

## A REPORT ON HUMAN FACTORS CAREER ISSUES AND ANSWERS: PLANNING A CAREER IN AN UNCERTAIN MARKET

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The following paper was inspired by presentations at the career panel present at the 46<sup>th</sup> annual meeting of the Human Factors and Ergonomics Society. The panel consisted of eight human factors professionals from a variety of environments and backgrounds. During this session, panelists were asked to make recommendations to those seeking information about career advancement in human factors and responded to a variety of specific questions about navigating the human factors job market. This paper provides the essence of the opinions and advice of the panelists and the questions from the audience. It is not meant to serve as a transcript of the discussion. Three key recommendations emerged from the panelists' discussion: (1) be prepared for your search by developing a skill set you can use to market yourself to an employer, (2) be open to change and take advantage of opportunities as they arise, and (3) network. Each recommendation is discussed in its own section, followed by examples of how these recommendations helped the panelists in their own job searches.

### Introduction

The theme for the ninth annual Human Factors and Ergonomics Society Career Panel was that job seekers can get almost anywhere they want to be in their careers, but they may need to be flexible in getting there in today's job market. Some good paths still exist for the long term, however the short term is not what it was four years ago. This year's panel recommended patience and careful planning when undertaking a job search. Those seeking employment need to be objective about the availability of positions and make the most of their current situations.

This year's panel included (a) chairman Ron Shapiro of IBM corporation; (b) Karen Young of the University of Alabama at Huntsville; (c) Arnie Lund of Microsoft; (d) Michelle Robertson of Liberty Mutual; (e) Ellen Bass of the University of Virginia; (f) Ben Karsh of the University of Wisconsin-Madison; (g) Jim Lin from the Liberty Mutual Research Center; and (h) Carlos de Falla, Director of Membership Services for the Human Factors and Ergonomics Society. Each panelist was asked to share advice and recommendations for finding a job in today's market, along with personal accounts of job searches. Questions and comments from the audience were encouraged.

### RECOMMENDATION I: Be Prepared

*Michelle.* It is important for candidates to develop a core skill set they can use as a foundation to market themselves. Candidates should have a solid research publication base that demonstrates a skill set. This gives you something you can show to employers. In addition to that, good presentation skills are essential because you need to be able to promote your skills to a potential employer. Be able to describe who you are and what you do in three minutes. Have this "elevator speech" ready in case

you have the opportunity to sell your skills to a new contact. You have to know how you can sell your skills when an opportunity develops. Presentation and communication skills you develop will help you market yourself and will benefit you at your next job.

*Karen.* Publishing increases flexibility in a future job search. In particular, I suggest that students who are interested in the academic route acquire teaching experience and get published. However, regardless of the path you choose, publications will give you additional flexibility in case you decide to pursue an academic position. Teaching and writing skills are also helpful for those interested in industry in that they develop the interpersonal communication skills that many businesses look for in a candidate. Most people typically prepare for an academic post by gaining additional experience through a post-doc. I was particularly fortunate to not have to do a post-doc because I did not produce many publications.

*Ben.* No matter which track you intend to take, make sure you prepare for it accordingly as a student. If you plan on going into industry or wish to pursue a consulting position, get a position as a coop. If you are on a PhD track for a career in academia, do research and get published. Coops, however, are not as important for academic positions. If you favor a position that is more research-oriented, then focus on producing publications. For teaching experience, secure a teaching assistantship.

Do not rely on name-dropping. Nobody cares about the names of the organizations that appear on your resume. What you did matters the most, not who you worked for.

### How can someone determine the type of career they want to do so they can begin preparing?

*(William Schaudt, University of Idaho)*

*Arnie.* Ask yourself what you get excited about. Once you identify what that is, try to find a job that lets you pursue it. I originally wanted to teach, but I

ended up working for Bell Labs because I like to solve hard problems. Keep in mind also that although your career is forever, there may be many employers in that career.

*Ellen.* Try to identify your interests. A particular domain can interest you, but it can often be broken down or be put in a general category that can provide additional perspective. For example, I am interested in Air Traffic Control, but in reality that is because it is a highly complex domain, which is where my real interest is. I enjoy publishing, but more than that I want to make products that people will actually use. As a student, you are in a position to begin thinking about these things early and you should take advantage of that opportunity.

**Is it still possible to get a job in industry without a coop or industry experience?** (*Preston Kiekel, New Mexico University*)

*Ben.* Research that you complete as a student that is applicable to a set of job responsibilities can also position you for a job in industry.

*Arnie.* Research related to the job is as important as a coop in some cases, but there is other experience that can help. You may also have accomplishments relevant to an employer. Use awards, officer status in a professional group, and whatever you have to offer that is unique and may make you stand out.

*Ron.* To provide an example for Arnie's point, I recently hired a graduate student government president as a coop. Find out what the company wants, find out how you can match that, and update your resume accordingly.

*Arnie.* An internship gives you experience of what industry is like and how to speak the language, which can help you communicate appropriately when conducting a job search, both in person and on your resume. If you do not have that experience, have someone who does proofread your resume for you before sending it to a prospective employer.

*Ron.* When choosing someone to proofread your work, make sure you get a mentor who is willing to critique you, not someone who will just tell you what a good job you did. That will not help you in the long run.

*Ellen.* A student once asked me for a recommendation to law school, so I asked her what the law school wanted to hear about her. I wanted her to coach me so I could compose an appropriately targeted letter, but she had not thought about what she needed the recommendation to say about her. Instead of receiving a recommendation right away, this student first needed to be coached on how to coach me accordingly! This should have been done in advance. Be sure to determine what kind of recommendation you need written on your behalf before you request it. Find someone who is in a position to point out your best features for that job.

Ask yourself, for example, if a letter from the dean would be the best thing for you. Would you prefer a letter from a peon who knows you well, or from someone influential?

*Ben.* In my opinion, you should not ask for a letter from someone who does not know you for an academic job, even if it is the dean.

*Ron.* It is also important to be selective and to screen your references because some professors write bad letters that read like evaluations rather than recommendations.

*Karen.* Look for jobs where you are not the only human factors person. This way you can ensure someone will be available to act as a mentor and that you will not have to sell human factors. Go in with the understanding that you will be less experienced and will need some training.

*Audience comment:* Experience can be important for reasons other than to position you for a job. Through work experience I found that I did not like the career I was initially training for. Experience not only helps you become more marketable, but it can also teach you if you actually like the job you are positioning yourself for. It also develops the presentation, organization, and time-management skills that will help with any career. (*Aaron Lee, Virginia Polytechnic Institute and State University*)

*Ellen.* Expanding on that comment, it is important to keep in mind that a job that sounds appealing when you are 22 may not be as appealing at 32. You may change your mind along the way, so you should prepare for change in advance. Try to diversify your skills to some extent and create a "contingency resume" in case you end up changing your mind about your direction later.

## RECOMMENDATION II: Be Flexible

*Karen.* When I started as a graduate student at North Carolina State University I was certain I would be going into industry and not pursuing a faculty position at a university. Early on I positioned myself for industry by completing a coop rather than focusing on publishing. Following the coop, I secured a teaching assistantship for financial reasons and found I enjoyed teaching much more than working in industry. Based on my positive experience, I decided instead to pursue an academic position, despite the fact that my educational track had positioned me for industry rather than for academia. This provided an additional challenge both for my job search and for when I began working. However, it did not prevent me from pursuing an academic position.

*Ben.* I recommend that students prepare for whatever career they want to pursue at the time. Early on I also thought I knew what I wanted to do. When I completed my PhD, I turned down an academic position in favor of a post-doc. Interestingly, I was paid more for that post-doc than I

would have been for the faculty position. Upon completing the post-doc two years later, I found two additional positions to choose from, so the post-doc opened the door for additional opportunities. It is still possible to work in industry with a PhD. The PhD makes both tracks possible.

*Michelle.* While I was still at California I earned a degree in management to continue to build on my career in human factors. I could have also built these skills on the job, but it would have taken much longer. I believe receiving this experience in the classroom was more efficient than spending another 15 years gaining on the job experience in California. If you find that your career is not moving in the direction you want it to, there are always steps you can take to reposition yourself.

Volunteering for the newsletter and for program chair positions at the HFES annual meeting is a good start. Both can establish some name recognition for you. I recommend that you seize opportunities as soon as they come.

*Arnie.* Try to get engaged even if your first choice of positions is no longer available. You can turn anything into something with some additional ingenuity. Add what value you can to the position and make yourself stand out. That is a skill that will help you make contributions to an organization in the future and will benefit you later.

*Audience comment:* While I was in graduate school I also had a coop to prepare myself for industry. Despite this preparation, I went into academia and taught for 10 years after I completed my PhD. After that I changed tracks again and went into industry. No decisions regarding industry or academia need to be final when planning your career. It is possible to do both. (*David Gilmore, IDEO Product Development*)

### **RECOMMENDATION III: Network**

*Michelle.* Relationships and networking through my local HFES chapters have helped me develop my career over the years. Building these relationships requires you to take some initiative. For example, I have introduced myself to people and cold called other members. These contacts provided me with opportunities to discuss common research interests, to explore project opportunities, and to request tours of facilities for others and myself. I also took advantage of volunteer positions at conferences where I handed out badges to researchers. I ended up with some great professional contacts this way because of the personal contact it gave me with a large number of people in my field. Through contacts like these I have found a variety of jobs, ranging from ergonomics to aircraft maintenance.

*Karen.* Referrals are key to any job search. Letters of recommendation are helpful but should be considered secondary because they do not necessarily

involve personal relationships. Taking advantage of your personal contacts and relationships through networking is important in any job search and applies to industry as well as in academia.

*Arnie.* As you progress in your career, keep in mind the professional golden rule: Do unto your professional colleagues, as you would want them to do unto you. Your professional relationships are relationships that can last forever. Do what is appropriate as a professional, but always keep in mind that the relationships you develop at work will likely help you later.

*Michelle.* Start building contacts by joining your local HFES chapter. Get involved with the local chapter and the technical groups, but do not be passive and just show up for the meetings. Become active, start volunteering and do not turn good opportunities away, even by accident. Always say, “yes” when presented with an opportunity then decide if you want to do it afterward. It is important to be open-minded and to stay flexible.

*Ron.* Volunteer assignments where students demonstrate at workshops have led to networking conversations and jobs on more than one occasion.

*Michelle.* Remember that it takes time and patience to network. You cannot just volunteer once and expect to get an offer. Show your motivation and perseverance by volunteering for several positions.

*Carlos.* The importance of networking cannot be overemphasized. One of the best words of advice I received for finding a job is to “dig your well before you are thirsty.” Make sure you are prepared for a job search while you are still a student or before you are forced into a job search due to unexpected layoffs. Start networking early. Remember that contacts can be acquired outside of your industry. Talk to your minister, your dentist, and others who may not be in your field. Everyone you talk to knows someone and could be an asset for a job search. Personally, I got my job by building on opportunities I made possible by volunteering.

*Audience comment:* Volunteering for the local chapter can also be a gold star on the resume. Take the opportunity to volunteer for the first thing that lets you network. Be sure to choose the volunteer opportunities carefully so they give you the most exposure. (*David Gilmore, IDEO Product Development*)

### **Panel Experiences and Advice**

*Karen.* There are various approaches people can take when looking for a job in academia. One is a “shotgun approach” in which the applicant applies for as many jobs as possible, hoping for a lead and accepting the most attractive offer. Another is to carefully identify the prospective employers that provide the best fit and focus on them. The latter approach was best for my situation. I had to be

selective because if a new position required relocation, I would not be moving alone. I had to consider my husband's career along with my own. Therefore I applied to only 16 carefully selected schools.

My job search was similar to applying to graduate school. I based my choice on the best match to my background, preferences and skills, and involved decisions similar to those involved in the process of choosing an ideal graduate program. The University of Alabama was a good fit for me because of our common interests in perception and my academic background.

I recommend that job seekers also consider their optimal balance between work and lifestyle when choosing a career. Money and job roles should only be part of the equation. You should also consider whether your job would be compatible with the time you spend away from work. Academic jobs may not pay as well as industry jobs, but they may provide a better work/life balance for many.

*Arnie.* On June 26, 2002 I was forced to become a job hunter when my employer, Sapient, shut down the Denver office where I was employed, and I was laid off. In the past I helped other colleagues find new jobs and now I was facing the same task.

There was some warning of the layoffs, and I was able to plan for my job search while I was still employed. As I watched the situation at Sapient grow worse, I began to draw on relationships to begin networking. This started informally by asking friends if they had personally heard anything, and to let me know if something came up later. When the layoffs took place, these friends offered personal support, but they also provided professional references and acted as eyes and ears for me within the job market to help me with my search.

Sapient also provided some professional resources. They referred me to an outplacement service that offered guidance for finding other employment. The advice I received from that professional service was very similar to what is available to you in the HFES publication, *Preparing for a Career in Human Factors/ Ergonomics*. Their first suggestion was that I should identify what job I wanted to do. I used my past experience as a resource to do this. Your experience gives you important cues as to what your ideal job might be. You should strive to find a job that is satisfying and that provides you with an opportunity to add value and contribute professionally to an organization. I looked for a fit based on these criteria, hoping to stay in Denver.

I added my name to job boards, such as those provided by various professional organizations like HFES, including the technical groups. I continued to ask for advice from friends and from friends of friends with whom I made contact during my search. I also tried to create jobs for myself at different

companies, including Sun Microsystems. This is possible if you make the right connections.

After two months of looking, I was not able to find the right fit at Sun. I wanted to achieve the right balance between work and home life. Ultimately it was a friend's advice and networking that led to my current job at Microsoft.

*Michelle.* Over the years my career has moved me from California to Massachusetts, and taking advantage of the opportunities available to me has helped me several times. On one occasion, I had to look for another job because the entire faculty at the University of Southern California's Institute of Safety and Systems Management, where I was employed, was laid off. If you lose your job like I did, simply tell the people you know that you lost your job. This is a great way to begin a job search because someone might be able to help you right away. If those initial conversations do not produce any direct leads, you can still ask if they have heard about anything. People I talked referred me to other projects they knew about but were not involved in personally. I followed up on those referrals, spoke to them, and those contacts gave me a job within six months.

A few years later when I had to move to Boston because of my husband's job I had to conduct a job search again. I called Liberty Mutual because of research I read that was developed by that company that interested me, and I was eventually able to secure a position through contacts I made there.

Familiarize yourself with what you need to be happy at your job and use that as a guideline for finding the best employer, but understand that you will also be expected to be part of a team.

*Ellen.* I began my career with broad academic interests, beginning with bioengineering and finance as an undergraduate. A major influence on my initial career choice came from watching the Six Million Dollar Man on television. Here was a character with life-threatening injuries who, through technology, was healed and made into something superhuman. When it came time to choose a career, I wanted to be part of a project like that. Because of this, I was inspired to go into bioengineering. Unfortunately, I learned as a senior that I did not want a job in biology because I was too squeamish and changed my curriculum to finance. Upon further reflection, I found the prospect of working on Wall Street unappealing due to the high stress and long hours, so I decided to pursue something else.

Because of my changes in direction, in order to find a job upon graduating, I had to be less selective. At that point I wanted simply to be employed at a good company. I ended up being hired by IBM to work on a project related to Air Traffic Control, where I developed the interest in automation that I

still have. That is also when I first considered this area for a PhD. As my job history demonstrates, it took a while for me to decide what I wanted to do. In fact, I believe I am still deciding.

I have worked in several places developing my skills and realizing my interests. I spent nine months working in England, and I worked at NASA Ames. If I learned that an organization was doing something that interested me, I called and visited them just to learn more about the type of work they did. I made several good contacts this way that turned into jobs for me later. It is important to start building a network of contacts and looking early because a job search can take a long time and you may learn some things along the way that may redirect you.

I continued looking for my ideal position while I still had a job. I looked for universities that had research interests similar to mine, including a focus on human-automation interaction. I spent my time networking instead of sending out hundreds of resumes. I called schools, talked about my background, and asked if my skills were appropriate for the position. By doing this I narrowed my search down to schools I knew I would fit. Ultimately, I sent applications to only six schools. Of those six, two responded with offers.

I did not plan as carefully as Karen Young did for her career, but I have always worked to build on my resume. Opportunism, persistence, and luck are important to finding a job. In my case, most of it was opportunism. Being interested in what you do helps a lot. Enthusiasm for your field comes across to employers when you talk about what you can do and makes you look more attractive as an employee.

*Jim.* It is possible to find a job without direct experience. I was able to successfully conduct my most recent job search without having a prior internship or any applied work experience and without being certain of the environment in which I wanted to work. I used the interview process to determine the type of job that was best for me. I interviewed at three prospective employers for three very different jobs. The first one was an academic post at a large school. The second interview was in industry with a small start-up company trying to design a skin scanner. The third was Liberty Mutual, which is a combination, requiring research roles in an industry setting.

I had no experience prior to these interviews. In order to prepare, I tried to compose my resume making the best of the experience I had, addressing the needs of each employer. For anyone with the same situation, it is important to be flexible in terms of what you can do with your skills. Determine how they can be applied in a number of environments and employers.

The interview process itself can help your search in other ways. By asking the right questions at each

interview, I got to know which work environments I was most compatible with. Information I gathered from each employer helped me make the decision among the academic, industry and combination environments while I was in the process of interviewing.

It is important to learn whether you will like your employer. Compatibility within a work environment may not be easy to learn through an internship or a research assistantship. Go to the company you are thinking about working for and see if it is a place you would want to work. Ask yourself if you will be content to sit there for five years or more.

*Carlos.* The other members of the panel have done a great job in providing lessons for finding a job, so I will just tell you the qualities I look for in a prospective employee. I am certainly interested in domain knowledge in the work you are being hired to do. However, primarily, I look for communication and leadership skills.

**I expect to receive my PhD this year and I have about two years of work experience. However, when I look for jobs in the industry, most seem to require five years of experience. How do I get a job when I do not meet this requirement?**  
(Rebecca Freer, SPC)

*Ben.* The five years of experience is not important. What is important is the significance of the two years you have that is applicable to the position.

*Arnie.* I agree with Ben. Do not worry about the five years. Companies know a lot of experienced people are available and use it as a screening method. Show them that the experience you do have will meet their needs.

**How do you get past the screener in human resources who is instructed to use the five years as an elimination criterion?** (Laura Miller, Vroom Technology)

*Arnie.* There can be ways around this. Microsoft used knowledgeable screeners who look deeper than to just a rigid number of years of experience.

You can also go around a screener with personal contacts. One way to do this is to utilize a consulting approach once recommended to me by an outplacement service. You begin by identifying a “coach” within the company who can keep you informed of significant information such as corporate culture and people and their various roles. Your coach can inform you who can hire you and who has the authority to create a job. You can take the initiative to create a job if the available jobs at a given time do not fit you, but there is a possibility that a vacancy can be made to fit you.

**Where can I find the questions employers ask so I can be better prepared at a job interview?** (*Ellen Church, University of South Dakota*)

*Ron.* I think we can direct this question to the entire panel. What is your favorite interview question?

*Ellen.* Tell me the thing about you that makes you unique.

*Michelle.* What are you looking for five years from now?

*Ben.* After a research presentation, I ask, “Who cares?”

*Karen.* Why should I hire you?

*Arnie.* What is your biggest weakness?

*Ron.* I present the candidate with a scenario, and then I ask, “What would you do next?”

*David Gilmore.* Tell me about a well-designed product you use.

*Arnie.* Interview questions are generally behavioral questions that are designed to use past behaviors to predict behavior in future situations. There are only so many questions that can be asked at an interview. They do not have to be specific to human factors.

### **Summary**

Three themes emerged from the panelists’ presentations and responses to questions: (1) develop a marketable skill set, (2) be flexible and take advantage of opportunities as they become available and (3) network.

The panelists stressed the importance of building a resume as soon as possible by identifying and developing marketable skills. If students wish to prepare for an academic career, then they should focus on producing publications and secure a teaching assistantship. For those interested in an industry route, a coop is a good way to get started. However, research and internship experience can be valuable to either the industry or the academic track. Both help build on proficiencies that employers look for, such as applied project experience and the development of interpersonal skills. Experience performing research in an academic setting may also be applicable as industry experience when the research is related to a particular job role. Additional

experience can only be an asset, regardless of the student’s ultimate career path.

Another point the panel made is that decisions made on choosing a career track in the present do not necessarily restrict or dictate future changes in direction. Students should be flexible when developing their careers, whether they are pursuing volunteer positions, teaching and coop opportunities, or job leads. Volunteer positions are available at the annual HFES meeting, with the technical groups, and with the local chapters that can provide valuable exposure, experience, and a potential venue for networking. The panelists gave examples of how keeping an open mind about their careers created possibilities they may not have considered, such as experiencing the difference between academic and industry roles, developing expertise in other research areas, broadening existing skill sets and making new contacts. Changes in career goals can happen at any time, and should not necessarily be discouraged. These course adjustments can occur deliberately or unexpectedly to students, experienced professionals and even, as in the case of one panelist, during the interview process. The most important thing is to find the job best matched to your interests and personal priorities, which may change over time.

The final theme, the importance of networking, was stressed unanimously by the panel. Taking advantage of personal contacts is the most reliable way to find a job. This requires students to begin, as soon as possible, to develop relationships that will help them find a job later. Contacts develop not only from discussions during volunteer work, local and national HFES chapter meetings, but also from conversations with other students, faculty members, and members of your community not necessarily in your field. Everyone knows someone else and there may be only a single degree of separation between you and the ideal job opportunity.

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