Posted on Sun, Mar. 04, 2007 email this print this

Computer-science slide

Misconception of job prospects part of enrollment drop

By Krista J. Stockman
The Journal Gazette

A life working with computers conjures up images of sitting in a cramped cubicle hunched over a computer or fiddling with wires in a dimly lit room.

In the corporate world, those people are often known as “computer monkeys.”

The perception is that it’s a dull life, a geeky life, a life few people want.

There is also a perception that there are few jobs available in computer-related fields, which couldn’t be further from the truth, said Jeffrey Vitter, dean of the College of Science and a computer science professor at Purdue University.

That view is showing up in the number of people studying computer science in college and entering computer-related fields. Although little can be done these days without the assistance of computer technology – creating more jobs for those with computer skills – the number of people being trained to work in the field is dropping nationwide.

“The last five years, enrollments have dropped by half,” Vitter said. “Nationwide, there are more jobs in the U.S. in computing than there ever have been, even at the height of the dot-com craze. The 10-year count for growth in new jobs is that there will be 1.4 million net new jobs over a 10-year period. That’s the hottest growth area of any area at all in the science and engineering fields.”

Laura J. Gardner/The Journal Gazette

Monique Anderson, director of software engineering at Indiana Tech, conducts a class with freshmen students, from left, Brett Hanson, left, Trevin Forkert, and Tommy Rodda. The class was in the process of writing software for identification cards.

Declining interest

The number of students studying computer science fields has dropped in recent years after a boom in the 1990s. Experts attribute it to a lack of understanding of the jobs available. The numbers at all the schools reflect the number of students enrolled in computer science majors, except for Indiana University, whose numbers reflect computer science graduates.

School	2002	2003	2004	2005	2006	% change
Ball State	NA	253	NA	NA	154	-39%
Indiana Tech	106	133	135	127	127	20%
IPFW	367	332	302	291	274	-25%
*Indiana University	62	69	55	47	NA	-24%
Ivy Tech – Fort Wayne	360	323	279	244	208	-42%
Ivy Tech – Statewide	4,338	3,819	3,330	2,894	2,376	-45%
Purdue	916	747	609	522	550	-40%
Nation	79,103	66,441	64,920	56,450	NA	-29%

*Numbers reflect computer science graduates

Source: Schools, Computing Research Association The Journal Gaz

Source: National Center for Health Statistics

Vitter said the job growth presents a remarkable opportunity for students to get into a field where the starting salary is often $50,000 to $80,000 a year, but they have to be encouraged to explore computer-related fields.

“By far, the biggest reason that kids are not majoring in computer science is that their parents are telling them not to. Their parents think there are no jobs,” he said. “What I would say to all the parents is if you want your kids to tap into great jobs that are intellectually rewarding and financially rewarding, as well, get them plugged into computer science or computer engineering or information technology. What you can do with those degrees is really mind-boggling.”

Expert geeks

The software engineering students at Indiana Tech know their friends think they’re geeks, and their parents understand little about their future careers. But they also know they are the first people their friends turn to when they need help with technology – a fairly frequent occurrence.

“I get a lot of crap from the guys on how much time we spend in (the computer lab),” freshman Tommy Rodda said. “If we’re not doing homework because we have to, we’re doing homework because it’s fun.”

In the lab, the students sit around a conference table each with their own laptops. Some have Dells, others have Macs; some use Windows exclusively, others use Linux. Which system is better always makes for a lively debate, including threats of throwing the inferior system out the window (no pun intended).

Around the perimeter of the room are more computers, including a super computer so powerful that the students are still just learning its potential.

The students spend hours in Room 103 in the Zollner Engineering Building, and they love it.

Rodda has known for a long time that he wanted to do something with computers as a career.

“I couldn’t get away from them,” he said. Although he didn’t know exactly what he wanted to study, he knew he was interested in video games, as well. Studying software engineering gives him the flexibility to enter any number of computer-related fields when he graduates.

While he is interested in entering the gaming world, his classmate Brad Taylor is interested in using his degree in medical technology or military systems. Freshman John Gallias is thinking about developing education software and working as a technology consultant with schools.

“Every job relies on a computer now,” Taylor said.

Monique Anderson, director of software engineering at Indiana Tech, said most people don’t realize the versatility that comes with a computer degree, particularly software engineering.

“You can do anything,” she said. “You can go work for places like Google, Microsoft, Yahoo, gaming, Mercedes-Benz. You can pretty much take it and spin it into anything you want to.”

The fear that it will lead to a job sitting in a cubicle eight hours a day typing code is a turnoff, Anderson said. That is why schools such as Indiana Tech are trying to show students that working with computers isn’t all about being condemned to isolation in a dark corner.

Classes include teaching students how to work in teams on long-term projects. And Indiana Tech is developing a degree program that will start in the fall in computer security and investigations, which blends criminal justice and information security.

Another turnoff to entering computer science programs is the impression that the work is too difficult.

“They’re intimidated,” Rodda said. “(They think) it’s way too much work and not enough play. It’s really the exact opposite.”

Starting young

Getting students interested in computer-related fields starts many years before they enter college, experts say. While children and young adults may have a natural interest in computers, that doesn’t mean they realize they can tap into that interest and make a career out of it.

Part of the problem is schools don’t integrate technology into the way students are taught, said Robert Appelman, associate professor in the Instructional Systems Technology Department in Indiana University’s School of Education.

“There seems to be a sense in the curriculum in K-12 that technology is still PowerPoint and the Web,” he said. “It’s not a curricular issue in terms of courses they need to provide high school students or even middle school students.”

Appelman said schools need to do a better job of integrating technology into all classes, much as they do with reading.

“It’s a general attitude that the K-12 environment, except for vocational (programs), pretty much categorizes anything to do with a computer to the tacky, geeky side,” he said. “They completely ignore art and design that fuel all the other industries.”

East Allen County Schools is working to make sure students are exposed to computer careers, whether they think they might be interested or not. All students are required to take a computer course before graduating, and those who know they are interested can take in-depth courses, including training on Cisco computer networks, said Andy Melin, assistant superintendent for secondary education and technology.

“What we’re trying to do in our school system is if people feel computer science is something only computer geeks do, they have to understand that the whole world is going to computer-based technology to conduct business,” Melin said. “For just about any job you have is going to require some level of computer knowledge.”

But not all schools are at that point, yet.

Rodda and Taylor, who graduated from North Side and Snider high schools, respectively, said they had only one higher-level computer class in school, and they often had to help their teachers with the lessons.

Gallias said his high school in Jackson, Mich., was a career-focused school, but there wasn't enough focus on high-tech jobs.

"K-12 education needs to stress these jobs," Gallias said.

The three had enough interest of their own to pursue computers as a career, but not everyone does.

"Students are inherently interested in it, but we need to do a much greater job, especially to get the message out to girls and women, that this is a field where there's interaction, there are opportunities to do very, very interesting things, to work in groups and collaborate on interesting projects," Purdue's Vitter said. "We will be at a competitive disadvantage if we cannot fill the job pool."

Girls, especially, tend to think that a future in computers is not what they want, because they don't realize there are opportunities to work in teams on interesting challenges, he said.

"We've got to get the word out to parents and especially young kids," Vitter said. "This is not just working in an office and rebooting computers."

In Indiana, specifically, there will be a number of jobs in the health industry, Vitter said.

"Information in health care is everything," he said. There will be opportunities to design information systems for hospitals, doctors, pharmaceutical manufacturers and patients, including using a patient's DNA to determine which drug or course of treatment will be most effective.

"All of this is going to be quite exciting in the health care industry," Vitter said. "We're graduating students in the tens of thousands whereas the job opportunities in IT will number about one-and-a-half-million new jobs over 10 years. … If you can hit that job market now, you're going to be in especially high demand."

kstockman@jg.net

Declining interest

The number of students studying computer science fields has dropped in recent years after a boom in the 1990s. Experts attribute it to a lack of understanding of the jobs available. The numbers at all the schools reflect the number of students enrolled in computer science majors, except for Indiana University, whose numbers reflect computer science graduates.

School+2002+2003+2004+2005+2006+% change

Ball State +NA+253+NA+NA+154+-39%

Indiana Tech +106+133+135+127+127+20%

IPFW +367+332+302+291+274+-25%

* **Indiana University** +62+69+55+47+NA+-24%

Ivy Tech – Fort Wayne +360+323+279+244+208+-42%

Ivy Tech – Statewide +4,338+3,819+3,330+2,894+2,376+-45%

Purdue +916+747+609+522+550+-40%

Nation +79,103+66,441+64,920+56,450+NA+-29%*Numbers reflect computer science graduates

Source: Schools, Computing Research Association