

Online Education Venture Lures Cash Infusion and Deals With 5 Top Universities

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SAN FRANCISCO — An interactive online learning system created by two Stanford computer scientists plans to announce Wednesday that it has secured \$16 million in venture capital and partnerships with four major universities.

The scientists, Andrew Ng and Daphne Koller, taught free Web-based courses through Stanford last year that reached more than 100,000 students. Now they have formed a company, Coursera, as a Web portal to distribute a broad array of interactive courses in the humanities, social sciences, physical sciences and engineering.

Besides Stanford, the university partners include the University of Michigan, the University of Pennsylvania and Princeton.

Although computer-assisted learning was pioneered at Stanford during the 1960s, and for-profit online schools like the University of Phoenix have been around for several decades, a new wave of interest in online education is taking shape.

“When we offer a professor the opportunity to reach 100,000 students, they find it remarkably appealing,” Dr. Koller said.

Last fall a course in artificial intelligence taught by Sebastian Thrun, then at Stanford, and Google’s director of research, Peter Norvig, attracted more than 160,000 students from 190 countries.

The free course touched off an intense debate behind the scenes at Stanford, where annual tuition is \$40,050. Ultimately, the 22,000 students who finished the course received “certificates of completion” rather than Stanford credit. And Dr. Thrun, who also directs Google’s X research lab, left his tenured position at Stanford and founded a private online school, Udacity.

Coursera (pronounced COR-sayr-uh), based in Mountain View, Calif., intends to announce that it has received financial backing from two of Silicon Valley’s premier venture capital firms, Kleiner Perkins Caufield & Byers and New Enterprise Associates. The founders said they were not ready to announce a strategy for profitability, but noted that the investment gave them time to develop new ways to generate revenue.

One of their main backers, the venture capitalist John Doerr, a Kleiner investment partner, said via e-mail that he saw a clear business model: “Yes. Even with free courses. From a community of millions of learners some should ‘opt in’ for valuable, premium services. Those revenues should fund investment in tools, technology and royalties to faculty and universities.”

Both founders said they were motivated by the potential of Internet technologies to reach hundreds of thousands of students rather than hundreds.

“We decided the best way to change education was to use the technology we have developed during the past three years,” said Dr. Ng, who is an expert in machine learning. Previously he said he had been involved with Stanford’s effort to put academic lectures online for viewing. But he noted that there was evidence that the newer interactive systems provided much more effective learning experiences.

He and Dr. Koller dismissed the idea that companies would “disintermediate” universities by spotting the brightest talents among students and hiring them directly.

Coursera and Udacity are not alone in the rush to offer mostly free online educational alternatives. Start-up companies like Minerva and Udemy, and, separately, the Massachusetts Institute of Technology, have recently announced similar platforms.

In December, M.I.T. said it was forming MITx under the leadership of L. Rafael Reif, the university’s provost, and the computer scientist Anant Agarwal. The program began offering its first course, on circuits and electronics, in March. As at Stanford, students receive a certificate of completion but not university credit.

Unlike previous video lectures, which offered a “static” learning model, the Coursera system breaks lectures into segments as short as 10 minutes and offers quick online quizzes as part of each segment.

Where essays are required, especially in the humanities and social sciences, the system relies on the students themselves to grade their fellow students’ work, in effect turning them into teaching assistants. Dr. Koller said that this would actually improve the learning experience.

The Coursera system also offers an online feature that allows students to get support from a global student community. Dr. Ng said an early test of the system found that questions were typically answered within 22 minutes.

He acknowledged that there was still no technological fix for cheating, and said the courses relied on an honor system.

Dr. Koller said the educational approach was similar to that of the “flipped classroom,” pioneered by the Khan Academy, a creation of the educator Salman Khan. Students watch lectures at home and then work on problem-solving or “homework” in the classroom, either one-on-one with the teacher or in small groups.

Dr. Ng said he had already vastly extended his reach by using the Internet as a teaching platform. He cited one student who had been in danger of losing his job at a large telecommunications firm; after he took the online course, he improved so much he was given responsibility for a significant development project. And a programmer at the Fukushima nuclear power plant in Japan was able to immediately apply machine-learning algorithms to the crisis that followed the earthquake and tsunami last year.

This article has been revised to reflect the following correction:

Correction: April 26, 2012

An article on April 18 about Coursera, a start-up that seeks to distribute interactive online courses, erroneously included one university on a list of its academic partners. While Princeton, Stanford, the University of Michigan and the University of Pennsylvania are partners with Coursera, the University of California, Berkeley, is not. (It has been experimenting with Coursera's platform but has no formal partnership.)

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