



# Stanford eCorner

## You Gotta Grind

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Video URL: <http://ecorner.stanford.edu/videos/2797/You-Gotta-Grind>

Entrepreneur David Friedberg is inspired by the early days of aviation, particularly the commitment of the Wright brothers to systematically innovate. Friedberg discusses the brothers' dedication to learning everything they could about the nascent science around human flight, and their willingness to grind through iterations to reach success.



### Transcript

How do you succeed? You got to grind. This is the Wright brothers' example, I have a couple of slides on this. I got to visit Kitty Hawk in July. Was it July? July 4, pretty cool. Anyone ever been? Really awesome. I was inspired. I spent the day walking around by myself. And they had their shack there, I will show a picture of the shack in a second. This guy Otto Lilienthal - aviation at the time was sort of like the cool engineering thing to be thinking about in the late 19th century and Otto Lilienthal was one of the early sort of aviation pioneers and he wrote this in the aviation - in the Aeronautical Journal, it said: "While theoretically no difficulty of any considerable importance precludes flight, the problem cannot be considered solved until the act of flying has been accomplished by mem., duh. In its application, however, unforeseen difficulties arise of which the theorist can have no conception." And this is really highlights the fact that it's the grind that's going to end up making the difference.

He died a few months before this was published, because he got on a plane or a glider that wasn't built right and crashed, irony. Around the same time, the Wright brothers, who had a background working in the printing industry, they saw this cool new thing. The Internet of the day was transportation. And so the Wright brothers saw that all consumers rather than getting on Facebook and doing social sharing stuff, consumers at the time were riding bicycles, that was like the cool new thing to do. So they bought a bicycle shop in Dayton, Ohio, and they started building bikes and they've started building better bikes and they started to engineering them. And then they read this Aeronautical Journal and they wrote to Smithsonian and the first step was learning. So when there is something you don't know, the first thing you can do is, is you can start researching and learning. I didn't know anything about weather, I still know very little about weather. I didn't know anything about insurance; I'd had to learn a little about insurance. And along the way the needs of the mission, the problem we were trying to solve mandated that we learn stuff that we didn't already know.

And so the first step was these guys sort of writing to the Smithsonian and they got, they requested - equivalent to a FOIA Act Request nowadays, government request, send me all the information you guys have on aeronautical research has been done. And they started reading through all these documents, they started learning the engineering of the day. They then came up with an idea for a flexible wing and they built a prototype and this was the prototype kite/glider that they had and they tested a couple of them. So this was the first step. And they figured out, what do we not know? Why are these gliders failing? And they said well now we've got to tactically implement a solution that can allow us to very quickly identify all the things we don't know and know them. So they invented something called a wind tunnel - actually I think it was invented before, but they implemented a new sort of wind tunnel, I don't know what the nuance was, but it was some sort of more advanced wind tunnel. And it allowed them to test over 200 wing designs and they recorded the coefficients associated with each wing design in a very detailed way that no one had done before. And that gave them the ability to systematically go out and build a better wing that they were then able to use to build a plane and eventually fly. And it was that grinding process, it wasn't a breakthrough. There wasn't some sort of moment of genius with the Wright brothers.

There wasn't some discovery or penicillin thing that, whatever, mythology, these are, what I call, the sort of black swan outlier, rock star motif equivalent events that occurred. These guys literally just took the principle of we need to get into the sky, that's a problem, we need to solve it. They found the thing they didn't know. We don't know the drag coefficient, we don't know the optimum wing design and they solved it. And to do that who knows who's on the right, this is the Oracle from the Matrix because she tells Neo you got to know thyself. And the one on my left is from Ray Dalio, if you haven't read Ray Dalio's, The Principles, it's an interesting read. I am not going to critique it, but it's on Bridgewater Associates website. But he says there is two Yous. There is the You, the designer. And then there is the You, that's effectively the actor.

So the designer is the one who gets the people together to accomplish a task of X or Y or Z and You as an actor are good at something, you're either good at writing code, you're good at selling, you're good at operations, who knows. But in order for you to succeed, you're going to have to recruit people to help you do these sorts of things that you're not going to be able to do on your own. And in order to do that you have to be self-aware about what are the things you are going to be good at and do you have the right people helping you to accomplish them.