



Feed the Future Country Fact Sheet

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Teaching the Skills for Innovation in Agriculture



Erin McGuire/UC-Davis

Instructor Jorge Espinosa demonstrates how to recycle an old saw blade with college students at the Zamorano Panamerican Agricultural School for a D-Lab project in Honduras.

How do you teach innovation? A partnership under Feed the Future is empowering university students to solve real-world agricultural problems while learning the nuts and bolts of how to innovate.

“We set out to teach the students some skills in metal work, the design process and appropriate technology—and they end up learning empowerment and teamwork,” says Jorge Espinosa, with the Zamorano Panamerican Agricultural School in Honduras.

Espinosa is an instructor at Zamorano’s version of D-Lab, a concept course [originally started at the Massachusetts Institute of Technology](#) that uses dialogue, design and dissemination to drive development. That model has since been replicated and adapted for students at multiple universities.

Espinosa’s work with D-Lab started at the University of California, Davis, where Kurt Kornbluth leads students through two D-Lab classes each year that result in feasibility studies and prototypes, with a focus on external clients’ needs. One of Kornbluth’s clients was the Feed the Future Innovation Lab for Horticulture, led by the University of California, Davis, which was seeking to address challenges such as helping smallholder farmers keep fruits and vegetables cool while transporting them to market.

“After serving as a D-Lab client, we saw potential value in offering D-Lab courses to students at universities in Honduras and Thailand where we have Regional Centers that act as hubs for our work,” says Britta Hansen, of the Horticulture Innovation Lab. “Not only could D-Lab provide skills to students – tomorrow’s agricultural leaders – but it could also support our partners in adapting new solutions to local farming challenges.”

Each university that offers D-Lab must adapt the course to meet its needs and standards. With its learn-by-doing ethos, Zamorano seemed like a good match for D-Lab.

“[Zamorano] is very hands-on, but the curriculum can be mechanical, like a recipe. I think that is the magic of D-Lab, that the students are not given recipes,” Espinosa says. “We have adapted it to not be a class, but a work experience – a learn-by-doing module, Zamorano style.”

A total of 70 Zamorano students have participated in six D-Lab modules, intended to foster student creativity and provide a space to make mistakes and learn from them.

In a curriculum review, 71 percent of Zamorano's D-Lab students reported they would "definitely respond more creatively" when approaching future problems and 87 percent of students reported being very comfortable with presenting new ideas in D-Lab. Overcoming an aversion to failure proved to be an essential component of the course: on average, students built more than three prototypes for every one prototype that worked as expected, with 80 percent learning "very much" from failed prototypes.

"What I am taking [from D-Lab] is the magnificent experience of practically inventing something," says one student. "Like [Espinosa] said to us, 'There are no mistakes, there are only opportunities to develop.'... You always learn in the end."

In addition to the D-Lab course at Zamorano, the Horticulture Innovation Lab team has started a D-Lab at Kasetsart University in Thailand, with 29 students in its first class. The Horticulture Innovation Lab Regional Centers continue to support and improve D-Lab courses at these universities.