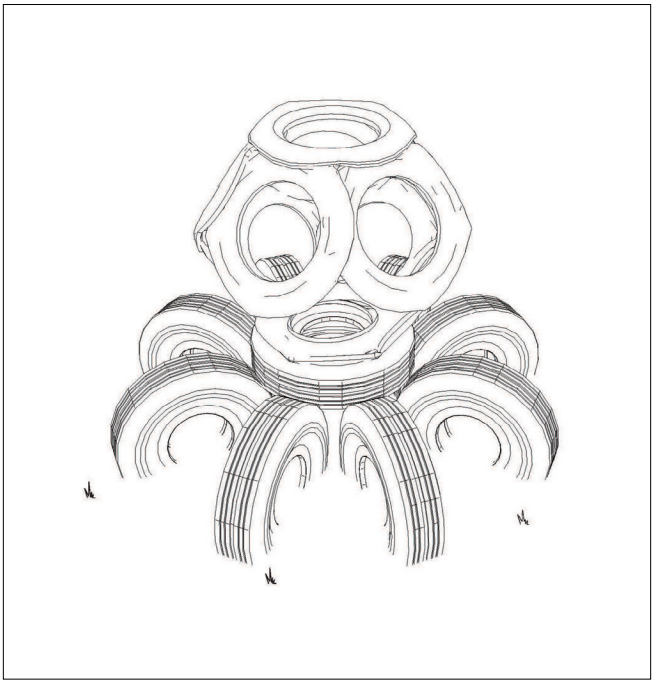


FIGURE 1. Example of construction booklet: cover of booklet for Octopus Icosahedron playground element.

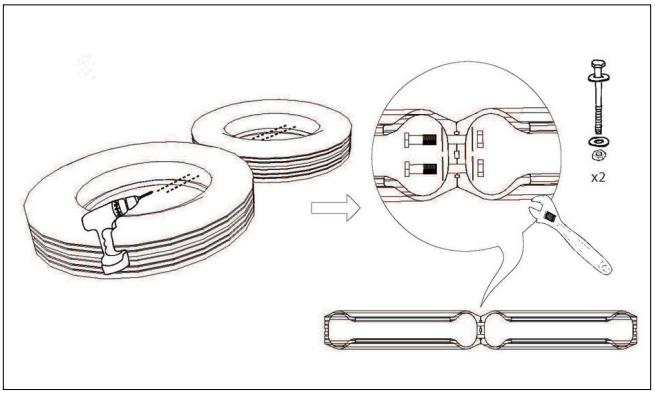


FIGURE 2. Example of illustrated construction technique. There are only a handful of techniques used in all of the construction books. This specific illustration shows how two tires are attached to each other by simply drilling holes and then using washers and two fasteners.

FIGURE 3. Cover of safety manual. This manual was inspired by the Public Playground Safety Handbook, produced by the U.S. Consumer Product Safety Commission.

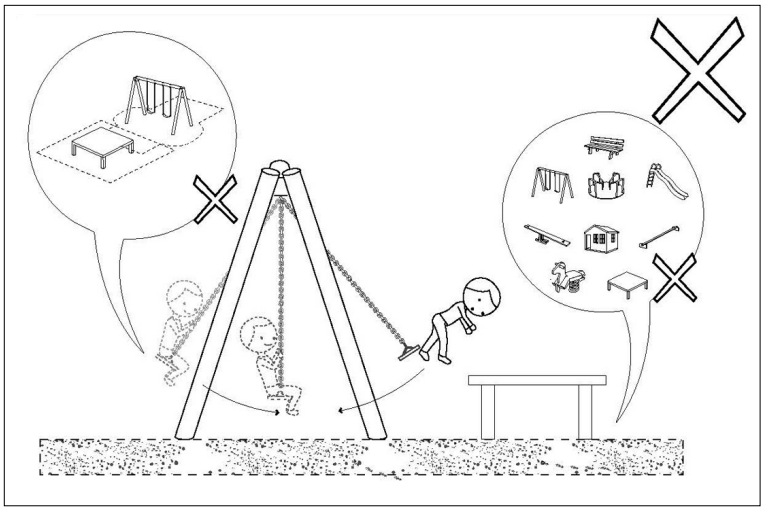


FIGURE 4. Example diagram from safety manual. This image illustrates the dangers of placing playground components too close together, emphasizing the importance of clearances needed for safe use of different play elements.

FIGURE 5. Example of completed playground, Mae Sot, 2007.

The construction booklets, safety manual, and playground design manual are also made available more widely, free of charge, through Playground Ideas' website (www.playgroundideas.org).

This design case will provide background information on how the need for additional training arose, a description of the development and dissemination of informational resources, a description of the evolving model for delivering face-to-face training, and depictions of the artifacts used in the instruction. The information provided in this design case is based on interviews between the authors, one of whom has been affiliated with Playground Ideas and played a key role in the development of these instructional resources.

BACKGROUND: THE NEED

Playground Ideas is a not-for-profit organization committed to providing safe, sustainable, culturally-responsive play spaces for children around the world. The organization grew out of work that began in 2007 in Mae Sot, Thailand. Located next to Burma, Mae Sot is an area where the border between the two countries is relatively porous and where Burmese people can and do cross into Thailand to work and live. In order to address the educational needs of these migrant workers' children, NGOs and private individuals (mostly from the United States and Europe) have set up and supported small private schools. These schools have often been very minimal, sometimes consisting simply of corrugated metal sheds. Most of these schools have not had any playground facilities for children. In the limited number of cases with play facilities, equipment has often been metal which has proven prone to rusting and deterioration in this very wet

FIGURE 6-8. (clockwise from top left) Examples of finished playground components. Each playground relies heavily on brightly painted recycled tires as a chief building material. Tires have been chosen because they are usually free, durable, long-lasting, safe, and are otherwise littering the landscape or burnt releasing toxic particulates.

region. Over time it has been common for these structures to become dangerous and fall into disuse.

In 2007, a school principal in this region reached out for assistance in building a more suitable playground. This first playground was built using basic, recycled materials and labor donated by tourists backpacking through the region. After this, more and more schools asked to have playgrounds built. The area was a fertile place for such activities because of the many backpackers coming through the region, the number of NGOs working with migrant workers in the area, and the lack of basic facilities at these schools. Over time, a core group of people stayed in the Mae Sot region to help build multiple playgrounds. The directors of what eventually became Playground Ideas were among those who stayed in Thailand and one, the other, or both were involved in the design and building of each playground (Figures 5-8).

As the process for building these playgrounds evolved, it was clear that local conditions were critical factors in creating playgrounds that would be beneficial and could be maintained, so playgrounds were designed by responding to the local environment. Local materials, local skills and local tools were all essential components in the design of each playground. By limiting the design to the constraints imposed by local materials, skills, and tools, playgrounds could be maintained by the communities which built them and replicated or expanded if demand increased.

The community was brought into the design process very early. Not only did they give input on the ages and numbers of people using the space, but were encouraged to contribute ideas of common stories or characters that could be incorporated into the playground space. Next, the overall site was analyzed for potential opportunities—for example, how could trees or hills be leveraged to create an interesting design? Then the overall space would be zoned into areas corresponding to different types of play, such as quiet, transitional, dramatic play and activity zones, each area with its own type of playground equipment. Finally, the different areas would be linked together by paths and other techniques.

Forty-six different playgrounds were built between 2007 and 2009. At the end of this time of intensive building, the area had reached a saturation point in terms of the number of playgrounds that were needed and could be maintained by schools and communities, and some of the key people heading up these efforts were ready to return to their homes in other countries. Also, by this point, word of these playgrounds had spread and emails began coming from more and more distant places asking for similar help in designing and building playgrounds. This raised the question of how a small group of people with limited resources could help build playgrounds around the world. It became apparent that the current model of playground building was not sustainable—it was simply not feasible for the directors to be directly involved in the design of every playground, and physically on-site for all construction efforts.

Efforts quickly shifted from direct involvement to exploring ways to help from a distance. Switching from the hands-on model that had been so successful in Mae Sot to one of supplying others with the knowledge and resources to design and build for themselves and their communities raised a number of questions.

> *How do you organize groups in various parts of the world to build playgrounds?*
>
> *How do you ensure that these various playgrounds will be safe and culturally-appropriate for any number of regions?*
>
> *How do you support fund-raising efforts for the acquisition of materials?*

Once you figure out those answers, how do you teach these ideas to such a wide range of people—to groups of people who may not speak English, may not have reading skills, and may or may not have access to the Internet (or sporadic access to the Internet)?

Given these constraints, how could informational resources be best designed and disseminated, and what instructional support would be needed to supplement those resources?

WEB-BASED RESOURCES: THE CONSTRUCTION BOOKLETS

As the directors prepared to leave Thailand, it was decided that, as a first step, a website would be developed to disseminate playground-building resources. Central to these resources would be construction booklets which detail the use of tools, construction techniques, and step-by-step instructions on how to build prototype playground elements and whole playground complexes. Designs and construction techniques were already significantly developed through the many playgrounds constructed in Mae Sot, and sketches created by Playground Ideas for internal use could serve as a starting point for these designs (Figures 9 and 10).

Key Considerations and Initial Direction

Several key design considerations governed the development of these construction booklets and the translation of internal sketches into documents intended for broader consumption. First, the booklets needed to be useful to individuals with different language backgrounds and to individuals with different literacy levels in their own or others' languages. Second, the booklets needed to be in a format that could be reproduced as inexpensively as possible, and by the simplest of machines. In looking for precedents that had successfully dealt with these same kinds of constraints,

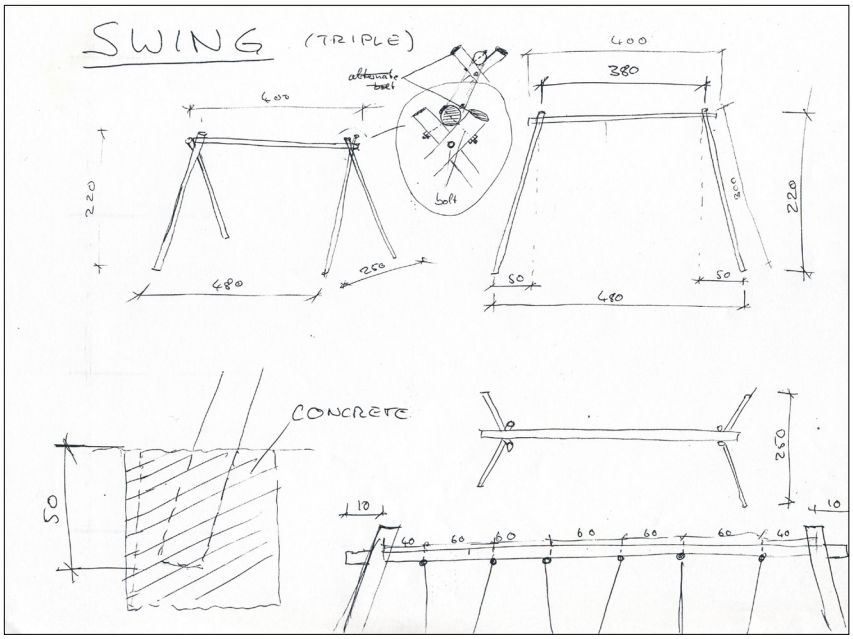


FIGURE 9. Sketch of swing set construction techniques.

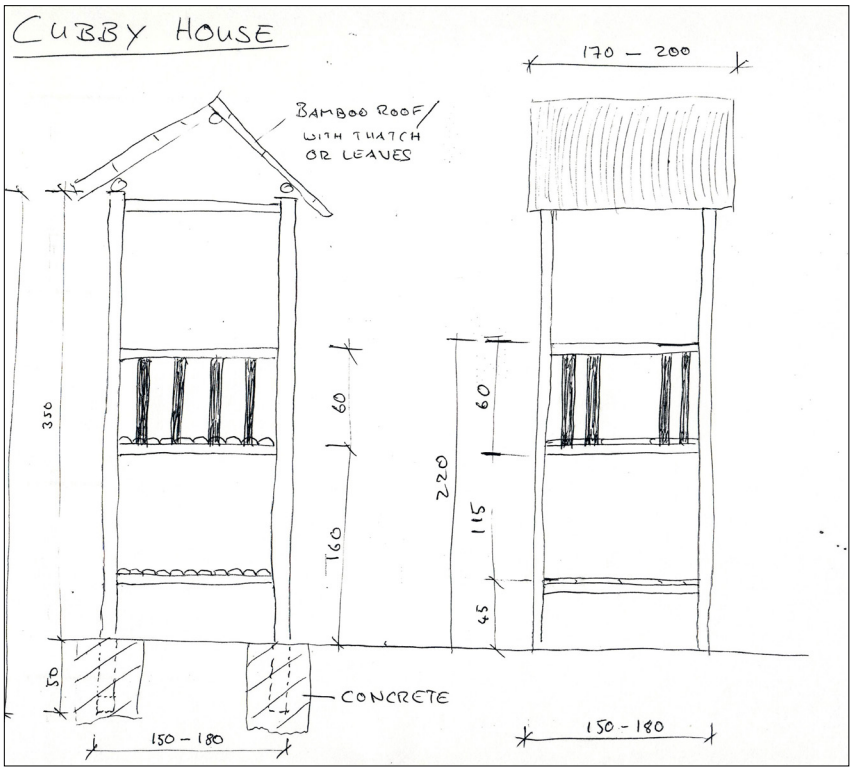


FIGURE 10. Sketch of cubby house construction.

Ikea was identified early on as a potential example. Like Playground Ideas, Ikea often needs to provide assembly information to people worldwide, and is typically provided in a paper-based, black and white format. These assembly booklets served as prototypes for the Playground Ideas booklets.

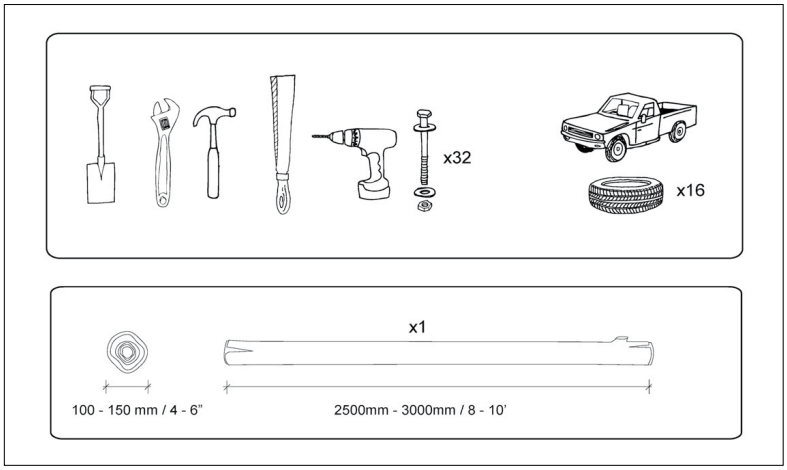
Developing a Production Path

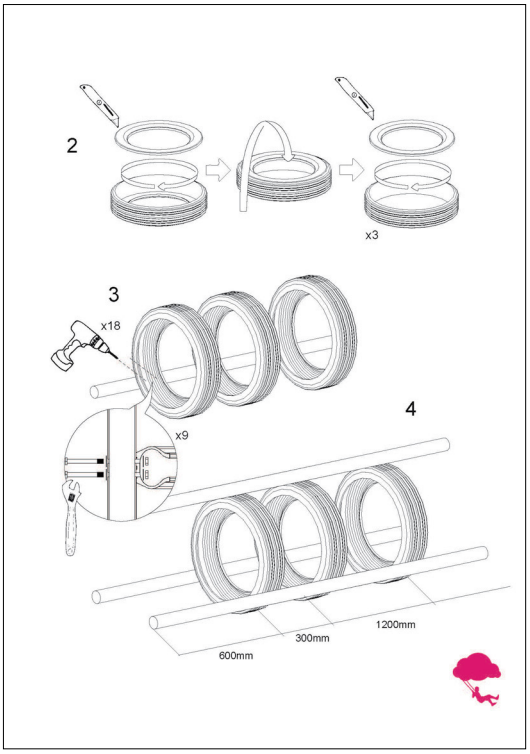
Settling on a "look" for the construction booklets did not solve the massive production issue—there were dozens of potential booklets at the outset of the project—a collection which has now grown to well over 100 different construction booklets hosted on the Playground Ideas website. To generate instruction for such a wide range of building options, Playground Ideas has developed a streamlined production method and a pool of expert volunteers. The process involves creating a 3D model of a proposed playground in Google SketchUp. A common library of building parts facilitates the rapid development of these models. Screen shots of the model are taken to illustrate the step-by-step construction process. These images are then brought into Adobe Illustrator for annotation.

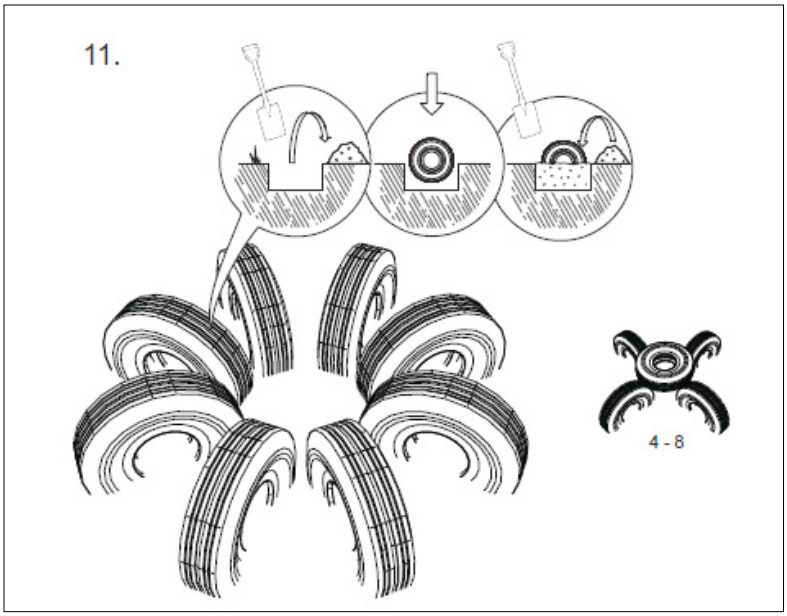
This workflow has been extremely productive due to the considerable work of volunteers. Student interns are recruited through online advertisements from architectural schools all over the world. These student volunteers often demonstrate a real interest in applying their skills to a real-world project which they see as having a genuine impact for good in the lives of others. Typically, anywhere from six to twelve interns are working at any time. The work of this shifting pool of student volunteers is supplemented with time donated by professionals from disciplines such as engineering and architecture—professionals who can evaluate technical details and ensure safety of the final design. These professionals are recruited through the Playground Ideas website.

Because volunteers are working at a distance from one another, communication is usually web-based. Digital sharing of files and images is made easier by the software choices. As a free download, Google SketchUp is relatively easy to obtain and allows volunteers to share library objects, as well as 3-D models, through whatever file sharing method works best for an individual volunteer. While more expensive to obtain, Adobe Illustrator is an industry standard for the creation of these kinds of diagrams, and many volunteers already have access to and experience with this program, or can collaborate with another volunteer who does.

Depending on the experience and skill level of a given volunteer, they might take more or less initiative. Some professionals can develop an entire design with little more than a description of the component or system to be illustrated. For students and interns who are less experienced, one of the directors will often produce a rough 3-D model or sketch, send it to the volunteer, and then go back and forth refining the drawings. The simple sketches in figures 9 and 10 are representative of the level of detail that might be included in an initial diagram. Based on this information, a volunteer would be able to generate a 3-D model from which multiple views could be captured for a step-by-step construction manual. Through this process, approximately 150 playground designs have been developed, with at least 100 instructional books (Figures 11-14).







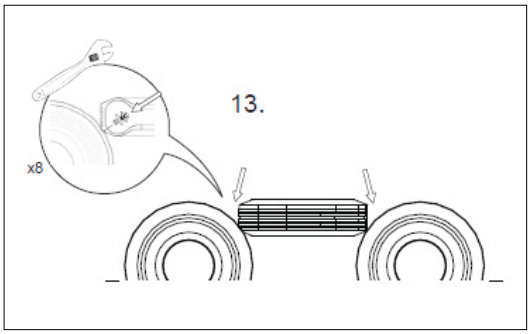


FIGURE 11. (top left) Depiction of tools and materials needed for construction. These icons suggest tools that can be used, though the emphasis during training is on adaptation and flexibility.

FIGURE 12. (top right) Example of construction technique. Note the use of arrows to communicate different actions (including the direction to cut the tire, moving from one step to another, and flipping the tire over). Also note the way the tool icons are placed near the action to indicate they are used, but the images do not actually depict the tool in use.

FIGURE 13. (bottom right) Step 13 in construction of the Octopus Icosahedron playground element, showing how the horizontal tire is attached to the base. Over time, past training participants have adapted the design to their purposes.

FIGURE 14. (bottom left) Step 11 in construction of the Octopus Icosahedron (a.k.a “The Octopus”) playground element. This illustrates the process for partially burying the tires that form the base of the element.

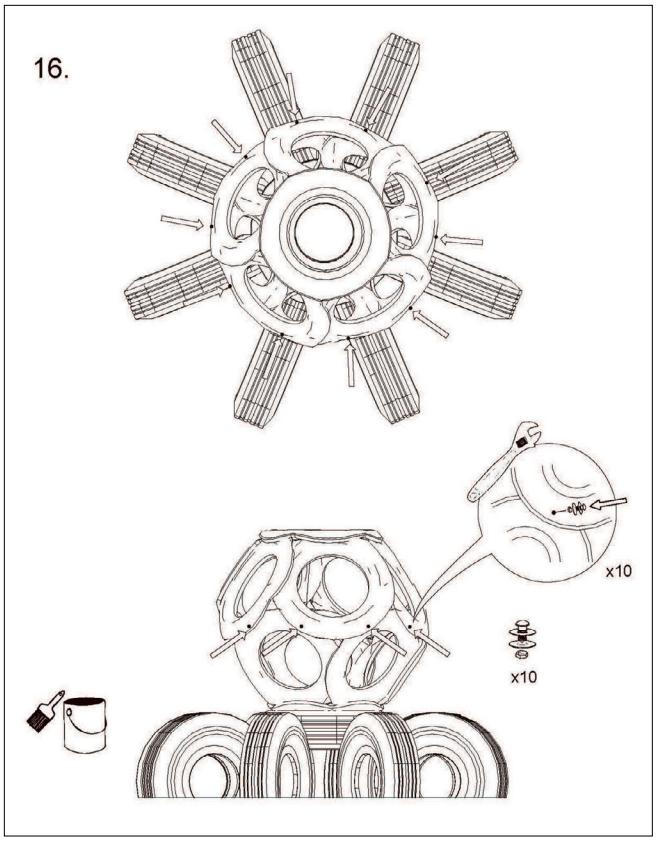


FIGURE 15. Step 16 in construction of the Octopus Icosahedron playground element. Note the callout to detail the bolting technique and a paint can icon to indicate painting of finished playground element.

Limitations of Web-Based Information

The Playground Ideas website is now fully functional and provides access to hundreds of different resources related to playground design and construction, but for some patrons, especially NGOs doing multiple playgrounds, there are some potential shortfalls to the website being viewed as a stand-alone information resource. First, some patrons have difficulty accessing the website due to unreliable or non-existent local Internet connections. Second, printing services are sometimes scarce or prohibitively expensive, restricting options for downloading and printing information for on-the-job usage, or for use beyond the times the Internet is accessible. Third, language and literacy barriers limit the usefulness of the web-based materials, all of which have been developed in English.

THE EVOLVING MODEL FOR FACE-TO-FACE TRAINING

While building efforts were still ongoing in Thailand, a set of plans was developed for an interested group in India in hopes it would help facilitate a new playground in their community. As it turned out, numerous on-the-ground complications led to abandonment of the project. This confirmed suspicions that informational resources alone would probably not be enough, at least for some potential patrons.

It was decided that instructional, as well as informational, support could be provided to some of the individuals and communities interested in leveraging the online resources to design and build these playgrounds on their own. For training some patrons, especially groups, Playground Ideas settled on a compromise position—one that blended aspects of the hands-on contributions of their earliest projects and the hands-off approach represented in the web-based, informational-resource model. This compromise approach complements the existing web-based approach.

This new approach was based on having a representative of Playground Ideas physically go to areas where there was interest in these projects, where they would conduct face-to-face training that would introduce key stakeholders to the web-based resources and provide entry-level instruction on critical issues. These critical issues were identified from previous experience having worked with groups on the ground and included: understanding the social, developmental and cognitive value of childhood play; adapting prototype playground designs to meet the cultural and geographical/climate conditions of the area; ensuring a safe play area that balanced opportunities for risk-taking and caution; and exploring ways to foster community support for the building and maintenance of the playground. In essence, this was a train-the-trainer program to be launched in the form of face-to-face workshops for people who could then turn around and lead building efforts in different areas of the world.

Who to Train?

The question then became one of trying to determine who to train, and how to structure training events in such disparate areas. It was decided that there were two groups who typically were interested in building from Playground Ideas designs: individuals (such as teachers, principals and Peace Corp members) and NGOs. Individuals were best served via the resources on the website. The decision to focus on NGOs grew out of previous experiences in Thailand, where NGO representatives had played a key role in playground construction.

Several advantages were realized in this decision. The NGO serves as an effective disseminator of information and change agent since it typically has institutional knowledge of on-the-ground, local conditions. People associated with the NGO know the language, power brokers, and stakeholders, and are known and trusted by people in the local communities. Also, this approach allowed the designers to dismiss some of the earlier concerns. Potential language barriers were of less concern because NGO representatives could be instructed in English. Internet connectivity was not as much a concern because most of the NGOs had access to the

Internet, so resources such as images of finished playground components and instruction books could still be posted on Playground Ideas' website and either viewed or printed by the NGO. NGO representatives had good understandings of local conditions, resources, and culture and so, once they understood design principles, they could turn around and teach local community members how to modify prototype playground designs to match their own community's needs and site-specific requirements. In exchange for receiving this training, a partner NGO would agree to build playgrounds at two to three different sites.

Round 1: Centralized Training

The first of these train-the-trainer workshops was held in Peru in March 2011. The plan was that the training would be held in a central location, and that representatives from several NGOs would travel to this location to meet together and receive free instruction for their communities. In exchange for receiving this training, a partner NGO would agree to build playgrounds at three different sites.

In reality, this proved a difficult model to sustain for a number of reasons. First, it appears that there may have been a disconnect between the incoming expectations of some attendees and the goals of Playground Ideas. Specifically, for many attendees, there did not appear to be a strong cultural tradition placing importance on childhood play. As a result, it became difficult for organizations to rationalize the diversion of resources from other priorities to the development of playgrounds. It appeared that some attendees, despite interest in the idea, could not put plans into action unless training was supplemented by construction funding and by a more convincing argument that the playgrounds would be of significant benefit to their children. As it turned out, some of the interested NGOs were struggling financially to keep their doors open and may have been too small to take on this kind of project.

Second, there were difficulties using Google SketchUp models on some of the lower-end computers available to these specific NGOs. Even though Google SketchUp was a free software product, some of the more complex playground models proved unwieldy given the available hardware resources.

These challenges began to undermine the idea that people could simply be provided resources and minimal training, and then be expected to design and build the playgrounds on their own. In response, Playground Ideas retooled playground designs in order to drastically reduce proposed costs, and decided to take a more targeted approach in identifying NGOs for future training.

Round 2: Disseminated Training

In the second round of training, a workshop held in the Philippines in August 2011, it was decided that efforts would be focused on a smaller number of NGOs, each of which had greater resources. The trainer would travel to these different NGOs to personally provide training, instead of expecting NGO representatives to travel to a centralized, one-time training event.

Despite these modifications, the training again proved problematic. Specifically, it was difficult to find the right person in each of these larger organizations to champion the idea and lead the design and construction efforts. Staff turnover also proved to be a problem; the people who had been initially receptive to the idea left the organization soon after the training visit, and before construction actually could take place. Among those organizations who remained involved, there was again the question of buy-in and the challenge of demonstrating the value of the playgrounds and childhood play.

This repeated difficulty highlighted the importance of buy-in, and of the need to somehow demonstrate the value of these playgrounds. It appeared that a different training approach was needed to help patrons personally experience the value of these play environments if they were to devote the resources required to build the playgrounds, and to develop the confidence and local expertise necessary to sustain a self-sufficient building program. Clearly there was enough interest to invite Playground Ideas to provide the training, but either there was something about the training materials or experience that was constraining people from taking the next steps, or there were still unidentified resources that needed to be provided in order to help trainees apply what they were learning. The third round of training involved a major redesign in its approach.

Round 3: Hands-On Training

As different approaches to training were being explored, one of the Playground Ideas trainers was contacted by a non-profit organization, and invited to lead 18 of their volunteers in building a playground in Kenya. This trip, conducted in March 2012, proved very successful and has inspired a new model for Playground Ideas' future training efforts. Three key components were different in this experience, as compared to the previous two rounds of training: an actual playground was built as part of the experience, money was provided to pay for the prototype playground, and a team of volunteers assisted in the development of the first playground.

The actual construction of the playground as part of the training process has a number of important benefits. First, as previously addressed, one of the repeated barriers had been local buy-in to the value of these playgrounds. With

a playground in place, communities can observe for themselves the potential benefits of these environments and make experience-based, local decisions as to whether or not additional playgrounds are worth the outlay of time and resources.

Second, at the beginning of the building process, the Playground Ideas representative noticed that local volunteers seemed to automatically seek out and defer to his opinion and instruction in every detail. For example, instruction books and a materials list were sent ahead of time so materials could be acquired. For some of these materials it was important that they be of a specific dimension, but in many other cases, there was a lot of flexibility and while an approximate dimension was given as an example, organizers were told that the material did not need to match this suggestion. Invariably though, the acquired material (such as a log, for example) would show up on the build site, cut to that exact dimension. Having no experience with these kinds of structures, it is understandable that the volunteers had concerns about their own building abilities. This lack of self-confidence, possibly paired with the reality that the Playground Ideas representative was a white male from the United States, seemed to result in his being viewed by many as the expert, even though the larger intent of the training experience was to provide tools and knowledge to enable local communities to design their own, more culturally-responsive play areas.

However, the Playground Ideas representative noticed that as the days went on, volunteers began to develop more and more confidence and relied less on his direction and supervision. By the time the playground was complete, local volunteers were developing ideas of how the playgrounds could be customized to their own needs and interests. Based on these observations, it seems that the earlier training efforts may not have been successful not only due to budgetary or buy-in issues, but also perhaps due to confidence issues that could not be adequately addressed without providing hands-on building experiences. This model of combining lecture and discussion-based instruction with funded, hands-on practice has been adopted for all future train-the-trainer sessions.

Based on these observations, a new, hands-on training model is being designed for future Playground Ideas training sessions. Volunteers will be recruited to travel with the Playground Ideas representative and to partner with local community members and NGOs to build a first prototype playground together. Construction material costs will be financed by volunteer-raised funds. Furthermore, funds raised by volunteers will also be pooled for the construction of additional playgrounds after the departure of volunteers and the Playground Ideas representative.

The plan for the next round of hands-on training sessions is a scaled-up version of the approach used in Kenya. The session will take about a week, during which a model playground will be built. Based on results from previous training sessions, it is anticipated that representatives from three to five NGOs (about 6-10 people total) could be accommodated at a time.

During the construction process, informal, just-in-time instruction about design and construction techniques will be provided to the participating NGO representatives. Additionally, at the end of each workday, a more directed 60-90 minute lesson would be given in a classroom-like setting. Based on the previous rounds of training, the preliminary schedule of topics for the five days of workshops is as follows:

Day 1	The importance of play and playgrounds to childhood development
Day 2	How to work with a community to get input on a design
Day 3	Design considerations of putting a playground together
Day 4	Safety issues
Day 5	Activity to pull together what has been learned and design a rough playground project as a starting point for the playground that they will build in the future

These more formal sessions will be instructor-led and rely heavily on lecture, discussion, and printed training materials (including the pictorial construction books described earlier). Currently, a single instructor conducts all training, though it is hoped that as the program continues, the number of instructors will expand.

In this most recent model, the instructional approach has become something of a hybrid of the very hands-on efforts in Thailand and the hands-off direction suggested by the website and some of the earlier training events. The training efforts are more effective because they include the actual building of a playground, while also providing seed money to pay for the first few playgrounds to be built by the NGO after Playground Ideas has left the area. This is the model being used to plan the next major training efforts, scheduled for the summer of 2013 in Zanzibar, Tanzania.

CONCLUSION

Since 2009, Playground Ideas has helped build over 100 playgrounds throughout the world, resulting in play spaces for more than 15,000 children. As efforts have continued to provide instruction for key local stakeholders who can lead future building projects, understanding of the underlying instructional design challenges and constraints has shifted.

Whereas some of the early questions regarding the ways to design, produce, and disseminate informational resources were relatively quickly resolved, other issues arose which proved more difficult to resolve. As a result, this instructional design project has become an iterative process of discovery, in which key challenges were revealed in the process of developing and delivering instruction.

At this point in the process, the hands-on training model adopted for future instruction can be seen as a hybrid of the Mae Sot model (where experts were on-hand, directing design and building efforts) and the early ideas of pushing out web-based, informational resources (with the idea that people could use them without any further guidance or instruction). This allows learners to develop confidence in their own abilities and, by jump-starting the building efforts by funding the construction of the first few playgrounds, the instructional experience allows communities to test the efficacy of these environments before expending their own limited resources on playgrounds.