Science's Next Wave Forum Asks: M.S. or Ph.D.?

In today's highly competitive job market, young scientists must think carefully about which degree to pursue: the M.S. or the Ph.D. Which, they ask, will provide better job opportunities? That question is the subject of an open discussion forum on *Science*'s Next Wave, beginning on November 8 and running until January 3. In the forum, seven people with experience in the job market give their perspectives on how to make the decision: master's or doctorate.

Although their perspectives vary, most agree on one thing: Before you can make a good decision, you should settle on an overall career direction. "You need to set your sights on where you want to be," says David Jensen of Search Masters International. Jensen, who is one of the presenters in the Next Wave "Going Public" forum, says "These days there are better career tracks for people with an M.S.," but he adds, "if you'd like to remain in research, get a Ph.D."

As someone who makes a living matching people and jobs, Jensen knows the market well. And many people out there second his opinion: They are getting master's degrees because they feel job opportunities are better for the M.S.-level scientist. Gustavo Seluja, a bioinformatics associate at the National Center for Genome Resources and another forum presenter, is one who took that route. Seluja graduated from the University of New Mexico in September 1995 with a master's degree in biomedical sciences. He had started out in a Ph.D. program, but as his oral exams crept closer he began to reevaluate. "I had gone to school more for the training than the degree," says Seluja. "In 1995, just before I began planning the oral qualification exam, the laboratory where I worked failed to secure grant renewal."

Reinforcing this harsh wake-up call, Seluja began noticing "articles in scientific journals such as *Science*" that predicted "a bleak outlook of employment opportunities for Ph.D.s." "I was forced," he says, "to face the dilemma of what you want versus what the world wants." Seluja says that deciding to get the master's degree as opposed to the doctorate was difficult, once he started looking for jobs he "felt good about it." "With a master's," he says, "you get good training and increase your technical skills, both of which make you very marketable."

Seluja made a course correction in midstream. But some scientists have their sights set on a master's from the time they enter graduate school. Alan Stonebraker, another forum participant, is one of them. Stonebraker is design editor of *Dragonfly* magazine, a children's science publication. He graduated from the State University of New York, Buffalo, in 1995 with a master's in anatomical sciences. "I never had any intention of pursuing a scientific research career, so I never even considered getting a Ph.D.," says Stonebraker. "I wanted to go into the M.S. program because I thought it would give me a good background for scientific or medical illustration."

And it has. His technical training in science, he says, has been "very helpful" in enabling him to understand the subjects he illustrates.

Despite the marketability of a master's, the degree is not without problems. Many Ph.D. programs give master's degrees as consolation prizes to students who drop out or don't make it through qualifying exams. As a result, "it's hard to discriminate between those people who actually got an M.S. from a master's program and those who dropped out of a Ph.D. program," says Stephen Ekker, an assistant professor of biochemistry at the University of Minnesota and a forum participant. "There's a big difference between someone who got an M.S. after doing a thesis and passing qualifying exams and someone who received an M.S. as a consolation prize after being asked to leave a Ph.D. program."

That isn't the only potential drawback of a master's degree. Another is that it often is not adequate to provide the basis of an independent research career. Some scientists who stop after getting a master's degree find themselves returning to school for a doctorate after having been in the work force for a while. Lori Moilanen, a Ph.D. candidate at the Duke University School of the Environment, is an example. Moilanen got her M.S. in plant biochemistry in 1976 from the University of Alberta and worked in technical positions in academic labs, until "I realized I had taken the M.S. about as far as I could take it." For one thing, she says, she had "reached a cap" on her salary. For another, "I found that I was being asked to assume more responsibility, but I wasn't given the authority that went with it."

In 1992 Moilanen returned to Duke for a Ph.D. In spite of the current job difficulties of Ph.D.s, she says she isn't too concerned: "If I don't limit myself to academic jobs, I feel confident I can find a job someplace."

For some who get Ph.D.s in science, employability isn't the main motivation; the goal is the satisfaction that comes from scientific research. Marnie Halpern, a staff scientist at the Carnegie Institute of Embryology, says she got her Ph.D. in biology because she "couldn't imagine doing anything else but research." In her view, "you can't let the job idea consume you; I see a lot of people obsessing about it, and they lose the joy of doing science."

For most of those entering the job market now, though, employability is right up there with the satisfaction of doing science as a career motivator. As the academic job market tightens, many Ph.D.s will find themselves working outside of academia, in new contexts, and some say that requires rethinking why you are getting a doctorate in the first place.

Jeff Payne, Ph.D. and deputy director of the Office of Policy and Strategic Planning at the National Oceanic and Atmospheric Administration, says "people need to think more broadly about skills they acquire with the Ph.D." Payne, who is also participating in the forum, adds that "the analytical and problem-solving background you acquire" in getting a Ph.D. is important because it's transferable to other contexts outside of research. For example, says Payne, in solving policy problems, although "you may have historical precedents, new and unique solutions are required." This is similar, he says, to the world of the research scientist, who must come up with innovative solutions to complex problems.

With the current job trends in science, young scientists must think more carefully than ever about which degree to pursue. It's a tough question, and one reason is that there obviously is not only one correct answer. These degrees have very different pluses and minuses. To find out which is the best fit for them, young scientists must ask themselves two things: What do I like to do, and what direction do I want to take my career? Once these questions are answered, the choice becomes simpler—as you will see by tuning in to the Next Wave "Going Public" forum: "Should I Get an M.S. or a Ph.D.?"

–Nicole Ruediger

This is the seventh in a series of pages in *Science* linked to features on *Science*'s Next Wave, the AAAS/*Science* Web site for young scientists (http://www.nextwave.org). This story highlights a discussion forum entitled "Should I Get an M.S. or a Ph.D.?" in the "Going Public" section of the Next Wave. The forum begins 8 November and remains open for discussion until 3 January.