Learning on Steroids:

Project-Based Learning

by Scott Young

Project-Based Learning

In this implementation guide, I'll go over the main tactic I use for rapid *self*-education. This is a method I use whenever I want to learn a new skill. I've used this for teaching myself programming, running a business, design and computer graphics.

Self-education often bogs down from lack of motivation. How often have you told yourself you'd like to learn how to play the guitar, write a novel, learn a foreign language, create a computer game or start a business and failed to do anything?

Most self-education efforts start out with a spark of interest, but then two weeks later, they are abandoned when you discover either:

1. Learning your subject is incredibly hard and involves a lot of frustration.
2. You're too busy to make any progress.

My experience is that neither of these are truly insurmountable problems.

Yes, many self-education efforts are incredibly frustrating. Learning to program computer games or playing the guitar can be frustrating without direction from an instructor. But at the same time, people routinely overcome many frustrating learning tasks in classes when tackling assignments or exams.

And yes, you're probably really busy and that will make taking on a self-education project more difficult. But part of this problem is simply that self-education becomes work. When you truly enjoy the subject you're learning, it becomes a hobby– something you do in your spare time for fun, not because you have to.

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So to go back to those two points, the problem with really mastering a new skill isn't that it's too difficult (you routinely conquer difficult things in your work/school), and it usually isn't that you don't have time (how many hours per week are you on Facebook?), but two different problems:

1. Lack of direction.
2. Lack of purpose.

Self-education efforts often fail because they lack direction. You want to learn how to play the guitar or speak Spanish, but that's simply a whim, there is no structure to it. Nothing to clearly outline what needs to be done and how you should go about it. And that's a recipe for procrastination.

Learning new skills often lacks a sense of purpose as well. As you complete boring programming tasks or do writing exercises, you don't feel the sensation that what you're doing is creative, exciting and connected to a much broader mission.

Project-based learning defeats these two problems by restructuring your learning efforts. Instead of just trying to "learn" to speak Spanish, program computers or play the piano, you're engaged in a challenging project that is exciting to you. Learning becomes a byproduct of a pursuit you're already interested in.

How to Set up a Learning Project

The basic idea is to create a project that requires you to learn new skills to complete, but is not so difficult you can't start

immediately. The goal is that, throughout the project, you should be forced to learn more about your skill in order to finish.

I'll use the example of learning to program computer games. Let's say you have absolutely no knowledge of how to write computer programs. In this case, trying to make the next HALO is not a good project–you'd have no idea how to even start a project like that, nevermind finish it.

If instead, you made your goal to recreate a simple game (like Tic-Tac-Toe or hangman) your project may be challenging, but even with just a few minutes of programming instruction you could probably start laying out the basics of a display for your game.

In contrast, if you already had significant programming skill, and knew how to make most of the components for a computer game, then the learning project must push you forward. Let's say you're not great with networking skills or AI, then your project could be a small game that puts these areas of skill as a central portion of your work.

Projects of Performance

Projects are fairly easy to design for building skills like computer programming, writing, art or design. They can be trickier for performance skills like foreign languages or playing a musical instrument, however you can still use the same principles to design them.

When learning to speak French, this was one of my main

methods. Instead of just setting an impossible target such as perfect fluency, especially for a first-time language student, I decided to set intermediate projects which I could focus on and interested me, such as:

-Being able to order food at a restaurant
-Holding a simple conversation
-Staying in French for an entire weekend
-Understanding a television program

Here, the project is to be able to perform at a particular level. Learning a particular song to play on the guitar is another example of a project that is applied to a skill which doesn't involve creating something tangible.

Don't Try to Build Masterpieces

It's important to make sure learning is your priority when designing the project. It's very easy to be seduced by interesting projects that either:

1. Are way too long or difficult to get started and complete.
2. Are filled with too many "easy" tasks that you already understand.

Let's say you wanted to improve your writing ability. It's easy here to get seduced into writing a big novel which doesn't force you to hone your craft in any way. It might be better to focus on a short-story or novella which you deliberately put constraints to test your writing ability (such as writing the entire story in flashbacks or telling the story in reverse).

If you just want to work on a project, and mastering a skill isn't your goal, then setting these kinds of goals is fine. However, if your specific aim is to get good at something you're unfamiliar with, setting smaller projects that are just the right challenge level will be more successful.

Advanced Project-Based Learning: Hypothesis Testing

Another major reason I use project-based learning is that it is often the **only** way to learn some skills.

Some skills have highly codified knowledge, such as playing guitar or computer programming. You can easy search the internet for detailed tutorials. They may be difficult to learn, but the resources are out there.

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Other skills have uncodified knowledge, or information that isn't written down anywhere. Figuring out what it takes to write a best-selling novel is an example. You can read any resource you like, but the most you can get are opinions–no step-by-step tutorial is foolproof.

Project-based learning works well for this latter type of skill because it allows you to deliberately test hypotheses. That is, you can treat the entire project like an experiment in order to gather knowledge that doesn't exist anywhere else.

I do this for business projects frequently. Not only will I try to design the project to push my technical skills (such as writing, designing, marketing, etc.) but also to test hypothesis about what will be successful. I make sure that each project sets forth a hypothesis I can test such as, "Will having multiple prices improve sales?" or, "Should I write longer ebooks or shorter ones?"

You can do this in many projects. For example, as a designer, you could create a project to see whether a particular type of interface is more usable than the standard design. As a writer, you could test to see whether people respond better to a particular literary device.

How to Create Your Own Project

If you've gotten up to this point, you should already have ideas about how you can use project-based learning to master a project you're interested in.

The first step is to clearly outline what skill you want to learn, and the specifics of that skill. So don't just aim to "learn French" or "create websites" change that to: "be able to hold a conversation in French," or "create flash-based website applications."

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Narrowing down to the specifics of the skill you want to master is an important first step.

The next step is to create a project that is brief and challenges the specific skills you're interested in. The project itself should be something you care about–but design it with learning in mind. So don't just create a random website, create something you care about or are inspired by, but at the same time make sure it isn't bloated with too many tasks that aren't forcing you to improve your skills.

A final, optional step, is to design the project to test a hypothesis. This works when you want to test something for which you can't research the answer. By doing this last step, you can build expertise in an area which is otherwise hard to learn. This expertise is often more valuable than technical excellence which can be mastered by many people equally.