



## MythBusters alumnus Jamie Hyneman discusses the nuts & bolts of innovating

Access the podcast at:

<https://doi.org/10.1787/10494039-en>

### Please cite this podcast as:

OECD (2019), "MythBusters alumnus Jamie Hyneman discusses the nuts & bolts of innovating", *OECD Podcasts*, Duration: 12:33, OECD Publishing, Paris, <https://doi.org/10.1787/10494039-en>.

**Host:** Clara Young

**Speaker:** Jamie Hyneman

**Duration:** 12:33

**Date:** 14 January 2019

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**MythBusters alumnus Jamie Hyneman  
discusses the nuts & bolts of innovating**

**Intro** [00:00:02] Thank you for choosing OECD podcasts.

**Clara Young** [00:00:07] Welcome to OECD podcasts. I am Clara Young and I am in Lappeenranta in Finland having breakfast with Jamie Hyneman, who was the co-host of the science show MythBusters, the show that was on the Discovery Channel for many, many years. And the hosts, Jamie Hyneman and Adam Savage, what they did was testing urban legends using science and engineering. So I ran into Jamie yesterday at a prototype laboratory at the lab around the University of Technology. So my first question to you, because for our listeners who might not know what that is: What is a prototype laboratory or a Fab Lab?

**Jamie Hyneman** [00:00:42] Well, there have been a number of them in the Fab Lab which was created by MIT. And as one of the best known ones, there was also tech shop in the United States, which was the commercialized version of it that was successful. These are places that are kind of the modern equivalent of what we used to have as shop class, except, of course, now they're like Fab Lab in particular is something that you almost need to be a grad student in mechanical engineering to use. And you have to learn programming and all sorts of other things to use what's in there. Tech shop was something that was not associated with schools, but it was available to communities. And you had a membership. They went out of business, unfortunately, after about a decade. But they were mainly in the United States, but there were some in France and Asia as well. What they provide is a way of having Hands-On experience with technology and technology can be digital technology and so on, of course, which in their case often went to things like 3D printers and CNC programming. But the reality and one of the reasons that I'm a big advocate of them is that tech goes all sorts of places to different materials and processes where you can have familiarity with, let's say, sewing things. In the same place you can go from sewing something to welding or machining something or I mean, they if they're any good, those kinds of rapid prototyping labs give you the ability to make anything that you can dream up.

**Clara Young** [00:02:26] The Jamie Hyneman Centre. It's quite unusual because it has not only, you know, a sewing machine and welding machine and all that, but it also has very big machinery is like extruders, which is quite unusual.

**Jamie Hyneman** [00:02:39] Yes and no. Clarify. But, what's interesting about the set up here, and as far as I'm aware is unique, is that the JHC or Jamie Hyneman Centre, everybody should have a building with their name on it, is kind of sort of based on M5, my shop in San Francisco where MythBusters was shot. So, there's a lot of basic stuff, the lathes and milling machines and drills and saws and stuff that you can, you know, you can do carpentry with or you can machine metal with and things like that. So, it covers that broad spectrum from metals and wooden things to sewing fabrics are doing other things.

**Jamie Hyneman** [00:03:22] But outside of the JHC is a facility that is enormous and has very expensive, very specialised equipment, very advanced equipment, you know, gigantic machines for testing materials strengths and for testing things that they might want to extrude, like reinforced plastics. One of the projects that I saw in there, they're experimenting with recycling plastic bottles and things like that and reinforcing fibres to them to use them for other purposes. And so, what that means is that a student going into the JHC who shows promise, might well find that as a conduit to get into these other facilities that are right there, that are partnering with industry at large and doing R&D to develop new and innovative products. And this is also a conduit, of course, for those students to find jobs and careers in those areas. The JHC

is very accessible to anybody. Any beginning student that comes in can be shown the safety and, you know, basic tool operation. And if they have an idea, they can make the thing. But then this is also this career path into a much, much larger world that that I was surprised to see when I came here. I thought it was just a rapid prototyping centre. But that puts it into a much larger picture. That's very important.

**Clara Young** [00:04:57] We were also talking yesterday about giving students access to the tools and also to all these machinery. They gain a practical knowledge of how to build and how to design that a lot of engineering students might not have, that are much heavier on theory. I don't know if you could go into that?

**Jamie Hyneman** [00:05:18] That's an excellent point. And it's not to be underestimated. It's one thing to be hands on and so on. But, you can go to a lot of universities and get a mechanical engineering degree and not know how to do a damn thing other than sit at a CAD programme and a computer. And you may well be able to design things and have them manufactured as a result of that engineering degree. And you might be able to do a fairly good job at it. But compare that to somebody that has practical experience where they've, you know, broken things and they've tried something and failed and they've seen what they can get away with and what they can't. They have seen how these tools work and how the materials that they work with work. And this gives them a way of internalising all of these things so that when they do get into a situation where they're engineering something using advanced technologies, they know right from the top to the bottom what they're doing and can do a much, much better job. It will allow them to do things like innovate, create new things, instead of just sit there and use the tool.

**Clara Young** [00:06:30] Right. So it makes easier the path from ideas, ideas in your head to innovations. And also in a practical sense, it helps bridge that gap that so many students, or young people, face of leaving university and finding a job. And that there's a lot of thinking going on about that right now at government level, businesses and schools.

**Jamie Hyneman** [00:06:55] And the thing is that this is not necessarily something new. I mean, historically and before we had universities and things, I would assume we had apprenticeships for various crafts or skills. And you could look at that in something like, yeah, this is a train thing that helps them learn a particular craft. But as I described, it's more than that. These kinds of Hands-On experiences over a broad range build a foundation of knowledge that is much different than something specialised like an apprenticeship does. And what that does is it allows a person to understand and deal with things that they have no direct experience with. So they're able to make intuitive leaps about a thing because of the breadth of their hands on experience. So if you're specialised, which is often what a university will do for you, specialise your education in something like mechanical engineering, you may well have a certain ability within a linear direction to do something that they've decided or you've decided that you want to know how to do. But what happens when there's something that you haven't been taught about? If it's not within that linear direction, what are you going to do?

**Clara Young** [00:08:14] That's part of the whole ethos of this laboratory, which is go there, experiment, kind of play, right?

**Jamie Hyneman** [00:08:22] Exactly. It's what children do when they're learning. And just because we're adults and we've got all this complicated crap that we have to learn. doesn't mean that our minds don't want to work the same way. What a child does by doing all this random stuff when they play is that they are assembling a broad foundation of knowledge about how the world works. And then if they've done a good job of that, when there's something that reality throws at them, which it's going to, they have recourse to make those intuitive leaps. So this is kind of a higher learning version of that that will allow them to innovate and do things other than recite what they've been taught in their class.

**Clara Young** [00:09:04] Dr. Jamie Hyneman, I'm going to finish this conversation with a question about hero projects.

**Jamie Hyneman** [00:09:11] Well, it took me a couple of years to clean up the mess that they left in my shop, but that's all been done. I looked at it like, you know, like joining a gym. I lost a few pounds and got everything back in the proper boxes. And now I'm using that facility for R&D myself. I'm doing stuff primarily for safety purposes. I am working for the military, but these are things to keep soldiers safe. One of the favourite projects that I've had and I'm enjoying this now because they're, these are like yearlong or more projects that I've taken on as opposed to having to do stuff on television that I had to turn around in a couple of weeks. So, I'm able to sink my teeth into things, and for me, that means you go into the shop, lock the door, crank the music and come out with a thing a year later, as it were. And the favourite project that I have now that has just delivered is a firefighting vehicle that's made to deal with some of these big fires that are starting because of global warming, in particular in California here now in twenty eighteen. We've had a number of enormous fires that are unprecedented. And so they're doing things that firefighting industry has not and doesn't have any answers for. They try to do damage control and that's about all they can. But this device that I built is basically a converted armoured personnel carrier that is no longer armoured. And it has the ability because of what modifications I've put on it, to go into a fire. So if somebody has not been evacuated that was in front of the path of a fire, instead of not being able to risk firefighters lives to get them, we can send this thing in. It can exist in a fire for as long as it takes to get them out of there. We may even be able to protect neighbourhoods that are in the path of the fire in the first place. And eventually, if we have enough of these things, we might even be able to create what I refer to as a mobile firebreak, which means that we would put these things in front of the fire and they would take the energy of the fire down over time. You know, kind of like catching a big fish with light tackle. You don't want to do it all at once or you're going to lose. So this is a this is a whole thing that didn't exist before. And we're about to send it into a fire. I have high hopes for it.

**Clara Young** [00:11:56] Well, I'm sure the city is eager to put that into use, given everything that's going on. So, well, thank you very much, Jamie, for your time. And thank you for listening to OECD podcasts.

**Jamie Hyneman** [00:12:08] Well, thank you. And thanks for having OECD. It sounds like a noble enterprise

**Clara Young** [00:12:14] We try to be. Thank you.