

## ACHIEVING SUCCESS IN THE HF/E FIELD: EXPERT ADVICE ON HOW TO BECOME A FUTURE EXPERT

Janet I. Creaser  
HumanFIRST Program  
University of Minnesota  
Minneapolis, MN

Arnold M. Lund  
Microsoft  
Redmond, WA

Jeff English  
PeopleSoft, Inc.  
Pleasanton, CA

Ronald G. Shapiro  
IBM  
Providence, RI

Anthony D. Andre  
Interface Analysis Associates  
San Jose State University  
San Jose, CA

Welcome to the 12<sup>th</sup> Annual Human Factors and Ergonomics Career Panel. This year, the panel will impart wisdom on achieving expertise in the HF/E field. First, Jeff English defines for us what it means to be an expert and the steps to take on the journey to expertise. Arnold Lund describes the ingredients individuals possess that help them on their way to expertise and success. Ronald Shapiro will help you conduct a reality check of how you personally define success and set goals to achieve that success. Anthony Andre provides tips for new graduates on getting a job in a market that is increasingly emphasizing experience. Finally, Janet Creaser has a few words about some of the advice she has put into practice in the past two years.

### **BECOMING AN EXPERT IS A JOURNEY, NOT A DESTINATION** by Jeff English

An expert is someone that deeply knows a domain, its relationship to other domains, and can communicate that understanding to others. Because a person's understanding of a domain changes over time and the domain itself is evolving, expertise is not an end point. Knowledge gained must be continually integrated with new information and communicated to the profession. Evolving into an expert requires focus at 3 levels: having a unique point of view, establishing your credibility, and having the leadership skills to make your presence known.

#### **Knowing the Fundamentals...and Beyond**

Being an expert means knowing your stuff. Read everything that applies to your field of interest. Talk with your colleagues about their observations and experiences. Pair up with a mentor that you recognize as an expert and learn from them. Stay on a path of continual education by attending seminars and presentations. This is all important, but getting "book smart" is only a part of the process. You also need experience.

Certainly experts have a solid grasp of the fundamentals and principles of their domain. Sharpening these concepts against the grinding wheel of hands-on experience is necessary for a person to develop a context within which to speak with authority. For example, knowing basic principles of software usability testing is great, but it is the person that runs several usability tests that learns how to apply the principles to real situations that require judgment and decision making. Conducting several usability tests will not make a

person an expert, but how many is enough – 20, 50, 100, 500? There is no literal number of activities that define an expert, because doing the activity alone is not enough. You need to develop a point of view about how the process should be done for maximum quality, efficiency, value, etc. Every expert has a point of view.

#### **Establishing your Credibility**

You might consider yourself to be an expert, but that doesn't do much good if no one else recognizes you as one. Experts are people that are recognized by their peers as having insight and experience that makes their opinions valuable. Consider Alan Cooper, Don Norman and Jakob Nielsen as examples. They are all recognized experts in product design and evaluation. They got to that point by having a lot of experience with respected companies (Microsoft, Apple and Sun) and turning that experience into content via books, articles, web sites and public speaking. Their work with major companies helped to give them credibility so that people would listen to what they had to say. The reference point of their unique perspective helped establish them as experts.

There are several ways to establish credibility. You can start by creating a web site. You can publish your work there, but beyond that, you need to develop a point of view and write articles that are a synthesis of your applied knowledge. Once you create some content that you and others find valuable, submit a variation of it to a conference, magazine or established web journal. Refining your ideas through writing and presentations will forge value and establish yourself as a person with an opinion that matters.

## Developing your Leadership Skills

Experts can be recognized at different levels depending on the type of audience. The sphere of influence increases from peers to groups, then extends to the profession, then to related professions. Regardless of your current aspirations, be sure to take time to mentor and aid others. Giving your time to others is a sign of leadership that many recognize and appreciate.

Leadership skills can be developed by starting exactly where you are now. Take pride in the work that you do and make that work known to your colleagues. Then, examine that work for a particular learning or observation that others could benefit from. It's that unique view of the content that can make a difference for others, and your leadership in taking the time to document it, discuss it, publish it and present it will be the key to bringing all of these recommendations together. If you need help with the visuals, ask a friend or colleague to help you. If writing is not your forte, ask others to proofread your documents. And finally, always deliver your ideas as a presentation. This will help foster a conversation with others, will aid the development of leadership skills, and clarify your point of view.

To get on the fast-track to being an expert, be sure to read all you can, get credible experience, form opinions and publish your results and observations!

### **TAKE THE T.E.S.T (TALENT, EXPERIENCE, SPECIAL SAUCE, THE SPARK)** by Arnold M. Lund

A few years ago companies were so desperate for human factors expertise (especially in the area of Web design) that they'd pretty much hire anyone with an interest in the area.

Then the bubble burst, and there were so few jobs the only people who were able to get work were those who had years of experience, the experts. The pendulum has swung yet again and we are back to more of a balance, where the doors are open for people beginning their professional careers, and those who are prepared can look forward to being the experts in the future.

Those I've hired who have made it to expert status tend to have several things in common: talent, experience, special sauce, and "the spark." I first evaluate them based on their talent. How complete is their education? What have they learned that is relevant to what I need? What challenges did they face (e.g., a tough school), and how well did they overcome them? Have they got the raw material for success?

I also look at the details of how they present themselves and how well do they take care of the details. Is their resume well designed and sophisticated looking? Do they have a portfolio that demonstrates their talent, or is their research particularly complex, well designed, and insightful? Is their cover letter compelling and well written? Do they present themselves well during the interview, appropriate to the company culture?

Do they ask insightful questions, and can they respond to tough questions effectively?

I then look at their experience. Have they had an internship? Have they worked on teams? Can they communicate well? Have they successfully sold ideas? Have they learned from failures? Have they held leadership positions? What have they done in their experience that can translate into what they would need to do when they work for me? Do they have enough experience to imagine being in my organization, so that they can ask smart questions about the work? When I pose behavioral questions from hypothetical work situations, have they been in enough similar situations that their answers allow them to make reasonable guesses as to what effective responses would be?

There are a lot of talented people out there, of course, and as I scan resumes, screen people on the phone, and interview them, I'm looking for something special that helps them stand out from the crowd. It might be a rich publication history, or set of professional activities. It might be a unique talent that they bring, or a unique experience. It might be a dual major or an interesting minor (that makes them a double or triple threat). It might even be a hobby that reveals a different side to their creative talents or an extracurricular activity that shows their passion and leadership. It could be that they have an advocate that I respect who raves about them.

Finally I'm looking for the spark, the sign that the person will not just do what is asked, but will take the extra step. I'm looking for signs they have passion for their profession, and will have passion for the job. I'm looking for people who will actively grow themselves and the profession, and who will actively look for new ways to contribute. I'm looking for people who bubble with ideas, and can select the best and move them forward in spite of obstacles. I'm looking for the person who energizes the entire group, just by being there.

This notion of spark is harder to assess. It helps if the person has sponsors with whom I can talk and who are able to share observations about the spark. In interviews, my experience is that the person is often interviewing me as much as I am interviewing them. Even better, the interview is not so much my asking questions and getting answers, it is almost a conversation. They engage fully, develop ideas and have a point-of-view, and are able to get me engaged as we explore issues together. Often it is accompanied by an active sense of humor. To demonstrate this partly is about having the attitude to start with, but it is also about rehearsal and preparation so that much of the stress is removed from the interview even before it starts.

If you are this kind of person, prepared, experienced, interesting, and excited to take on challenges, I'm confident you will have a thrilling and successful career.

### **SUCCESS: WHAT DOES IT MEAN TO YOU AND TIPS TO DEVELOP A PLAN TO ACHIEVE IT** by Ronald G. Shapiro

The first step in achieving success in the Human Factors/Ergonomics (HFE) field is to decide for oneself what it means to be successful. There is no single formula or definition and each individual must determine this for themselves. For example, success might be:

- earning a salary while leaving as much time as possible for family or other personal non-job related activities
- inventing something brand new and achieving world-wide recognition for this invention
- earning a great deal of money
- helping others to achieve their goals
- improving processes and/or equipment that will save lives
- helping others to produce safer or more efficient products.

While one's goals may change considerably through the years, an accurate assessment of what success means to you is an important first step.

A second step is to determine what you really like to do and what you do well. For example, which of the following activities do you like to do? Which do you do best?

- read
- write
- make things
- talk with people
- diagnose problems
- present information to people
- listen to what other people think
- lead
- follow
- invent
- innovate
- work with others
- work by yourself

A third step is to determine whether it is indeed possible to achieve your career goals in HF/E by doing what you would like to do. Assuming it is possible to do this the fourth step is to develop a career plan to get you from where you are today to where you want to be. Steps three and four are best accomplished by networking with and observing people working in the profession. In a profession like ours which is relatively new, don't look for an established "career path." Gather suggestions and ideas. Then develop your own career plan.

Please allow adequate time to do your analysis and planning. A great plan at this early stage may really launch your career. A wrong decision at this planning phase may represent several years of preparation for something you may not want to do. Through the years I've seen several cases of people ending up in the wrong field, perhaps due to not performing the right analysis. Fortunately, the skills which one develops in a Human Factors curriculum do prepare one to do many other types of work, so all is not lost if this happens. Furthermore, interests do change, so it is comforting to know that the skills that one develops in HF/E are useful in other professions as well. Assuming that your interests do not change radically, a great plan which is built

upon your skills, interests, and goals will help you achieve personal success most efficiently.

### **Tips for Doing Your Analysis and Career Plan:**

- Select your coursework, your school, and your advisor carefully. Be an informed consumer. You are investing a great deal of time and probably money in your education (through tuition and fees and/or income you would have earned if you were working full time rather than going to school). Be sure that you are getting the best value possible. Look through the textbook, syllabus, and readings before signing up for a course (if possible). Get to know the faculty (by reading articles and personal contact) before selecting a school and/or advisor.
- Network with everyone that you can in the field. Don't be afraid to introduce yourself to senior members of the field at the HF meeting. Many of the professionals in our field enjoy talking with students.
- Obtain internships, coops, or jobs working in the field as soon as possible. In addition to doing an outstanding job and developing all of the skills that you can, observe what the more senior members in the profession do in your company and on your projects. Talk with them. Determine if you would like to do the types of work that they do. For example, you may really enjoy setting up equipment, talking with individuals who use a product, filming someone using a product, building prototypes which you would be doing as a junior member of the team. What you are doing may or may not be closely related to what the more senior members of the profession in your area do. Senior team members may spend more time grant, proposal, or contract writing, completing interim and final reports, presenting results, or defending their budget. Thus, you may decide that while you really like a coop in a company or a specialty, you might not like a permanent job in that company or field. On the other hand, you may discover that while you did not particularly like a coop assignment, you'd really like a leadership job in the specialty or company.
- Prepare a resume now for yourself which depicts you as the ideal job candidate... Wherever there is a gap just fill in the gap with an experience which you should have. Once you have completed this resume, review it. Is it "great?" Does it depict you as being an expert in something you think that you would really like to do? Is there a reasonable chance that the "objectives" section of the resume matches a potential opening in the job market when you will graduate? If the resume seems to pass all tests, prepare an action plan to close the gaps. Ask some people established in the profession for comments.
- Volunteer to work on projects with your student HFES chapter, a local chapter in your area, one of the technical groups, or one of the other numerous HFES projects mentioned in the directory and yearbook or the bulletin. If you need help finding an appropriate volunteer activity go to the HFES website and fill out a volunteer form.

There are hundreds of meaningful opportunities posted. If you would like to do something different, just specify what you would like to do on the volunteer form.

- Participate in a project for National Ergonomics Month (NEM), such as visiting a school and explaining the profession to students or designing better equipment or processes for a nonprofit organization. If there is no NEM project in your area, initiate one. The experience in teaching and doing HF service work as well as the networking opportunities will be most valuable to you.
- Develop a broad range of skills in the field, but do have one or two areas in which you develop true expertise through research, teaching, and practical work experience.
- Convey your interests and areas of expertise clearly in your career objectives section of your resume.
- In your resume, networking discussions, letters to potential employers, and interviews when you describe yourself and your work, don't emphasize what you were told to do or what you needed to do. Describe your true accomplishments and how you know you were successful.

## WHAT'S A "JUNIOR" TO DO IN A "SENIOR'S" WORLD?

by Anthony D. Andre

A recent trend that I have noticed is that most of the HF/E job listings are focused on "senior" positions, ones that seem to require millenniums of experience. One reason behind this trend is that companies often start their foray into the HF/E world with the hiring of an experienced person into a senior position (VP, manager, etc.). So, what's a recent graduate or junior-level person to do? Below I discuss some strategies and tips for entering this skewed marketplace.



### Strategy #1: Every Senior Needs a Junior

Sure, they are looking for a senior person, but who is going to do the "grunt" work? Truth-be-told, the higher up the chain the less likely a person is to get their hands dirty, right? I would suggest that you contact the company and remind them of this fact, while offering up your services at the same time.



### Strategy #2: Don't Accept False Premises

Many job descriptions are written by human resource specialists who often have little knowledge of our fairly young and diminutive field. According to them, everyone has 15+ years of experience no matter what the domain, product, service, region, etc AND there are millions of us out there. Sometimes you have to educate these people and explain to them that the person matching their job description just doesn't exist (or is dead by now...). At the same time, enlighten them as to how your education, skills and experiences will help them incorporate human factors into their product development and design process.



### Strategy #3: Are You Experienced?

You just might have more experience than you think. Sometimes it just takes a little thought, and some creative writing, to expose and communicate the more practical side of your academic experience. These days, many schools provide practical "experience" through class projects, interactions with local companies, and the like. When you sum it all up, you very well may have studied users, designed user interfaces, tested products, worked in teams, and interacted with pseudo or actual clients (discussed user requirements, presented results, reviewed design concepts). Instead of assuming you have no experience, try presenting the above, coupled with any internship work, as your relevant experience.



### Strategy #4: Trade the Past for the Future

Most people (prospective employers and job seekers alike) focus on the past when discussing their relevance to a particular job. Since your past is not your strong suit, for lack of experience, I recommend turning this equation around and focusing on the future. Articulate the services you can offer, the impact you will have on development costs and time, sales and transactions, customer support requirements, user productivity, usability and satisfaction, etc. Let them know the positive things that will happen to their company IF and when they hire you!



### Tip #1: Internship First

It's been said often, but it's worth repeating. The best way to kick-start your career and climb up the ladder of experience is to obtain an internship, preferably while you are in graduate school. An internship should provide both the needed mentoring and practical experience required to jump into the job market. Note that internships are often not advertised. You sometimes have to create them yourself! Contact local companies and present to them the idea of hiring you as an intern, and let your friends who are gainfully employed know that you are interested in obtaining an internship.



### Tip #2: Have an Answer to the #1 Question

"How will you obtain knowledge about our product domain?" is the most common question you will be confronted with, given your lack of experience. You should have an answer prepared and present that answer before the question is asked! First, remind them that Human Factors is a process and is not product or domain-specific. Next, explain the contextual inquiry techniques you will use to quickly get up to speed on their product, product domain, and user community.

### Summary

Having little experience in an experience-demanding job market can be daunting. I hope that the above strategies and

tips give you the confidence and tools to go after the job of your dreams (or to create it)!

Best of Luck!

### **IT CAN BE DONE!** **by Janet I. Creaser**

I searched and searched to come up with my best advice on how to become an expert. But the truth is that I am not an expert yet. However, I have employed some of the tips provided by the other panelists over the past two years and would like to share with you some insight on a few of them.

#### **1. Knowing the Fundamentals**

Jeff English talked about knowing the fundamentals and beyond. I work primarily in a research-based organization and have a very good grasp of research concepts and techniques for my field. However, I continue to read books and journal articles in my area and others to stay current. I have to say that I think this is one of the most difficult tasks required for achieving expertise, mostly because of demands on time. At work, I only get to read things that are relevant to the projects I am currently working on so extra reading must be done in my spare time. And of course, my spare time has a variety of demands on it, such as family, friends, and hobbies. I eventually had to set small reading goals for myself so I didn't feel overwhelmed by all the things I didn't have time to read and felt I should be. I am keeping current the best that I can and learning new things on a regular basis.

#### **2. What Does Success Mean to Me?**

Ron Shapiro initially asks you to consider what success means to you. For me, success is doing well at the job I am in currently and learning as much as I can on the job. I find it very stressful to think about where I might be in 5 or 10 years. And quite frankly, it's an interview question that leaves me perturbed. I know this is contrary to many employment philosophies, but I seriously cannot determine where I might be in 5-10 years. At the moment, I have a good grasp on the next two years. But for me, it is important that the work I am doing now interests me and that I am continuing to learn, both of which are true at the moment.

However, if I were to worry about my future, I would probably worry that both my internship and my current position have been highly research based. Sometimes I am worried that I may not succeed in a more practically-oriented company. However, I am not currently in a practically-oriented usability company so there is little point in worrying about it. Instead, I look at the research work we are doing here and try to imagine how certain aspects of the work may transfer to another job. As it turns out, a recent experiment we did had a significant usability component to it and we used techniques that could easily be applied in a corporate setting. I also think it is very important to evaluate your own

experiences in terms of what you HAVE done instead of what you have not done. Not all jobs provide experience in all things so we have to take our successes in our current jobs and run with that.

#### **3. Internship First**

While I don't think an internship will work for everyone, I am very appreciative of the experience I obtained during my internship with Honeywell Laboratories. First, it was in the aerospace field, whereas most of my graduate work had been in driving research. I loved learning about a new field and also getting the chance to realize that certain aspects of my previous research were transferable. I think learning to identify how your skills transfer across domains is critical when you are looking for a first job or a new job. I am back in the driving domain now and have brought experiences from Honeywell to my new job. Second, I was able to work on five very diverse projects while I was there, from basic research to practical applications. It provided me with a chance to practice my current skills and learn new skills. I also learned that if someone asked me to do something I wasn't familiar with I would say "yes" then trundle off to learn how to do it for them. That is the beauty of an internship, the learning.

#### **4. Networking**

Stay close to your graduate school friends, particularly if you like where they are working. Also stay keep in contact with your supervisor. The benefit of having an internship is that you gain contacts and mentors who you can include in your network. I heard about my current job from a graduate school friend. Imagine what expanding the network further might do? I also keep in regular contact with friends and former colleagues from Honeywell and with people (such as Ron Shapiro) that I meet at conferences. All have been helpful in locating potential opportunities or in offering to send along opportunities if they arise.

#### **5. Taking the T.E.S.T**

I don't think it is fair for me to comment on whether I have the Talent, Experience, Special Sauce or The Spark that Arnold Lund talked about. I'll leave that for future references. What I can say is that I work hard at my job, assess my abilities on a regular basis, and try to be a positive member of our research team. Since I still have my job (after a 7-month trial period that started almost a year ago), and an offer of continued employment, I'm going to assume that I am doing great so far.

Good luck with your careers!