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Professor Recycles Drug-Trade Tools to Teach Kids Science

G. Michael Barnett, *42, is an associate professor of education at Boston College. He leads a project that gets urban youths in Boston involved in hydroponics, a soil-free method of farming. The goal is to help students learn about agriculture, science, and entrepreneurship. Here is his account of that effort, as told to Justin Doubleday.*

In 2011, I was introduced to Irving Backman, a technology entrepreneur who wanted to start an indoor hydroponics business. I thought that might be an interesting project for kids, so I agreed to try it.

He gave us some equipment, and we pilot-tested the idea with a group of eight graduating high-school seniors in Boston College's College Bound program. I thought it would be fun for them to play with the idea, figure out how to make it work, and build some stuff. And they were all over it.

Most urban students don't have the opportunity to participate in any kind of agricultural program or have any place to grow something to eat. Our project lets them do that. Because our space was limited, we built a vertical, tiered system for growing plants in the campus greenhouse. We can grow 25 to 75 plants in a 4-by-5-foot space. The kids helped us think through the design. They sell the produce at farmers' markets.

One of our challenges was looking for funding. The idea occurred to us: What happens to all that marijuana-growing equipment that gets confiscated by the DEA and the state and local police? We called around to find out. I figured that the people I was calling thought I was either an immensely dumb criminal or an immensely clever one. But they said, "That's really cool." We

started getting lights, nutrient solutions, and things like that donated by law-enforcement agencies.

Now we've got the program in 10 high-school classrooms, reaching about 450 kids. We also bring 60 kids to the campus, as part of the College Bound program, who go much more in depth and learn to manage a greenhouse. They're trying to minimize the project's ecological impact by building aquaponic systems that use fish and beneficial bacteria that convert the fish waste into nutrients for the plants. And they're designing new hydroponic systems that are going to rely on solar and wind power.

We're scaling up. We just a got a new National Science Foundation grant, for $1.2-million, and we're working with high-school teachers to get indoor hydroponic systems embedded in their classrooms as part of their regular curriculum. When you're a C student, as many of the kids in our program are, you're pretty OK with just being average. You can get through high school without being noticed if you want, because you're not excelling and you're not failing.

Now, rather than being average at school, they are excelling. So far, every kid who has taken part in the in-depth program has gotten into college. We've given them a "third space" environment, one that is not school or home, where they get to explore, be a leader, learn science, and be proud of the work they're doing.

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It's good to help your students to learn some of these tools in order for them to
be able to know some basic things. Also, exposing them in reality that there are
some solutions that is bad. This is also for them to be aware and avoid those.

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expected to read an article about re-purposing meth creation tools... I've been
watching too much Breaking Bad.
It's still a great program and something we should see more of.

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