

# PERSPECTIVE

## How Can Human Factors Education Meet Industry Needs?

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**T**he days of an industry hiring a large number of human factors/ergonomics professionals to perform all human factors analysis, development, and testing are over. Today, industry is looking to developers (engineers and programmers) to do their own human factors. Whether or not we as professionals like, advocate, endorse, support, condemn, or ignore it, the fact is that industry will continue in this trend for the foreseeable future.

One might correctly argue that inferior products will be developed as a result of this trend. Arguing will not reverse it. Neither will general claims and statements that this change will produce inferior products. Scientific evidence arguing either way is virtually impossible to obtain, given the complexities of product development.

What it *does* mean is that human factors educators must cultivate developers who have a good sense of the science – developers who can design and test basic products effectively but who also know when to call for human factors expertise.

The days of industry hiring a human factors expert who does not understand the company's product line are also over. It is no longer the case, as it was in the late 1980s and early 1990s, that competent human factors professionals could relatively easily secure employment with a company willing to train them in the company's business. Employers expect applicants to have a command of both human factors and the issues and technologies associated with their company's product line.

To cope with both of these challenges, three major changes in human factors education are required if we

are to continue to produce graduates who are employable in industry.

First, human factors departments must become more like math, statistics, and English departments in that we must offer courses to all business and technology students and encourage enrollment. Upon completion of two or three courses, students must be able to do run-of-the-mill human factors development and testing on their own. The student must be able to recognize complex problems that require expert support. By offering these courses, we will improve product human factors by having trained people doing the work rather than untrained people. We will also introduce a grass-roots effort to secure human factors expert opinions when essential (and, as an added benefit, increase employment opportunities for ourselves). Educators must also be prepared to work hard to promote these courses to the engineering and business departments.

Second, human factors departments must offer minors to students majoring in engineering and business disciplines, especially at the graduate level. Again, we need to get human factors education out to industry. Students pursuing master's or Ph.D. degrees in business or engineering are likely to become leaders in industry. They are likely to make key product design, marketing, and purchasing decisions. Making these people competent in human factors will advance the field. Having them not competent in the field (but thinking that they are) can lead to very bad product designs, as well as to a very gloomy employment picture for the human factors professional of the future.

Third, students majoring in human factors/ergonomics at any level should be encouraged to have a strong minor, as well as an internship, co-op, or work-study assignment, in the technical field in which they want to work (e.g., programming or engineering). This is becoming more and more necessary to secure employment. Furthermore, this knowledge is a real asset on the job. The human factors professional who can understand the problems faced by other professionals in the workplace, speak the language of other technical professionals, and help them with their work will inevitably be more successful at implementing human factors in the company's product line than the human factors professional who lacks these skills. The human factors professional who also learns how to manage, develop, and deliver will have increased opportunities to achieve management and executive positions.

Making these changes would require a considerable investment on the part of many human factors education programs. But not making them could lead to an increasing number of unemployed graduates and a decrease in the presence of human factors/ergonomics professionals in society.

*The opinions expressed are the author's and do not represent an official position of the IBM Corporation or any other organization. This is adapted from an article that appeared in EPGNEWS, the newsletter of the HFES Educators' Professional Group.* ■