

Results of the Survey to Assess Member's Education and Training Needs

PART I. DEMOGRAPHIC QUESTIONS

Education

1. What is the highest degree that you have obtained?

Choice	Count	Percentage	Answered
B.S./B.A.	109	12.3%	
M.S./M.A.	330	37.1%	
Ph.D.	385	43.3%	
M.D.	15	1.7%	
Ed.D.	7	0.8%	
Other	43	4.8%	

2. List your major field of study and concentration if appropriate.

major _____
concentration _____

Current Certifications

3. If you hold any professional certifications in your field, please list them here:

4. How many years have you worked in the field of human factors/ergonomics (HF/E)?

years _____

Human Factors/Ergonomics Interests

5. Check up to three areas that best describe the area in which you work.

Choice	Count	Percent of Sample
Aerospace	176	18.9%
Aging	30	3.2%
Cognitive Engineering/Decision Making	169	18.1%
Communications	40	4.3%

Computer Systems	141	15.1%
Consumer Products	111	11.9%
Education	94	10.1%
Environmental Design	32	3.4%
Forensics	52	5.6%
Individual Differences	29	3.1%
Industrial Ergonomics	186	20.0%
Internet	44	4.7%
Macroergonomics	58	6.2%
Medical Systems	66	7.1%
Perception and Performance	119	12.8%
Safety	220	23.6%
Surface Transportation	85	9.1%
System Development	113	12.1%
Test and Evaluation	95	10.2%
Training	141	15.1%
Usability	233	25.0%
Virtual Environments	27	2.9%
OTHER	113	12.1%

PART II. YOUR SPECIFIC EDUCATION AND TRAINING NEEDS

Content Areas Important to Your Work

Q. 6a1

Anthropometrics, Biomechanics, or Work Physiology

Extremely Important	286	32.4%
Somewhat Important	366	41.4%
Not At All Important	232	26.2%

Q. 6a2

Automation

Extremely Important	269	30.6%
Somewhat Important	396	45.1%
Not At All Important	213	24.3%

Q. 6a3

Cognition

Extremely Important	542	61.3%
Somewhat Important	307	34.7%
Not At All Important	35	4.0%

Q. 6a4

Communication Technologies

Extremely Important	278	31.4%
Somewhat Important	453	51.2%

Not At All Important	153	17.3%
Q. 6a5		
Consumer Product Design		
Extremely Important	301	34.0%
Somewhat Important	352	39.8%
Not At All Important	232	26.2%
Q. 6a6		
Display Design, Graphical User Interface Design, or Signage		
Extremely Important	541	61.3%
Somewhat Important	279	31.6%
Not At All Important	63	7.1%
Q. 6a7		
Decision Making, Expert Systems, Knowledge Engineering, Artificial Intelligence		
Extremely Important	331	37.5%
Somewhat Important	394	44.6%
Not At All Important	158	17.9%
Q. 6a8		
Forensics		
Extremely Important	86	9.8%
Somewhat Important	199	22.6%
Not At All Important	595	67.6%
Q. 6a9		
Human Computer Interaction		
Extremely Important	502	57.0%
Somewhat Important	301	34.2%
Not At All Important	78	8.9%
Q. 6a10		
Individual Differences		
Extremely Important	261	29.5%
Somewhat Important	529	59.8%
Not At All Important	94	10.6%
Q. 6a11		
Industrial/Organizational Psychology		
Extremely Important	193	22.0%
Somewhat Important	448	51.0%
Not At All Important	238	27.1%
Q. 6a12		

Instructional Systems Design, Learning Technologies

Extremely Important	198	22.4%
Somewhat Important	457	51.8%
Not At All Important	228	25.8%

Q. 6a13

Macroergonomics

Extremely Important	142	16.1%
Somewhat Important	351	39.8%
Not At All Important	389	44.1%

Q. 6a14

Medicine and HF/E

Extremely Important	178	20.1%
Somewhat Important	312	35.3%
Not At All Important	394	44.6%

Q. 6a15

Neuroscience

Extremely Important	87	9.9%
Somewhat Important	297	33.8%
Not At All Important	494	56.3%

Q. 6a16

Stress, Fatigue, Sleep

Extremely Important	260	29.4%
Somewhat Important	431	48.7%
Not At All Important	194	21.9%

Q. 6a17

Sensation & Perception or Visual Performance

Extremely Important	377	42.9%
Somewhat Important	415	47.2%
Not At All Important	87	9.9%

Q. 6a18

Situation Awareness

Extremely Important	363	41.4%
Somewhat Important	355	40.5%
Not At All Important	158	18.0%

Q. 6a19

Social Psychology

Extremely Important	129	14.7%
Somewhat Important	487	55.5%
Not At All Important	262	29.8%

Q. 6a20

Special Populations (disabled, children, aged)

Extremely Important	173	19.7%
Somewhat Important	380	43.2%
Not At All Important	326	37.1%

Q. 6a21

Training

Extremely Important	342	38.7%
Somewhat Important	440	49.8%
Not At All Important	101	11.4%

Q. 6a22

Transportation (aviation, aerospace, or surface)

Extremely Important	294	33.4%
Somewhat Important	270	30.6%
Not At All Important	317	36.0%

Q. 6a23

Virtual Environments

Extremely Important	132	15.0%
Somewhat Important	381	43.3%
Not At All Important	367	41.7%

Q. 6a24

Warnings

Extremely Important	281	31.9%
Somewhat Important	423	48.0%
Not At All Important	178	20.2%

Q. 6a25

Workplace Design, Occupational Stress/Health

Extremely Important	346	39.3%
Somewhat Important	317	36.0%
Not At All Important	218	24.7%

Q. 6a26

Other content area that is important to my work (specify)

Skills Important to Your Work

Q. 6b1

Application of HF/E guidelines and principles

Extremely Important	594	67.7%
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Somewhat Important	252	28.7%
Not At All Important	32	3.6%

Q. 6b2

Computer skills--general, basic skills (e.g., databases, internet skills)

Extremely Important	591	67.3%
Somewhat Important	269	30.6%
Not At All Important	18	2.1%

Q. 6b3

Computer skills--programming

Extremely Important	115	13.1%
Somewhat Important	443	50.3%
Not At All Important	322	36.6%

Q. 6b4

Environmental Design and Evaluation (e.g., acoustics, heat)

Extremely Important	139	15.9%
Somewhat Important	421	48.1%
Not At All Important	315	36.0%

Q. 6b5

Experimental Methods

Extremely Important	500	56.8%
Somewhat Important	295	33.5%
Not At All Important	85	9.7%

Q. 6b6

Human Reliability Analysis

Extremely Important	183	20.8%
Somewhat Important	460	52.3%
Not At All Important	236	26.8%

Q. 6b7

Mathematics

Extremely Important	173	19.8%
Somewhat Important	494	56.5%
Not At All Important	208	23.8%

Q. 6b8

Modeling

Extremely Important	239	27.1%
Somewhat Important	469	53.2%
Not At All Important	173	19.6%

Q. 6b9

Oral communication skills		
Extremely Important	710	81.1%
Somewhat Important	151	17.2%
Not At All Important	15	1.7%

Q. 6b10

Physiological measures		
Extremely Important	183	20.8%
Somewhat Important	437	49.6%
Not At All Important	261	29.6%

Q. 6b11

Project Management, Time Management		
Extremely Important	509	57.9%
Somewhat Important	307	34.9%
Not At All Important	63	7.2%

Q. 6b12

Prototyping		
Extremely Important	290	33.1%
Somewhat Important	399	45.5%
Not At All Important	188	21.4%

Q. 6b13

Safety/hazard/risk assessment		
Extremely Important	419	47.7%
Somewhat Important	277	31.5%
Not At All Important	183	20.8%

Q. 6b14

Simulation methods and tools		
Extremely Important	270	30.8%
Somewhat Important	449	51.1%
Not At All Important	159	18.1%

Q. 6b15

Small business practices (e.g., marketing, consulting issues, etc)		
Extremely Important	195	22.2%
Somewhat Important	308	35.1%
Not At All Important	375	42.7%

Q. 6b16

Statistics and other data analysis skills		
Extremely Important	504	57.6%
Somewhat Important	330	37.7%
Not At All Important	41	4.7%

Q. 6b17

Survey construction

Extremely Important	352	40.0%
Somewhat Important	408	46.4%
Not At All Important	119	13.5%

Q. 6b18

Systems analysis

Extremely Important	375	42.7%
Somewhat Important	395	44.9%
Not At All Important	109	12.4%

Q. 6b19

Task Analysis/Cognitive Task Analysis

Extremely Important	552	63.1%
Somewhat Important	282	32.2%
Not At All Important	41	4.7%

Q. 6b20

Teaching of HF/E

Extremely Important	277	31.5%
Somewhat Important	392	44.5%
Not At All Important	211	24.0%

Q. 6b21

Test and evaluation methods

Extremely Important	437	49.8%
Somewhat Important	361	41.2%
Not At All Important	79	9.0%

Q. 6b22

Usability analysis/engineering/testing

Extremely Important	469	53.5%
Somewhat Important	321	36.6%
Not At All Important	87	9.9%

Q. 6b23

Web design

Extremely Important	138	15.8%
Somewhat Important	357	40.8%
Not At All Important	381	43.5%

Q. 6b24

Workload measurement (e.g., mental workload)

Extremely Important	330	37.7%
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Somewhat Important	405	46.2%
Not At All Important	141	16.1%

Q. 6b25

Writing skills

Extremely Important	726	82.7%
Somewhat Important	128	14.6%
Not At All Important	24	2.7%

Education and Training in Content Areas

Q. 7a1

Anthropometrics, Biomechanics, or Work Physiology

Not A Need	471	53.5%
A Need	282	32.0%
An Important Need	127	14.4%

Q. 7a2

Automation

Not A Need	498	56.9%
A Need	288	32.9%
An Important Need	89	10.2%

Q. 7a3

Cognition

Not A Need	319	36.3%
A Need	357	40.7%
An Important Need	202	23.0%

Q. 7a4

Communication Technologies

Not A Need	407	46.5%
A Need	354	40.5%
An Important Need	114	13.0%

Q. 7a5

Consumer Product Design

Not A Need	422	48.2%
A Need	291	33.3%
An Important Need	162	18.5%

Q. 7a6

Display Design, Graphical User Interface Design, or Signage

Not A Need	254	29.1%
A Need	380	43.6%
An Important Need	238	27.3%

Q. 7a7

Decision Making, Expert Systems, Knowledge Engineering, Artificial Intelligence

Not A Need	355	40.4%
A Need	314	35.8%
An Important Need	209	23.8%

Q. 7a8

Forensics

Not A Need	642	73.0%
A Need	171	19.5%
An Important Need	66	7.5%

Q. 7a9

Human Computer Interaction

Not A Need	260	29.7%
A Need	362	41.3%
An Important Need	254	29.0%

Q. 7a10

Individual Differences

Not A Need	380	43.4%
A Need	366	41.8%
An Important Need	130	14.8%

Q. 7a11

Industrial/Organizational Psychology

Not A Need	463	53.0%
A Need	299	34.2%
An Important Need	112	12.8%

Q. 7a12

Instructional Systems Design, Learning Technologies

Not A Need	413	47.3%
A Need	363	41.6%
An Important Need	97	11.1%

Q. 7a13

Macroergonomics

Not A Need	530	60.9%
A Need	253	29.1%
An Important Need	87	10.0%

Q. 7a14

Medicine and HF/E

Not A Need	481	54.8%
A Need	278	31.7%
An Important Need	119	13.6%

Q. 7a15

Neuroscience

Not A Need	592	67.6%
A Need	220	25.1%
An Important Need	64	7.3%

Q. 7a16

Stress, Fatigue, Sleep

Not A Need	366	41.9%
A Need	342	39.2%
An Important Need	165	18.9%

Q. 7a17

Sensation & Perception or Visual Performance Performance

Not A Need	317	36.4%
A Need	364	41.7%
An Important Need	191	21.9%

Q. 7a18

Situation Awareness

Not A Need	341	39.1%
A Need	323	37.0%
An Important Need	209	23.9%

Q. 7a19

Social Psychology

Not A Need	488	56.2%
A Need	299	34.4%
An Important Need	82	9.4%

Q. 7a20

Special Populations (disabled, children, aged)

Not A Need	425	48.5%
A Need	298	34.0%
An Important Need	153	17.5%

Q. 7a21

Training

Not A Need	343	39.2%
A Need	358	40.9%
An Important Need	174	19.9%

Q. 7a22

Transportation (aviation, aerospace, or surface)

Not A Need	481	54.9%
A Need	253	28.9%
An Important Need	142	16.2%

Q. 7a23

Virtual Environments

Not A Need	465	53.4%
A Need	318	36.6%
An Important Need	87	10.0%

Q. 7a24

Warnings

Not A Need	392	44.5%
A Need	350	39.8%
An Important Need	138	15.7%

Q. 7a25

Workplace Design, Occupational Stress/Health

Not A Need	372	42.7%
A Need	288	33.1%
An Important Need	211	24.2%

Q. 7a26

Other content area in which additional education and training are a need (specify) _____

Education and Training in HF/E Skills

Q. 7b1

Application of HF/E guidelines and principles

Not A Need	321	36.6%
A Need	382	43.6%
An Important Need	174	19.8%

Q. 7b2

Computer skills--general, basic skills (e.g., databases, internet skills)

Not A Need	491	56.1%
A Need	270	30.8%
An Important Need	115	13.1%

Q. 7b3

Computer skills--programming

Not A Need	507	58.1%
A Need	285	32.6%

An Important Need 81 9.3%

Q. 7b4

Environmental Design and Evaluation (e.g., acoustics, heat)

Not A Need 527 60.2%

A Need 280 32.0%

An Important Need 68 7.8%

Q. 7b5

Experimental Methods

Not A Need 397 45.3%

A Need 315 36.0%

An Important Need 164 18.7%

Q. 7b6

Human Reliability Analysis

Not A Need 396 45.4%

A Need 358 41.1%

An Important Need 118 13.5%

Q. 7b7

Mathematics

Not A Need 588 67.6%

A Need 236 27.1%

An Important Need 46 5.3%

Q. 7b8

Modeling

Not A Need 344 39.5%

A Need 386 44.4%

An Important Need 140 16.1%

Q. 7b9

Oral communication skills

Not A Need 472 54.3%

A Need 235 27.0%

An Important Need 162 18.6%

Q. 7b10

Physiological measures

Not A Need 447 51.3%

A Need 320 36.7%

An Important Need 104 11.9%

Q. 7b11

Project Management, Time Management

Not A Need	354	40.5%
A Need	347	39.7%
An Important Need	172	19.7%

Q. 7b12

Prototyping

Not A Need	394	45.3%
A Need	325	37.4%
An Important Need	151	17.4%

Q. 7b13

Safety/hazard/risk assessment

Not A Need	367	42.0%
A Need	305	34.9%
An Important Need	201	23.0%

Q. 7b14

Simulation methods and tools

Not A Need	308	35.2%
A Need	401	45.8%
An Important Need	167	19.1%

Q. 7b15

Small business practices (e.g., marketing, consulting issues, etc)

Not A Need	468	53.7%
A Need	262	30.1%
An Important Need	141	16.2%

Q. 7b16

Statistics and other data analysis skills

Not A Need	302	34.5%
A Need	360	41.1%
An Important Need	213	24.3%

Q. 7b17

Survey construction

Not A Need	379	43.6%
A Need	344	39.6%
An Important Need	146	16.8%

Q. 7b18

Systems analysis

Not A Need	357	41.0%
A Need	350	40.2%
An Important Need	163	18.7%

Q. 7b19

Task Analysis/Cognitive Task Analysis

Not A Need	250	28.6%
A Need	386	44.2%
An Important Need	237	27.1%

Q. 7b20

Teaching of HF/E

Not A Need	450	51.8%
A Need	289	33.3%
An Important Need	130	15.0%

Q. 7b21

Test and evaluation methods

Not A Need	305	34.9%
A Need	383	43.8%
An Important Need	186	21.3%

Q. 7b22

Usability analysis/engineering/testing

Not A Need	309	35.4%
A Need	348	39.8%
An Important Need	217	24.8%

Q. 7b23

Web design

Not A Need	515	59.1%
A Need	267	30.6%
An Important Need	90	10.3%

Q. 7b24

Workload measurement (e.g., mental workload)

Not A Need	321	36.8%
A Need	372	42.7%
An Important Need	179	20.5%

Q. 7b25

Writing skills

Not A Need	486	55.9%
A Need	227	26.1%
An Important Need	156	18.0%

Q. 7b26

Other skills in which additional education and training are a need
(specify) _____

PART III. FORUMS FOR EDUCATION AND TRAINING OPPORTUNITIES

Workshops and Short Courses

8. In the past three years have you attended workshops or short courses on the topics and skills of greatest interest to you?

yes	532	60.2%
no	352	39.8%

9. If you answered “yes” on question 8, by whom were these workshops/short courses offered? Check as many as apply:

HFES	154	16.5%
A scientific/technical society other than HFES	257	27.6%
A local university/college	159	17.1%
A university/college not in my local area	76	8.2%
A private company or organization	214	23.0%
A government agency/entity	118	12.7%
Other (specify)	42	4.5%

10. If HFES were to offer a fee-based workshop or short course on one of the topics/skills of greatest interest to you, would you participate?

yes	679	78.2%
no	189	21.8%

11. What is your preference for duration of a workshop or short course?

Half day	190	22.0%
Full day	289	33.4%
Two days	121	14.0%
No preference	265	30.6%

General Forums

12.

	Not A Need	A Need	An Important Need	number responding
Annual meeting social events	39.6%	41.2%	19.2%	844
Annual meeting symposia, debates, and panels	9.8%	46.9%	43.3%	845
Annual meeting lectures	8.8%	44.9%	46.3%	844
Annual meeting proceedings	9.9%	41.3%	48.8%	848

Annual meeting poster sessions	22.2%			
Annual meeting workshops	7.1%	44.5%	48.4%	847
Annual meeting demos	17.1%	55.8%	27.1%	842
Annual meeting exhibits	19.6%	57.0%	23.4%	842
Annual meeting practitioner development seminars	12.4%	48.4%	39.2%	831
Annual meeting practitioner development lectures	15.9%	51.6%	32.5%	830
Electronic participation in annual meetings (e.g., via webcast of lecture sessions)	25.9%	42.9%	31.2%	843
Web sites on specific topics (e.g., workload, virtual reality, etc.) updated by experts	7.8%	36.1%	56.0%	841
Workshops or short courses at selected locations (i.e., major cities)	11.6%	47.7%	40.7%	847
One-time satellite seminars	32.4%	45.3%	22.3%	837
Satellite courses	31.3%	44.0%	24.7%	831
Instructional videos (or CDs or DVDs) on HF/E topics	21.2%	46.2%	32.6%	840
Books on HF/E topics	5.9%	41.9%	52.2%	845
Journals covering HF/E topics	6.6%	35.6%	57.8%	839
Distance learning opportunities	17.9%	44.5%	37.6%	838
Courses that provide broad coverage	22.7%	55.3%	22.0%	836
Courses that provide deep coverage	7.7%	44.1%	48.2%	834

PART IV. NEEDS SPECIFIC TO GROUPS

13. What is your current status? Please check one of the following:

- ○ I am a student, currently pursuing a degree in HF/E.
107 107 12.0%
- ○ I am currently employed by an educational institution (this is my primary place of employment, and I am not a student).
179 179 20.1%
- ○ I am currently self-employed as an independent consultant or employed by a private business, industry, or government agency (my primary place of employment is not an educational institution and I am not a student).
606 67.9%

PART IV. NEEDS SPECIFIC TO GROUPS (CONT.)

Needs of Students

Q. 14s1

Books on HF/E topics

Not a need	5	4.6%
A need	60	55.6%
An important need (list topics)	43	39.8%

Q. 14s2

Instructional videos (or CDs or DVDs) on HF/E topics

Not a need	29	27.1%
A need	58	54.2%
An important need (list topics)	20	18.7%

Q. 14s3

More HF/E mentors

Not a need	14	13.0%
A need	57	52.8%
An important need	37	34.3%

Q. 14s4

More HF/E faculty

Not a need	13	12.0%
A need	50	46.3%
An important need	45	41.7%

Q. 14s5

Higher quality HF/E faculty

Not a need	17	15.7%
A need	43	39.8%

An important need	48	44.4%
Q. 14s6		
Information on HF/E undergraduate programs		
Not a need	22	20.4%
A need	51	47.2%
An important need	35	32.4%
Q. 14s7		
Information on HF/E graduate programs		
Not a need	22	20.4%
A need	51	47.2%
An important need	35	32.4%
Q. 14s8		
More HF/E courses		
Not a need	6	5.6%
A need	67	62.0%
An important need (list topics)	35	32.4%
Q. 14s9		
HF/E internships		
Not a need	3	2.8%
A need	25	23.1%
An important need	80	74.1%
Q. 14s10		
Information about HF/E career opportunities		
Not a need	2	1.9%
A need	26	24.3%
An important need	79	73.8%
Q. 14s11		
Information about current HF/E job openings		
Not a need	0	0.0%
A need	24	22.4%
An important need	83	77.6%
Q. 14s12		
Accreditation of HF/E graduate programs		
Not a need	10	9.3%
A need	42	38.9%
An important need	56	51.9%
Q. 14s13		
Accreditation of HF/E undergrad programs		

Not a need	31	29.2%
A need	43	40.6%
An important need	32	30.2%

Q. 14s14

HF/E distance learning opportunities

Not a need	26	24.1%
A need	42	38.9%
An important need	40	37.0%

Q. 14s15

Education and training opportunities at the HFES Annual Meeting

Not a need	8	7.4%
A need	62	57.4%
An important need (list topics)	38	35.2%

PART IV. NEEDS SPECIFIC TO GROUPS (CONT.)

Needs of Academics

Q. 14a1

Accreditation of HF/E graduate programs

Not a need	41	23.6%
A need	73	42.0%
An important need	60	34.5%

Q. 14a2

Accreditation of HF/E undergrad programs

Not a need	80	46.0%
A need	62	35.6%
An important need	32	18.4%

Q. 14a3

Changes in accreditation process

Not a need	79	49.1%
A need	62	38.5%
An important need (suggest changes)	20	12.4%

Q. 14a4

Changes in accreditation criteria

Not a need	78	50.0%
A need	58	37.2%
An important need (suggest changes)	20	12.8%

Q. 14a5

Attracting grades K through 12 to field of HF/E		
Not a need	60	35.5%
A need	77	45.6%
An important need	32	18.9%

Q. 14a6

Attracting undergraduates to HF/E graduate programs and in general to field of HF/E

Not a need	14	8.2%
A need	76	44.4%
An important need	81	47.4%

Q. 14a7

Improving the quality of applicants to HF/E graduate programs

Not a need	26	15.3%
A need	83	48.8%
An important need	61	35.9%

Q. 14a8

Retention of graduate students in academic programs long enough to get their degree

Not a need	31	18.2%
A need	84	49.4%
An important need	55	32.4%

Q. 14a9

Attracting and retaining students for Ph.D. programs

Not a need	20	11.8%
A need	64	37.9%
An important need	85	50.3%

Q. 14a10

Improving ability to attract and hire quality HF/E faculty to HF/E programs

Not a need	14	8.2%
A need	77	45.0%
An important need	80	46.8%

Q. 14a11

Improved quality of HF/E academic programs

Not a need	20	11.8%
A need	88	51.8%
An important need	62	36.5%

Q. 14a12

More HF/E faculty

Not a need	21	12.7%
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A need	96	57.8%
An important need	49	29.5%
Q. 14a13		
Higher-quality HF/E faculty		
Not a need	32	19.3%
A need	80	48.2%
An important need	54	32.5%
Q. 14a14		
Opportunities for student HF/E internships		
Not a need	3	1.8%
A need	82	49.4%
An important need	81	48.8%
Q. 14a15		
Improved HF/E facilities		
Not a need	11	6.9%
A need	100	62.5%
An important need	49	30.6%
Q. 14a16		
Improved HF/E textbooks		
Not a need	20	11.8%
A need	87	51.5%
An important need	62	36.7%
Q. 14a17		
Instructional videos (or CDs or DVDs) on HF/E topics		
Not a need	27	15.9%
A need	98	57.6%
An important need (list topics)	45	26.5%
Q. 14a18		
Database to track HF/E academic programs (curriculum, salaries, teaching loads, demographics, admission standards, etc.)		
Not a need	24	14.3%
A need	97	57.7%
An important need	47	28.0%
Q. 14a19		
Distance learning opportunities offered by my institution		
Not a need	84	51.2%
A need	58	35.4%
An important need	22	13.4%

Q. 14a20

Distance learning opportunities offered to my institution

Not a need	84	50.3%
A need	71	42.5%
An important need (list topics)	12	7.2%

Q. 14a21

Education and training opportunities at the HFES Annual Meeting

Not a need	35	20.7%
A need	112	66.3%
An important need (list topics)	22	13.0%

PART IV. NEEDS SPECIFIC TO GROUPS (CONT.)

Needs of Practitioners

Q. 14p1

More professional HF/E specialists at BA/BS level

Not a need	234	40.5%
A need	255	44.1%
An important need	89	15.4%

Q. 14p2

More professional HF/E specialists at MA/MS level

Not a need	62	10.7%
A need	324	56.1%
An important need	192	33.2%

Q. 14p3

More professional HF/E specialists at the PhD level

Not a need	158	27.5%
A need	268	46.7%
An important need	148	25.8%

Q. 14p4

More HF/E specialists with practical HF/E experience

Not a need	19	3.3%
A need	181	31.3%
An important need	379	65.5%

Q. 14p5

More certified HF/E specialists

Not a need	214	37.3%
A need	222	38.7%

An important need	138	24.0%
Q. 14p6		
Higher-quality undergraduate programs in HF/E		
Not a need	87	15.2%
A need	278	48.7%
An important need	206	36.1%
Q. 14p7		
Higher-quality graduate programs in HF/E		
Not a need	65	11.4%
A need	270	47.2%
An important need	237	41.4%
Q. 14p8		
Better preparation of HF/E professionals for their first job		
Not a need	70	12.3%
A need	307	53.8%
An important need (list deficiencies)	194	34.0%
Q. 14p9		
Accreditation of academic HF/E graduate programs		
Not a need	78	13.5%
A need	304	52.8%
An important need	194	33.7%
Q. 14p10		
Accreditation of academic HF/E undergraduate programs		
Not a need	178	31.1%
A need	272	47.5%
An important need	123	21.5%
Q. 14p11		
Certification of HF/E professionals		
Not a need	184	31.8%
A need	221	38.2%
An important need	173	29.9%
Q. 14p12		
Change in certification process		
Not a need	317	57.6%
A need	143	26.0%
An important need	90	16.4%
Q. 14p13		
Change in certification criteria		

Not a need	294	53.9%
A need	160	29.4%
An important need	91	16.7%

Q. 14p14

More practitioner training and development opportunities

Not a need	38	6.7%
A need	413	72.5%
An important need (list topics)	119	20.9%

Q. 14p15

More professional training and development via satellite one-time seminars

Not a need	186	33.0%
A need	306	54.4%
An important need (list topics)	71	12.6%

Q. 14p16

More professional training and development via satellite courses

Not a need	176	31.6%
A need	305	54.8%
An important need (list topics)	76	13.6%

Q. 14p17

More professional training and development via workshops or short courses at selected locations

Not a need	67	11.9%
A need	379	67.3%
An important need (list topics)	117	20.8%

Q. 14p18

More professional training and development via distance learning opportunities

Not a need	110	19.5%
A need	340	60.3%
An important need (list topics)	114	20.2%

Q. 14p19

Education and training opportunities at the HFES Annual Meeting

Not a need	79	14.0%
A need	385	68.3%
An important need (list topics)	100	17.7%

Q. 14p20

Web sites on specific topics (e.g., workload, virtual reality, training) regularly updated by experts

Not a need	44	7.8%
A need	243	42.9%
An important need	280	49.4%

Appendix: Major field of study category compositions

Engineering

Aeronautical Engineering	Industrial Engineering
Aeronautical Science	Industrial & Operations Engineering
Aeronautics/Astronautics	Manufacturing Engineering
Astrophysics	Mechanical Engineering
Civil Engineering	Mechanical Production & Engineering
Electrical Engineering	Naval Sciences
Engineering Design	Nuclear Engineering
Engineering Management	Safety Engineering
Engineering Mechanics	Systems Engineering
Engineering Science	Transportation

Computer Science

Computer Vision
Information Science
Information Systems
Man-Machine Systems
Telecommunications

Medical/Biological

Aerospace Medicine	Human Anatomy
Bioengineering	Industrial Hygiene
Biology	Industrial Safety
Biomechanics	Kinesiology
Biomedical Engineering	Medical Technology
Chemistry	Medicine
Emergency Medicine	Nursing
Environmental Health	Occupational Biomechanics
Environmental Health Sciences	Occupational Epidemiology
Exercise Physiology	Occupational Health & Safety
Health Informatics	Occupational Medicine
Health & Physical Education	Occupational Safety
Health & Safety Education	Occupational Therapy
Health Sciences	Physiology

Public Health
Safety & Systems Management
Sports Medicine

Surgery
Work Disability Prevention
Zoology

Behavioral Sciences

Anthropology
Applied Behavior Science
Applied Ergonomics
Applied Psychology
Aviation Psychology
Behavioral Psychology
Biological Anthropology
Biological Psychology
Cognitive Human Factors
Cognitive Psychology
Cognitive Systems Engineering
Communications
Curriculum & Instruction
Education
Educational Psychology
Educational Technology
Engineering Psychology
Environmental Psychology
Ergonomics
Experimental Psychology
Human Centered Design
Human Behavior
Human Factors Engineering
Human Factors Modeling & Simulation
Human Factors Psychology
Human Machine Interaction
Human Performance
Human Reliability
Human Resource Development
I/O Psychology
Information Design
Linguistics
Motor Behavior & Control
Movement Science
Occupational & Organizational
Psychology
Organizational Behavior
Organization Science & Information
Technology
Perception & Performance

Psychology
Psychology & Law
Psychophysiology
Rehab Counseling
Safety & Loss Control
Ship Navigation
Social Psychology
Sociology
System Design
Training & Training Systems
Work Design
Work Environment

Others

Administration

Agriculture

Architecture

Business

Business Administration

Criminal Justice

History

Industrial Technology

Law

Management

Marketing

Master of Science

Mathematics

Military Science

Physics

Systems Management