

# Transitioning from Student to Professional: What's in your future?

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Welcome to the fifth annual Human Factors Society Career panel. This year's panel for the advanced graduate student, or for the individual contemplating a career change focuses on 1) Preparing for a career, 2) Transitioning from being a student to being a professional and 3) Approaching work in a new profession. In the written version of this paper each panelist addressed six questions reflecting on their experiences as job seekers and new employees and, in most cases, as individuals who have been very involved with hiring and or providing extensive career advice to graduate students. At the HFES meeting panel session, the entire panel will focus on answering questions from the audience.

## PREPARING FOR A CAREER

**How should I decide whether to go into academics, government, consulting, or industry? What considerations should be weighed to make the decision?**

*Tony.* The decision should be based on a careful analysis of your own experience and skills, along with a comprehensive understanding of the daily activities that each vocation entails. The key word here is compatibility; finding a match between what you want to do and are capable of doing, with what you will be expected to do in one type of job versus another.

*Eugenie.* As I was finishing my school work and preparing to choose a direction for my career, I found myself debating the issue of an academic or a non-academic career. My advisor asked, "Do you want to do your own research, or somebody else's research." I jokingly responded, "well, somebody else's research hasn't bothered me so far!". Indeed, academician's may not have much more freedom to pursue interests as they compete for grants and the old 'publish or perish' dilemma as an industrialist developing products.

After being in school for several years, most students have a reasonable understanding about what would be involved with an academic career; however, non-academic careers are, for most students, a great unknown. There are career opportunities in non-academic areas, such as private industry, medicine and medical equipment, the military, government, and consulting. Each area has its own appeal to the people that work in those areas. Non-academic careers are not only different in their areas, there is further diversity of opportunity type. There are opportunities for research, basic and applied, design of systems, design of process and many more.

Knowing there are numerous opportunities outside of academics doesn't make your choice any easier, only more knowledgeable.

When you started your schooling if someone asked you where you would be in five years you answered, "graduated and making real money!". As you end your career as a student, you have to ask yourself, "where do I want to be in the next five years--researching, teaching, building products to help people, being on the leading edge of science and technology?" The best way to educate yourself and answer these questions is to talk with professionals in each area.

Remember your education will allow you to choose from several opportunities. By choosing a profession, you don't back yourself into a corner. If you find that you are not happy working in the field you have selected, your education will allow you to choose another alternative and see if you like that area better.

*Melroy.* Ask yourself about the work you did during your program at school. What was it you enjoyed doing most? What did you enjoy doing least? What were some of the things that you excelled at doing? For example, did you work best as an individual or as a team member, did you like making presentations or writing reports, did you enjoy going to the library to research material for an assignment, did you like field assignments, etc? In addition, you need to ask yourself, "What motivates me to do a good job?" Use these answers to determine realistic long- and short-term career goals, and how each of the four career paths best lend themselves to achieving your goals. The following considerations should be weighed to make the decision:

Type of work involved--If you like doing different assignments, then consulting might be appropriate; if you like teaching or doing research, then get into academics; if you want to maintain a balance between research and different

assignments, then a job in industry might be appropriate. If, a very structured work environment, and doing research sounds appealing, then a government type of job may be more suitable. Note, however, it may be possible to combine the different career paths. For example, you might go into academics, and still do consulting.

**Job benefits**--This incorporates salary, vacation, insurance, career advancement, professional development, and travel.

**Job security**--How hot are the different career paths? What do the economies of the market dictate?

*Kristen.* The decision to pursue an academic career in human factors should be based on your feelings about the basic three duties: research, teaching, and service. In terms of research, an academic career provides the opportunities to develop one's own program of research and work independently. You will be able to pursue your own ideas and possibly work collaboratively. There are, of course, differences between a predominantly research oriented university and four-year universities with the former requiring more grant funding, research publications and usually independent work. Four-year colleges tend to emphasize research done in collaboration with students and research is often considered less important than teaching in terms of tenure. You must enjoy teaching in order to be an academician. Even if you are considering a research oriented university, you will need to enjoy time in the classroom and interactions with students. Finally, an academic job requires much service in the form of committee work, departmental meetings, and other miscellaneous work that you will be asked to do. If you enjoy independent research (including seeking external funding), teaching, and working with others on committees, you will enjoy the academic workplace. You should also consider your earning potential across your career, your willingness to move in order to work at the type of university you are interested in, the universities policy on consulting, and the potential differences in work demands/schedules.

*Arnie.* The most important considerations are personal. What do you enjoy doing? What kind of an environment do you enjoy working in? What do you want for your career? In academics, you have freedom in defining research, but you typically have to deal with raising funding, your teaching load, and the politics of tenure. In consulting, your freedom comes in picking the projects on which you want to work and when you want to work. You often get to be treated as an expert, but you may not be treated as part of the team and you do need to deal with keeping food on the table during the slow times. In industry, the satisfaction often comes from seeing products becoming real and being part of the teams creating the projects, but the work is often the work that you are assigned.

*Doug.* Your own personal need for autonomy is very important. Academics and consulting allow you to be more of your own boss and to choose the projects that interest you. Government and industry jobs often (but not necessarily) offer less autonomy.

## **How should I (a student) prepare myself to be a professional?**

*Tony.* Concerning academics, I don't think a choice is involved; you either have a "calling" for academics, or you don't. Government jobs are typically research based and offer a casual, academic climate. In contrast, consulting and industry jobs are often more designed based, and involve more time demands and overall pressure. One isn't better than the other; each requires different skills and personalities. Regardless of the type of job you are attracted to, don't overlook the "personal" and "daily grind" factors when making your final decision. Concerning the former, make sure you get along with the people you will have to work closely with. Concerning the latter, find out what a typical day consists of. Too often students are wowed by the occasional big event and disappointed by the everyday details.

*Eugenie.* You have already begun your training to be a professional. Yes you completed classes to obtain specific knowledge about human factors and other related areas. More importantly, these classes have given you an opportunity to develop other skills that are extremely useful to professionals. Skills like critical thinking, analysis of problems, writing, oral presentation, and working in groups are all tools that you will find necessary when working as a HF/E professional. As you move forward from student to professional, these skills will continue to be sharpened and new ones will be added. It is important to remember that your education in it's formal sense has ended; however, you will never stop learning. One area of this learning will be as new knowledge of your chosen field. You will also continue to learn new techniques to solve problems, or to work with people. As you prepare yourself to enter into the professional world, you should feel confident in your abilities and always remain open to new ideas.

*Melroy.* Start by being aware of what is going on in your professional field. If there is an area in your field that you would like to specialize as a human factors professional, then learn about advances in that area, be knowledgeable of the research, and develop skills that are needed for the job. This can be accomplished by: reading different literary publications in your field; attending conferences or seminars and talking to professionals in the different fields of human factors; volunteering at HFES and related conferences and participating in the local HFES chapter; enrolling in an internship program. Also, build your "people skills" during group assignments at school, learn to make presentations, take a class in technical writing, improve your time management skills to handle pressure by prioritization and efficiently balancing different course loads and other activities at school.

*Kristen.* In order to prepare yourself for a career in academics, you should take advantage of several opportunities. First, take classes in a wide variety of topic areas. You need to be prepared to teach outside of your area if necessary, you never know when being willing to teach the class that no one else is interested in will get you the job you want. Also, take every opportunity to speak in research

meetings, class, etc. There is no skill that will serve you better on a job search and in your career than the ability to present your research well. If you can teach a class, or guest lecture as much as possible. You must be certain that you will enjoy the classroom. Finally, make as many professional connections as you can. Introduce yourself to others at conferences and get involved in professional organizations. Those acquaintances can be a real asset while you are on the job market and as you begin your professional career.

*Arnie.* For a job in industry, my most important advice is to obtain an internship in industry. It is an important element to have on your resume when you first get out of school, it gives you insight into the skills you need to acquire and how work effectively in industry, and it gives you a feel for whether this is the kind of work you find satisfying. Next to the internship, getting experience working on projects that result in design, improving your communications skills (e.g., by seeking opportunities and obtaining feedback), and working on teams are all important. Finally, I would look for what the "hot" user interface issues or technologies are in the general domain where you are looking for work, and I would try to build expertise in these areas.

*Doug.* Publishing articles in journals and presenting papers at conferences, regardless of your career ambitions, are important to professional development.

## **TRANSITIONING FROM STUDENT TO PROFESSIONAL**

### **What do HF professionals find most difficult when making the transition from student to professional?**

*Tony.* The most difficult thing to adjust to is the short decision times. In most consulting and industry positions, decisions have to be made rather quickly and not all issues can be "researched"; in fact, consultants are often paid for their knowledge and not their time. Students often have trouble making definitive design or evaluation decisions on the spot, or with little time to thoroughly address the issues at hand. The second most difficult issue confronting students is inter-personal communication. The fact is, that you don't advance in any business unless you learn to write, speak and communicate in various forms with ease and effectiveness. There are no exceptions.

*Eugenie.* I have always been a very goal directed person. I knew what I wanted out of my education, and I developed a plan and a schedule that would allow me to reach my goal. I remember feeling somewhat lost as I finished my education. I thought to myself, since I was 3 years old when someone asked me what I was, I responded "a student". Now, I had no definition. I realized that I needed new goals and plans to achieve those goals, and then I would not feel so lost. The first goal was to determine academics or industry. Once that was determined my goal was finding a job (and making money!). I understood that my future was a new area, one that I had little background knowledge to draw upon to help

me know exactly what my goals should be. I began to realize that I would have to develop short term goals, and once those were achieved, I could begin to develop more long term goals. The most difficult part of the transition was leaving something with which I was very familiar (being a student) and entering into something about which I knew next to nothing (being a professional). The transition became easier when I realized that the best parts of being a student follow you into your career as a professional.

*Melroy.* Some of the things that I've found most difficult are: 1) Making decisions that are based on "professional opinion" rather than on available data, and knowing that these decisions would affect the entire organization, rather than just myself (which is generally the case at school); 2) Adapting to the pace and schedules of industry, especially when product development cycles are very short; 3) Educating cross-functional team members about human factors and its application to product development; 4) Convincing them of the need to incorporate usability features into the product, and the allotment of time for usability testing within the product development schedule; 5) Having a graduate degree, but not sufficient credibility to influence decisions during the early stages of my career.

*Kristen.* Depending on your graduate career experience, you may find the sudden independence of an academic career unsettling. The demands placed on an academic are vague and often unspoken. In order to succeed, one must be self-motivating and goal driven. It can be easy to let the demands of teaching take over and subsequently other responsibilities will suffer. Thus, perhaps the most difficult transition is learning to properly allocate one's time so that all aspects of the job are appropriately completed

*Arnie.* In the companies and organizations where I have worked, the biggest challenge in making the transition for most people is in learning to deal with the fact that product development involves compromise. There is never enough time or resources to do the perfect job. The schedules are typically defined by others. To get an improvement incorporated into a design involves selling the improvement. A second challenge involves dealing with the fact that recognition for a job well done is often not based entirely on the inherent quality of the work (which the manager may never even see, let alone appreciate), but may be based on the visibility of the work, the appreciation team members and clients share with the boss, and other factors.

*Doug.* The lack of a mentor or someone to turn to who knows more than you about a topic is initially difficult to deal with. Being expected to be an "expert" right out of school.

### **What questions should a student ask a potential employer to make the right career decisions and to make a smooth transition?**

*Tony.* The two most important questions to ask a potential employer are: 1) "What do you expect from the person you hire", and 2) "Exactly what must I do to advance in this company?"

*Eugenie.* An interview is not just for an employer to decide if you are right for their position, it is equally important for you to decide if the position is right for you. Do not enter into an interview thinking only that you must answer their questions appropriately. You must also ask the right questions to make sure that you are entering into a situation that you will enjoy and will be able to fulfill. Of course everyone wants to know the basics (e.g., how much money, how many days of vacation, and what are the official company holidays!), but it's important to understand all aspects of the potential job (e.g., job responsibilities, performance evaluation, skill development). Find out what your basic job responsibilities are, and about other less tangible expectations that will accompany those responsibilities. As with any new hire into a position, there is a period of adjustment. You must learn basics, from where is the bathroom to how to send e-mail. After the basics are understood, you must learn the specifics of your position. You should speak to your potential employer about their expectations for this learning curve. How long did it take others to gear up to the position? Are there any people who can act as a mentor while you learn? Are there classes that can quickly get you up to speed? It is also helpful to speak to the people with which you will be working. It is important to see if you are compatible. You may also want to ask these people what they believe your job responsibilities are. They may have a better understanding of the role you will actually fill versus the role your potential manager thinks you will fill (apologies to all of you managers-!). Once the job responsibilities are understood, you will want to know how you will be evaluated for your position. What are the performance areas that are important in your position? How are rewards given (e.g., bonus, salary increases, promotion)? What determines who is in line for the rewards? You will also be interested in how this employer will support you in keeping you skills current. You will want to know if you can attend classes either inside or outside of the company. You will also want to know whether or not you'll be allowed to travel to outside conferences.

*Melroy.* Some questions that a student should ask of a potential employer are: 1) How has been the experience of the department in evangelizing human factors within the organization? 2) How receptive are cross-functional teams to implementing usability features in a product? 3) What kinds of professional/career development opportunities are available for growth within the organization? 4) Is the report structure functionally- or product-driven? 5) What are the main goals or initiatives of the department? 6) Does the department have any formal performance reviews? 7) How often? 8) What criteria are used in determining a salary increase? 9) What is the labor turnover rate?

*Kristen.* For an academic position, there are dozens of questions that you must ask; far too many to list here. The best resource for finding these questions is *The Compleat Academic* (Zanna & Darley, 1987). In addition, you should consult with senior colleagues about the questions they found most informative. If you are interested in consulting, you should be certain to ask if it is allowed, and if it is valued in

terms of tenure.

*Arnie.* When I have looked for a job, I ask first about the kinds of problems with which I will be dealing. What will I be doing on a typical day and on a typical project? Will I be involved throughout the design process, or at just one stage of it (e.g., doing usability testing)? What are the barriers to achieving a first class design? Are there enough resources? Are schedules tight and expected to become tighter? Are there political barriers that will have to be overcome over and over again? Will I be an integral part of teams, or will I be an outside consultant that is brought in as needed? Next I ask about career opportunities and support. Will I be able to learn new skills? Under what conditions? Will I be able to participate in professional organizations and attend conferences? Under what conditions? What might my career path be like? How will I be evaluated? Third I am interested in what my colleagues are going to be like. The goal of my onsite visit from my perspective is partly to see if I will like the people that will be in my group, and the environment in which I will be working. I am also interested in the general climate, including how people view the future of the company and their immediate management. Are they excited about the prospects for their business and do they feel the company is on the right track? Are they reasonably confident in their management? Does management have a vision for the business, and am I comfortable with that vision?

*Doug.* What types of training or professional development programs are available to you to help refine your skills and expand your knowledge.

## APPROACHING WORK

### What is important in non-academic jobs?

*Tony.* The most important skills for non-academic jobs are communication, design and business skills. You must be able to sell your company, your concerns and your solutions (communication); you always have to deliver your work in some visual form (design); and you have to understand the financial and marketing goals of your company (business).

*Eugenie.* This question can only be answered in a way that most people hate to hear, "It depends". As we discussed earlier, there are several different fields and career opportunities in non-academic positions. Each will have differences in what is important for that position. Some places will think their material is proprietary and won't want you to publish. Others will think that making a name for the company is important so papers and patents are important. Some careers will be mostly concerned with delivering a product. In that case, design is the most important. Others will want to push innovation be the forerunners of their technology. In that instance prototypes will be important. In all likelihood, a job will demand combination of the above markers. What is important is that you understand what a potential employer thinks is important and feel that their goals are similar to what you find important.

*Melroy.* It depends on the type of industry and department that your work in. Generally, designs test results and product performance are the most important considerations. These test results are based on the designs of the product. In this context, design does not mean only aesthetics, but also the functionality and usability of the product. Positive test results may be seen in the form of greater product sales, good reviews in magazines and trade-shows, customer satisfaction, low defect rates, and higher cost savings to the organization. This is followed by patents, prototypes, and publishing. Publishing often ranks last because it may not be perceived as providing any value to the organization or its product. Generally, product development cycles are so short and intense, that they seldom allow someone the time to write a paper. There are also issues with confidentiality. An organization may not permit the disclosure of any kind of sensitive or competitive data.

*Kristen.* I'll yield to my colleagues in industry.

*Arnie.* It is assumed that the best work possible will be done within the constraints of projects, and the quality of the specific deliverables typically doesn't differentiate highly between people. For the organizations that I have managed, this includes the ability to do some prototyping, to be an effective designer, and to conduct and innovate in usability testing in order to improve designs. If work fails to meet the needs of the client, that is a major problem. The ability to delight team members and clients with work that exceeds their expectations, that goes over and above what is requested in ways that bring value in the eyes of the team, is highly valued however. Selling the value of human factors in a way that increases the demand and influence of human factors work is important. Helping to create an environment in which the entire human factors effort prospers is important. Beyond that, flexibility, pragmatism, creativity, teaming skills, and a growing sense of the business and how human factors contributes to the business are important. Publishing and patents are nice, but typically have only minor impact during performance review. Publishing and patents are more often viewed as something that is associated with a satisfying work environment.

*Doug.* Publishing is respected but not necessarily encouraged.

### **How should I approach my work to ensure a successful career?**

*Tony.* Want to succeed? 1) know what you do best and look for a job that depends on that skill, 2) give as many presentations as you can while in graduate school, 3) learn how to argue, and 4) learn how to ask the right questions, don't try to learn the answers.

*Eugenie.* You should approach your career as a professional as you have approached getting your education. You should be goal-oriented, motivated, enthusiastic, and open-minded. You will choose to work not solely for a means of support, but also for a sense of self and pride. You should take pride in a job well done. Determine what you want and

be motivated to achieve those ends; bring your enthusiasm for knowledge, an open mind.

*Melroy.* The following things will help avoid failure during your career: 1) Understand what is your role in the organization, how it fits within the overall product development schedule, and what is its impact on the organization; 2) Develop relationships with different cross-functional team members because they hold information that allows you to make more informed business decisions, and they play a big role in implementing these decisions; 3) Identify who are the key players that make decisions in the product teams and in the organization because they can influence the outcome of your projects; 4) Maintain a close relationship with your bosses and make sure you understand what they expect you to accomplish in your job; 5) Learn to be professional, to be tactful, and to make timely decisions, even if you cannot please everyone; 6) Know when a trade-off needs to be maintained between implementing a usability feature, and not doing so. For example, if a low budget cost target has been set for a project, do not insist on "nice-to-have" usability features that only increase the cost of the project.

*Kristen.* I think that the best approach is to assume that you have much to learn. Consider your academic appointment to be a further step in your education. Seek the advice and counsel of senior colleagues you admire on all aspects of your work. In the classroom, of course, you are the expert, but your students are individuals with valuable experiences and insights from whom you can learn as well. The academic's job is not just to disseminate knowledge and to prove great hypotheses in the laboratory, but to seek information and to continue learning. This approach keeps you humble, motivated, and on the path to a successful career.

*Arnie.* Work should be approached with energy and enthusiasm, with a sense of responsibility not only for the technical quality of deliverables but for the ultimate success of projects. It should be approached with a positive attitude. Feedback should be continually sought on how to do a better job. Skills should be grown and applied to the work at hand. The job should be approached with a generous spirit, demonstrating the ability and willingness to help others do better and to help teams. Look for the forest and the trees. Demonstrate to management what you are doing in each of these areas.

*Doug.* Never stop developing new skills or learning about new areas of research. Keep in mind that either by choice or necessity, you may be applying for other jobs some day.

### **REFERENCE**

Zanna, M. P. & Darley, J. M. (1987). *The compleat academic*. New York: McGraw-Hill Inc.

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