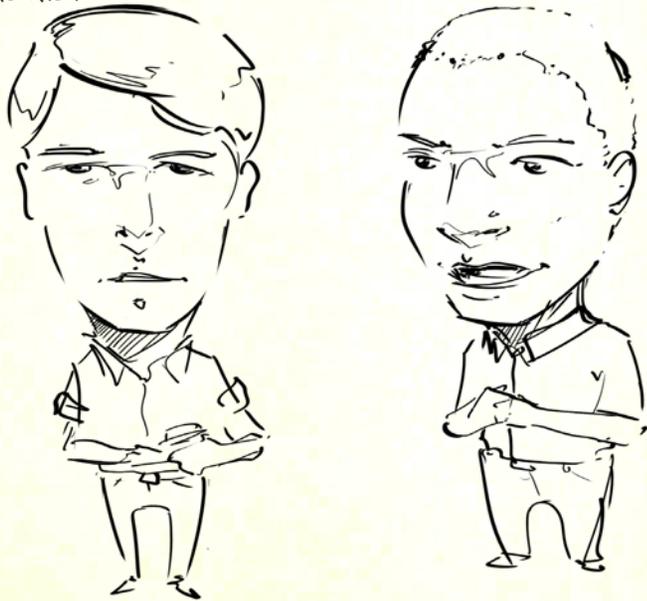


D-Lab Development

2009.10.19

William "Windmill Bill" Kamkwamba
w/ Bryan Mealer



Bryan - journalist working in Africa, 6yrs, University of Austin
Wanted to do more with his life
Was in the Democratic of Congo during the war
Wondering about journalist always reporting on the negative

Hearing about William helped him to fall in love with the Africa again

William - from Malawi, like Reggae, not so sure after hearing all
sorts of new music

Has 4 sisters

2000 Famine in Malawi

Family would reduce down to 1 meal a day

Grinding flour to sell at market, then buy flour that was
imported from Tanzania. People started substituting sawdust in
the flour. People becoming very sick.

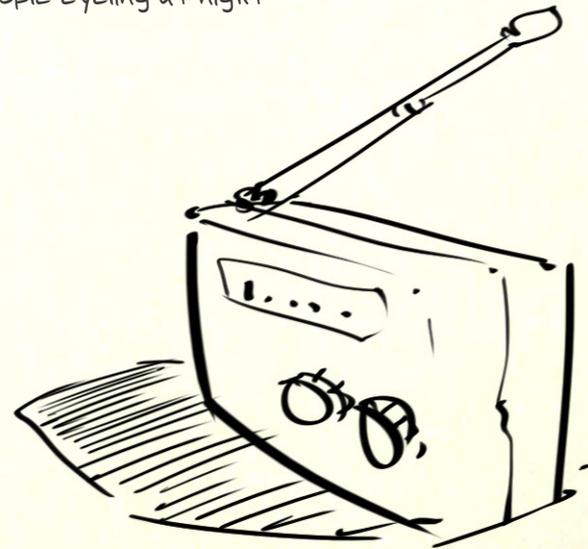
William was 13 at the time. And was supposed to start High School.

William was forced to drop out, because didn't have
money to go to school

William continued to study on his own by going
to the library, wanted to be able to keep up with his
friends

Studied science, biology, social studies are
what would have been done in school. At a library funded
by the US Gov't.

William couldn't read, so he looked at the diagrams
curious as to how things worked, so looked at
science books. interested in Bicycle Dynamo, wanted to
see how it worked. Dynamos were popular in Malawi, for
people cycling at night



Interested in radios, wanted to take them
apart, slowly learned how to fix them. Fixed them, and
used batteries. Didn't have money to buy batteries to
fix radios

Playing around with Dynamos

Playing around with them, see that they could generate power. Being a Kid, and getting shocked when disconnecting a light from dynamo.

How to power a bike to generate power to power the radio...

Made the connection to **windmill**

How to build it without knowing English or having materials

Vivid diagrams of images showing how they worked

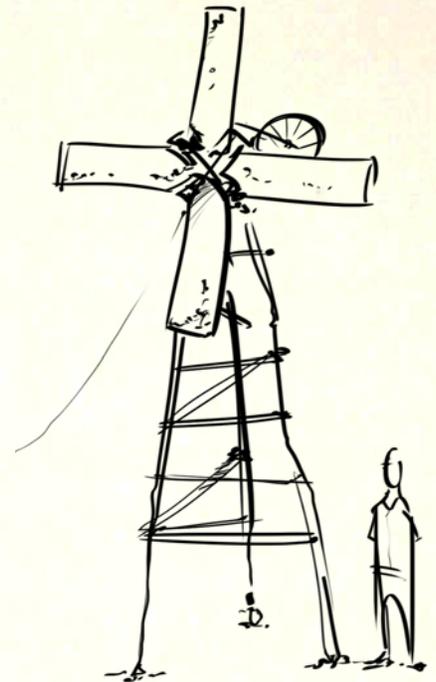
of a battery, learning what each diagram meant

Learning elementary physics in this round about way

Making a prototype windmill in scale, using a Vaseline jar lid for the rotor. Purchasing a dynamo for the equivalent of \$1US

The first windmill was not perfect right away. William made changes to make it work. Such as changing the bicycle to change to a pulley. And using a step up transformer to change from 12V to 24V. Also made it to change the current from AC to DC Copying a radio transformer... winding metal like it.

This electrical skills were something that William had to teach himself, because it was not taught in school.



Parents felt guilty about William dropping out of school, because they couldn't afford it.

With girls, parents hope that they might get married, and that a husband might help continue education, and pay for them or take care of them.

With boys, it is the parents who must take care of it.

His father was very PATIENT with William, learning on his own, hoping that he might be able to pay for him to continue his education. Not making William go to the fields to work was a real key to allowing him to learn on his own.

To some people, there was a sort of Wizardry view of William, because magic is very prominent in Malawi. And pulling energy from the wind, is somewhat odd. People didn't always believe that the thing could do it.

Story of a storm, and clearing out, and people seeing windmill blowing, thought that it might have blown away the clouds. When a storm was needed, for watering, because of the drought.

William started playing with radios when he was about 10. Taking them apart and such.

Having to make his own tools, didn't even have a screw driver, made it out of bicycle spokes, hammering them flat, and melting plastic to make a handle to hold.

Making knives out of sheet metal, and using small plastic to make a handle.

Making things out of local materials that were available.

Didn't have voltmeter, so used creative ways like using 12V lightbulbs to test the amount of electricity was put out. Has many blown up light bulbs because of this.

Failed time to make Biogas. His area in Malawi is very deforested. William's mom spent many time to gather firewood.

Windmill can't generate enough power to use for cooking, so what else can he do instead? Found out about biogas through book, out of animal waste. Thought he needed to try this. Understand that animal waste + water + heat could generate gas that might be used to cook. William isn't a very patient guy, when it comes to working on different things, likes to see the results right away.

Wanted to boil biogas fuel to heat it up, to make it go faster. Used his mother's best pot. Did it in a plastic bag. Hoping that the steam would be enough, and put on fire when his mom wasn't around. His mom asked him what he was making... he told her that it was sweet potato. "no, potato doesn't smell like that"

Wanted to ignite the stuff later.

Failed designs, how do you know when to stop?

I have not succeeded yet, but I will go back and make a biogas digester.

His first water pump didn't work either.

Started a soccer team

For other boys who have dropped out of school. Give them a sense of community, and something to do to stay out of trouble. Has spawned local businesses of women selling items at the game

one of the ways to help bring people out of poverty



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