

**Small Project Lessons for Big Projects**  
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**Pictures by Briana, Project Manager**

### **Introduction**

Large projects costing millions of dollars are truly exciting and get a lot of attention. They hold the promise of many benefits for the customer and large profits for the organization managing the project. Those who excel on large projects also gain a reputation that creates an aura of project management expertise. Large projects are often represented by the organization as challenging, but there were no errors that could not be overcome.

We know, however, that large projects have challenges that arise from unanticipated situations that occur in small projects as well. Small projects can provide lessons learned that alerts project managers of large projects of the potential for failure. Simple errors in drawings, for example, can lead to major efforts at rework and costly delays in the schedule. Using the wrong parts or a wrong interpretation of instructions will typically cause rework and additional labor efforts to disassemble a component before the rework.

Further, a rule of thumb for managing project cost is “watch all items and activities that cost more than one-half of one percent,” or stated simply any item that costs more than five dollars on a 100-dollar project. Another rule of thumb that is useful is estimating the duration of a project is that “the actual duration will be approximately 2.8 times the first estimate of duration.”

These two rules of thumb have been helpful in recognizing the true nature of projects and that Murphy’s Law, *anything that can go wrong will go wrong*, reigns supreme in all projects. Unanticipated events occur that are not necessarily risk in the classic sense or uncertainty, but are just plain human differences that contribute to the truth of Murphy’s Law.

Small projects allow a person, group, or organization to identify many of the events without the resultant cost or delay in projects. Learn from the small projects what might be trivial before implementing a large project where the same event could be catastrophic.

### **The Challenges of a Sample Small Project**

Recently, a soldier and friend in Iraq sent an e-mail asking if I would assemble a swing set for his two daughters. I agreed, arranged a time to do the assembly, and recruited two other men under the leadership of the Project Manager.

At the appropriate time, the group gathered on a Saturday morning with the assumption that this was a one-day project. What could be difficult about assembling a swing set?

The first task was to identify the customers of the project, define the mission and define the task organization.

Mission: Assemble one swing set on the customers’ property

Customers: Amelia (age 9) Ally (age 7)

Quality Assurance: Sara (age 9)

Project Manager: Briana

Project Engineer: Lew

Assemblers: Tom and Gene

Project Team Title: Task Force 219

**Tip: All project teams need a title. Task Force 219 was selected because it represented the cumulative age of the Team members.**

## Start-Up

In anticipation of the crew arriving, the project manager had opened and laid out all the parts in neat groups of parts, hardware, fasteners, and instructions. An inventory revealed that the project scope was underestimated. There were many more items than imagined. The manufacturer had squeezed into four large boxes the following pieces of the swing set.

- 208 parts to assemble
- 49 different pieces of hardware
- 31 different sizes and quantities of nuts, bolts, washers, screws and other fasteners.
- 1 set of instructions in 66 pages

It was apparent that the scope of the project far exceeded the simple assembly of a swing set. The picture of the swing set on the cover of the instructions clearly showed three swings, a climbing ladder, an elevated platform containing a small house with windows, a ladder to the upper level, and a climbing wall.

**Tip: Never estimate the duration of a project until the scope of work is understood**



**Figure 1. Assembled Uprights**

The assembly process started in a random order – or whatever looked like it could be assembled first was fastened together. Although the instructions were followed, it was difficult to identify the various parts out of a total of 208 and various hardware components.

Progress was slow, but steady and converging on the end product. It was recognized, however, that there was an excessive amount of time spent on finding parts.

The area covered by the swing set measured 15 feet by 17 feet four inches. The height of the house on the second level was 11 feet 2 inches from the ground. The task force was not deterred, however from the project.

Assembly of parts to components began and at the end of day one, some of the assembled parts are shown in Figures 1 and 2.



**Figure 2. Roof Rafter Assembly**

**Tip: Never proceed without a good plan. Hope is not a good strategy to work to.**

### Process Optimization

After this realization, the team devised a plan whereby the parts would be labeled with the appropriate number so that parts could be easily identified and obtained for the next assembly operation. Post-It notes were used with a magic marker to label each part or group of similar parts. This way, for example, part G11 could be distinguished easily from part G12 although both looked very similar. Many parts looked alike based on physical dimensions, but had holes in the wood that made them uniquely different.

Assembly continued, but it was noted that some required at least two persons to either measure or hold a part in place while it was being fashioned. A routine was established whereby the project manager would find the parts and bring to the assemblers while two assemblers fastened the parts together.

Our first indicator that something was wrong came when the project manager noticed from a distance that the frame for the house formed a trapezoid rather than a square. Because they were difficult to interpret, we had taken extra care to follow the assembly instructions precisely.

However, upon review of the instructions we determined that two parts had, in fact, been improperly installed. The instructions described one assembly as left, right, front, rear; but there were no illustrations to put the instruction into perspective. After determining the error, we corrected the problem by changing parts around to make the house square, as it should have been. (One instruction was very accurate, "Assembly requires at least two adults.")

**Tip: Remember to review the big picture along with the details. The designer may or may not have actually assembled the parts. So use caution when interpreting the assembly instructions.**



**Figure 3. Partially Complete Swing Set (House Assembly)**

**At the end of day two**, the team placed the assembled parts of the swing set in its final location, and assembly operation continued from there. Figure 3 shows the progress made to that point.

To close day two, our customers, Amelia and Ally, accompanied by Quality Assurance Inspector Sara, arrived in the afternoon to review the progress.

All had been to school and were coming home. The oohs and aahs assured the task force that all was well and the progress met their expectations.

**Tip: Periodic checks with the customers serves to reinforce the progress of the work assures the customers that the team cares about them.**

**Day three** started with a lot of optimism. There was a better understanding of the project and the plan was working. Very little effort was wasted and productivity was high. The small number of parts remaining made finding parts easier and quicker. Hardware components and large components such as a slide gave the feeling of accomplishment through rapid assembly.

Some drilled holes were too small and had to be drilled to a larger size to accommodate the parts, but good progress was made. Only a couple of items had to be redone and that was through an error in reading the instructions. The task force was working well.

**Tip: Experience helps get the process right. Don't switch any of the crew until the project is complete.**

**As day three ended** and all assembly operations were complete, the project was not finished until the customers did a final inspection. Figure 4 shows the customers performing the final inspection.

Customer Ally does a final test of the slide by climbing up rather than sliding down, a test criterion that the project team did not anticipate.



**Figure 4. Final Inspection of Swing Set**

**Tip: Ensure the customer's test criteria are known before starting the project. Don't be surprised by an unexpected functional need for a product. It is best to get agreement prior to the project on the type of tests that will be conducted on the product.**

## Closure

The testing and quality assurance inspections were completed and the customers were pleased with the product. Figure 5 shows the customers and their quality assurance inspector. From the left they are Sara, Quality Assurance Inspector; Ally, Customer, and Amelia, Customer.



**Figure 5. Customer Acceptance by Sara, Ally, and Amelia.**

The task force was rewarded by hugs from the customers and the thanks of the project manager. The project manager publicly recognized the task force with hard hats at church the following Sunday.

**Tip: There is no greater reward than getting a hug from a customer. You know the customer is happy.**

There being no further work for Task Force 219, it was disestablished and a report was rendered to the customers' father that the mission was complete.

## Summary

Projects come in all sizes. Small projects can provide important lessons at less cost in time and money than those made on large projects under tight constraints. Good planning is essential in all size projects to be able to anticipate the work and meet it in a professional manner. *Hope* is not a good strategy, it takes solid planning.

Save your lessons from small projects and avoid the same errors on large ones. When an error is identified fix it immediately and make the product right. And, remember to get hugs from your customers.

**About the Author:** Dr. Lew Ireland is an executive project management consultant, who resides in Tennessee. He is a Fellow of the Project Management Institute and served as that organization's President and Chair in 1998. Currently, he serves as the President of *asapm*, the American Society for the Advancement of Project Management.. Contact Lew at [lew@asapm.org](mailto:lew@asapm.org).

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