Placement Opportunities for Human Factors Engineering and Ergonomics Professionals in Industry and Government/Military Positions

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During the period from January 2002 through December 2002, the Placement Service of Human Factors and Ergonomics Society distributed announcements describing 141 new positions available for human factors and ergonomics professionals. This paper describes placement opportunities for HF and ergonomics professionals in Industry and Government/Military (N=117). The attributes of the position descriptions examined include: employment sector, major field of study, degree requirements, required work experience, salary, geographic location, travel, and areas of expertise.

The type of industry seeking most employees was Consulting at 32%. The most frequently specified major field of study was Human Factors (N=73). Forty-nine percent of positions describe the master's degree as the minimum requirement. The geographical areas with the most jobs were East Central (N=20) and the Mid Atlantic (N=17). Finally, the area of expertise most frequently requested by employers was Human Computer Interaction (N=23) and Human Factors/Ergonomics (N=32) was the most commonly specified job expertise/function.

During the period from January 2002 through December 2002, the Placement Service of the Human Factors and Ergonomics Society (HFES) posted job listings describing 141 new positions available for human factors and ergonomics (HF&E) professionals. Only job postings that could be accessed during the 2002 calendar year were used for this analysis. Employers completed a "Job Listing" form, provided by the HFES Placement Service, on which they provided information on a variety of factors including: employment sector, major field of study, degree requirements, required work experience, salary, geographic location, and area of expertise required. The analysis of these data is the basis for this article. Please note that only data obtained for new positions in 2002 are analyzed in this article. Thus, positions listed prior to January 2002, which were still listed as positions available in the period following January 1, 2002, were included. Additionally, this analysis is not a complete listing of all the positions available to HF&E professionals. Related positions are also listed with other placement services. This paper describes placement opportunities for HF&E professionals in Industry and Government/ Military positions, which averaged 10 positions a month (a decrease of five from 1999, which averaged 15 positions a month). Excluded from this analysis were academic positions (N=24, an increase of 11 from 1999).

RESULTS

Placement Opportunities by Sectors

The 117 positions discussed in this paper were categorized into two employment sectors: Industry (82%) and Government/Military (18%). The Industry sector decreased 10% over from 1999 (Schoeling, Goliber, & Moroney, 2000), while Government/Military increased (10%). The number of positions available in industry was 201 in the 1999 survey (Schoeling, Goliber, & Moroney, 2000), and 117 in this analysis. This decrease is most likely due to the current recession. The positions were classified by the authors according to industrial sector by type of industry (see Figure 1). Industrial sector was based on the type of industry described in the position announcement. Some classifications were made easily (New Piper Aircraft Inc within Aviation, Motorola within Telecommunications, US Army Research Institute within Military) while others (Aon Corporation - as an example) were more difficult. Positions in organizations that employ human factors specialists and ergonomists as consultants in a variety of areas (Klein Associates, Human Factors International, Inc) were classified as consulting organizations. On the other hand, positions requested in specific areas (e.g. Medical) were classified by that organization's type of industry.



Figure 1: Placement opportunity by type of industry (N=117)

Most (N=33) of the positions were classified as Consulting, with Government/Military following (N=15), Medical (N=13) positions, and Aviation/Aerospace (N=11).

Positions in Consulting accounted for 4% in the 1999 survey (Schoeling, Goliber, & Moroney, 2000), while in this survey consulting positions accounted for 28%. Government/Military only accounted for 5% in 1999, while in this survey Government/Military accounted for 13%, an increase in 8%. This increase may be due to the events of September 11, 2001. Similarly, Aviation/Aerospace accounted for 8% in 1997-1998 (Cummings-Hill, Means, Harrison, and Moroney, 1999), and 6% in 1999 (Schoeling, Goliber, & Moroney, 2000). In this survey, Aviation/Aerospace accounted for 9% of the positions listed.

Major Field of Study

Each employer was asked to list any relevant major fields of study required. Several different major fields of study were listed for each position. As illustrated in Figure 2, the most frequently requested major field of study was Human Factors (N=73). The second most frequently requested field was Psychology (N=53). This can be explained by the variety of majors that constitute the human factors/ergonomics field. Other frequently requested major fields of study included Cognitive/Experimental Psychology (N=42) and Engineering (N=40). However, other majors, such as Safety (N=5) and Industrial Hygiene (N=2), were not frequently requested by employers.



Figure 2: Major field of study requested (N=117). Note: More than one major field of study was usually specified for each position.

Minimum Degree and Minimum Years Experience

The minimum degree requirements as requested by the employer resulted in Master and Bachelor degrees accounting for 74% of the 117 positions (83% in the 1999 survey, 90% in the 1997-98 survey). A master's degree was specified for 49% of the positions (down from 53% in the 1999 data). Table 1 provides a more detailed description, broken into type of degree by employment sector: Industry and Government/Military. The median years of experience in Industry for all types of degrees range from 0 to 15 in Industry and from 0 to 2 for Government/Military.

Employment	Degree	Years of Experience	
Sector	Required	Desired	
		Median	Range
Industry	Bachelor (N=25)	4.5	0 to 15
(N=96)	Master (N=53)	3	•0 to 10
	Doctorate (N=16)	0	2 to 10
	Not Specified (N=2)		N/A
Government/	Bachelor (N=5)	0	0 to 0
Military	Master (N=4)	0	0 to 2
(N=21)	Doctorate (N=8)	0	N/A
	Not Specified (N=4)		

Table 1: Years of Experience and degree requirement for each employment section

Salary

Sixty-seven percent of the employers did not specify a salary. Within the 39 positions for which salary was specified, the salaries ranged from a low of \$30,000 to a high. of \$121,000 (compared to a range of \$33,000 to \$95,000 in 1999, \$33,000 to \$100,000 in 1997-98 and \$35,000 to \$100,000 in 1996-97). Readers interested in additional details on salary are advised to consult the salary surveys conducted by Lovvall (1997).

Geographical Location

Compared with last year's survey, this year's data indicate decreases in the number of positions announced in the Northeast (-10), Northwest (-17), Southeast (-4), Mid-West (-2), Mid-Central (-11), New England (-8), California (-32), and East Central (-3). On the contrary, an increase in the number of positions available was noted for Southwest (+1) and Mid-Atlantic (+2). See Figure 3 for more information.

Areas of Expertise and Job Expertise/Function

The data used for 'area of expertise' were obtained from a job description of required skills. Employers were allowed to specify as many areas of expertise as necessary, while in previous years up to six areas of expertise could be specified for each position. These areas of expertise were not prioritized; therefore it was impossible to assess the primary needs of the employer. Figure 4 specifies the number of requests for a particular expertise. The seven areas of expertise requested less than five times were not reported in Figure 4. These areas include: medical devices (N=4), communication (N=3), medical information systems (N=3), training (N=2), audio/visual media (N=1), individual differences (N=1), and environmental design (N=1).



Figure 3: Geographical location of placement opportunity for Industry and Government/Military (N=117)



Figure 4: Areas of expertise requested for position in Industry and Government/Military (N=117) Note: More than one area of expertise was usually specified for each position.

The 62 "other" classifications are indicative of the variety of skills required by human factors professionals, and it is difficult to account for all potential skill areas. The "other" classification included, but was not limited to, individual areas as diverse as task analysis, information architecture, biostatistics, contextual inquiries, and voice/telephony interfaces. Human Computer Interaction (N=23), usability testing and design (N=21), systems research and development (N=21), and testing and evaluation (N=19) accounted for the majority of the skills analyzed by these authors. In 1999, the majority of requested skills were in usability testing and design (N=99) compared to (N=21) this year. This shift may reflect the decline of the dot.com organizations of the late 1990s.

The data used to describe job expertise/function were obtained from a drop-down menu on the form completed by

employers. Employers selected one of the job expertise/functions from several categories based on the names of the HFES technical groups (TG) and their related subcategories within the (TG's). The employer's selection reflects the area of industry for which they are posting a position. For example, HCI was considered a major category with a usability subcategory. The positions are categorized by areas of responsibility. These data, summarized in Figure 5, further support the previously reported 'area of expertise' finding indicating that employers requested human factors/ergonomics (N=32) and human factors (N=19) categories most often. Other common expertise/functions requested by employers included industrial/occupational safety & health (N=10) and usability (N=7). Readers should note that employers were limited to selecting one of the categories reflecting the titles of HFES technical groups, thus an individual could be desired with expertise in safety while employed in an aerospace/Aviation industry.





CONCLUSION

The authors hope that they have provided a useful analysis of the placement opportunities available to human factors and ergonomics professionals seeking positions in Industry and Government/Military. It is also hoped that these data will influence the educational opportunities provided to HF&E students.

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