

“The Real World” HF/E: Understanding the Realities of Your First Professional Job

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Welcome to the Fifteenth Annual Human Factors and Ergonomics Society Student Career Panel. While our typical career panel emphasizes what one should do before graduation to prepare for a career, it is equally important to know what to do once one starts to work on the job. Thus, this year’s paper will begin with a section by Anthony Andre, emphasizing the final preparations for a new professional career as well as the job search itself. The remaining papers will discuss what to do after beginning one’s career. Anshu Agarwal will discuss the first 90 days on the job, Sharnnia Artis will discuss the remainder of the first year, and Raegan Hoeft will discuss the second year. Ron Shapiro will close by focusing on the subsequent term of a given job. This paper will present tried and tested techniques as well as new ideas towards preparing for, finding, and experiencing the ideal career path and position. At the annual meeting panel discussion, panelists will provide a brief introduction and then entertain questions from the audience regarding career preparation while still in school as well as success factors on the job.

FINAL PREPARATION FOR THE TRANSITION TO THE PROFESSIONAL WORLD *ANTHONY D. ANDRE*

As you approach the end of your graduate school tenure it is important to adopt a new and more focused approach to your professional career preparation. While you were probably open to any and all types of career paths at the start of your graduate training (for good reason), at this point in time it is wise to focus in on a selected few domains or occupations. There are several approaches one can take to this task. Of course, one can always start by identifying which of the classic 3 career paths you desire to enter: industry, government or academia. However, note that while “industry” is often equated with “practice/application” and “government” is often equated with “research”, the division is not always clear cut, and within each of these sectors, one can find application, research or positions that engage in both.

Perhaps a more contemporary consideration is the type of HF/E work you are interested in performing. Are you interested in (and/or more prepared for) contextual inquiry and user experience research, or product ergonomics and user interface design, or workplace ergonomics, or evaluation and usability testing? Equally relevant is to consider the industry or domain you are interested in, with many choices available. Some of the most popular ones include: aviation, medical, software, mobile devices, computer hardware, automotive and gaming.

But just narrowing your focus to a particular service or domain is not merely enough to effectively pursue a desired job. After all, why even bother to narrow your choices if you don’t take advantage of the opportunity to more thoroughly prepare for these chosen career paths?

In the remainder of this essay, I’m going to assume the role of a graduate student, earning completion of his/her degree, who has a strong interest in obtaining a job in the medical device field.

Step 1: Identify any requirements, standards or regulations

At the very minimum, any employer in this domain would want to make sure that their newly hired HF/E professional can help guide them through the usability and ergonomics requirements of the FDA, and to protect them from medical device errors and the associated law suits. There are a number of process and design guidelines documents produced by the FDA (see <http://www.fda.gov/cdrh/humanfactors/>), as well as other medical agencies and organizations, such as AAMI (e.g., **ANSI/AAMI HE74:2001 — Human factors design process for medical devices**). These are a must read.

Step 2: Study the literature

As with many other domains, there is a good body of literature specific to human factors in the medical domain. Start with the seminal article by Leape on medical errors, move on to the many other articles available, and then end with books by Bogner (*Human Error in Medicine*) and Wiklund & Wilcox (*Designing usability into Medical Products*). This body of literature will provide you with a good background on HF issues, case studies and applicable data, theory and principles specific to the domain.

Step 3: Learn the HF best practices

Many established practitioners in this domain have contributed to a growing body of information pertaining to design best practices, heuristics, and lessons learned, all readily available on the Web. Take some time to find and absorb this bounty of free guidance!

Step 4: Study the technology

The way products are made, and what they are made of, is somewhat specific to the medical industry. Learn the common technologies and design constraints that you will have to work with. For example, medical devices typically have small screens, membrane controls and fairly low processing and graphics capabilities. Medical device companies look for HF/E professionals who understand the unique design constraints that their engineering and business realities produce.

Step 5: Broaden your perspective

The final step of the preparation process is to broaden your perspective of how HF/E applies to the medical domain. I have often found that, even among those medical device companies who seek out my assistance, there exists a fairly limited view of our potential involvement and impact. In fact, there are numerous ways we can apply our skills on behalf of such companies. Beyond designing their products, you can help a medical device company by:

- Conducting validation studies to provide data for FDA submissions.
- Conducting competitive usability studies to learn how the company's products compare to their competitors.
- Writing and illustrating the device instructions, as well as warnings and labels.
- Investigating any use errors or incidents to understand the human factors involved.

The key point is to present these activities to a prospective employer, whether or not they specify them in their job listing.

In summary, using the medical domain as just one example, I have outlined a multidimensional approach to educating and preparing yourself for a subsequent focused job search. This approach will allow you to pursue and obtain the jobs of most interest to you by demonstrating a deeper and more relevant understanding of the product domain. This, along with research into the specific companies you interview with, should land you the job of your dreams!

References

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HOW TO SUCCESSFULLY TRANSITION FROM GRADUATE SCHOOL TO THE CORPORATE WORLD

ANSHU AGARWAL

You've interviewed extensively, weighed the pros and cons of your job offers, and finally, accepted the position that you think is the best fit for you. Congratulations! Now starts the part that no one really talks about in graduate school: How do you make a successful shift from academia to a corporate environment?

The first step to making a successful transition is in being cognizant of your own personal needs and goals. Although working life is different from graduate school, consider what activities kept you satisfied and challenged in college and look for similar opportunities in your new job. Take the time in your first week as a new hire to sit down, think about, and write down your answers to the following questions: What are you hoping to achieve in this job? What are the skills that you would like to learn and improve on? What are some of your professional and personal goals? Where do you see yourself in 2, 5, 10 years? These are hard questions, but keeping them in mind will help you assess your own personal progress as you grow. Moreover, you can revisit these questions at any point in your career as they will remain relevant over time.

The next step is critical: communicate these goals to your new manager(s). They hired you because they believe you are capable and right for the position. Your direct manager (and/or mentor) is essential in guiding your transition; he/she is responsible for your performance and has an invested interest in your success. Within your first two weeks on the job, sit down with your manager to discuss your goals and expectations. What are your concerns in the first three months? Ask what your manager in turn is expecting from you during your initial ramp up process: What does he/she hope you can achieve in 90 days and furthermore, during your long-term career at the company? How do your goals align with those of the team and the company as a whole? Development of a strong working relationship between you and your manager will be a gradual process that is founded on shared understanding and open communication; this initial conversation will help to ensure that your manager will be there to support your development and interests as you tackle greater responsibilities.

Following this initial meeting, take the initiative and schedule regular one-on-one meetings with your manager to update them on your projects and to tell them about your learning experiences. These one-on-one meetings are your opportunity to discuss any obstacles that come up and to shape what projects you'll be assigned in the future. Is there a project area that you're especially interested in? Do you want to submit a paper and present at the HFES conference next year? Having regular one-on-one meetings with your manager provides a designated place and time for discussions regarding your career interests and skills.

Unlike your graduate school advisor however, your manager may not immediately hand you difficult projects to help you learn and grow. Your performance reflects on your manager and the overall team; it trickles up in an organization. If you do well on a challenging project you will gradually be rewarded with higher profile work. Constantly work towards having your manager depend on you for consistent, high quality outputs and you are well on your way to success.

Finally, take the time in your first 90 days to absorb your surroundings. Learn about the company, the product, your

new co-workers and teams. Ask smart questions and do your best to grasp how your role as an HF/E professional fits into and adds value to the larger organization. Talk to more experienced colleagues in your position to learn how they go about delivering results and succeeding in their job. If you feel their techniques may benefit your work style, incorporate their advice in your work approach.

While many things may be different in the working world from your experiences in graduate school, these distinctions will largely depend on your chosen company and its culture. You may not be able to escape to a quiet library to concentrate and at some companies you may need to be at the office everyday of the week. Traditional school due dates become less common, so you may begin setting your own deadlines based on your workload. Timelines may also constantly change requiring you to be flexible as you juggle multiple projects. You'll gradually learn how to get work done in-between meetings, how to communicate with your colleagues and teams, and how to excel. Despite the apparent differences between graduate school and working, you will be surprised how well school has prepared you to handle the transition.

Although the corporate world may seem overwhelming initially, your first 90 days at your new job will pass by at light speed. Just remember three keys to a successful transition: (1) be aware of yourself, (2) be proactive, and (3) communicate as much as possible with your manager and colleagues. Good luck!

PRODUCING YOUR FIRST CONTRIBUTIONS IN INDUSTRY: DAYS 90 TO 365 SHARNNIA ARTIS

In your first year as a Human Factors/Ergonomics (HF/E) professional, the reality is that you have to deliver your best work! You interviewed for the position that was perfectly written for you, you wooed over the interviewers at your new company to be offered the position, and you've accepted the challenge and now have to show your new colleagues that they made the right decision by offering you the position. Now that you're part of the team, you have to produce! You have to show your colleagues that you are just what they were looking for. Pressure, maybe, impossible, no.

During your first year in your HF/E career, don't expect to change the culture of your company, change the procedures already in place, come up with some new patent idea, nor manage a division. Instead, opt to learn and understand the culture of your company, familiarize yourself with your company's capabilities, projects, and products, master the acronyms and company-specific terminologies which are new to you, network with your colleagues, and do your best on the tasks assigned to you, despite the importance or triviality of the task. Perform all tasks as if your career is in jeopardy. Work as if all of your tasks are a high priority to you and your manager to set a foundation of expectation level. You want to establish your representation early on in your career. When

your manager or colleague brings up your name, you want your name automatically associated with high quality work. If your manager trusts you and knows that you deliver high quality work in the appropriate timeframe, more work and responsibility will be relinquished to you.

In order to produce high quality work early on in your career, you will need to be open to expanding your thinking and establishing a good relationship with your manager and colleagues. As a first year HF/E professional in your company, you will not know everything and that's acceptable. Frequently you're working with people that have been trained HF/E at different institutions or have different educational backgrounds, therefore, don't be surprised if you are not familiar with different theoretical concepts, methods, or terminologies. However, you should be open to expanding your horizon and learning these new ways of thinking. In addition to taking in new knowledge, you also need to know who to go to in your company to learn knowledge essential to producing high quality work.

To find the "go to people" in your company, you need to build a genuine relationship with your management and colleagues. The key to building these relationships is communication. The easiest way to break the ice and get to know your management and colleagues is to set up a meeting (or lunch if you prefer a more informal setting) with your colleagues to introduce yourself and HF/E background and to learn about your colleagues' background or area of expertise, current projects, and experience in the company. Often during these meetings you can learn how your colleagues can help you in your career, whether the individual is a person you can go to for a specific project, questions related to company-wide procedures (e.g., travel, reimbursement, tools, and programs), mentoring, or insight about the HF/E field. After breaking the ice, it's important to build upon this initial communication and establish a genuine relationship. From my experiences, the easiest way to build a genuine relationship is to build a relationship around common interests you and your colleagues share. Don't be afraid to build a relationship around common interests not related to HF/E. I've regularly built relationships around other common interests, such as, sports, family, religion, community involvement, and hobbies.

Once these relationships are built, you should feel comfortable going to your colleagues for answers and guidance to help you produce high quality work. These relationships will be a critical component of the on-the-job training you'll receive in your first year as a HF/E professional. When you are uncertain about how to accomplish a task, repeatedly, you will go to a more experienced or senior colleague for assistance. You should always go to these individuals prepared so that you and your colleague can use each other's time effectively. It's important to be proactive in the workplace. Before seeking help, try to figure out how to complete a task on your own. Utilize the Internet, resources from your HF/E education, and company tools for guidance, and then go to your colleagues with specific questions or requests. Taking

the initiative to be proactive not only demonstrates your ability to work independently and think critically, it also demonstrates your professionalism and respect for your colleagues' time. When receiving help or this on-the-job training, never feel intimidated to ask questions for clarification. It's always better to ask questions at the beginning of a problem, rather than misinterpreting the information, and having to re-do the work and going to the person again for information that could have been explained during the first meeting. However, it's not always possible that every task will be a success on your first try, sometimes you have to go to a person multiple times for assistance. When things go well, which they regularly will, pat yourself on the back and acknowledge your accomplishment. On the other hand, when things don't go as planned, use the experience as a lesson learned.

When you are put in a position where projects or tasks you are assigned are not finished on time, do not meet your manager or customer's expectation, or were extremely difficult for you to complete, do not get discouraged. Instead, use the experience as a lesson learned to apply to your future work. Often, trying times such as the ones mentioned above build character and will make you a better HF/E professional. When you are faced with such a challenge, try to figure out what went wrong in the situation and evaluate how you handled it and determine strategies to improve the situation for the future or talk to your manager or colleagues to figure out why the project or task was not completed successfully. In situations like this, use experienced or senior colleagues as a mentor. It's highly likely that these individuals have faced similar challenges early on in their careers also. Better yet, try and obtain feedback along the way so there are no surprises upon completing a deliverable. Additionally, if there is any risk of a project not being finished on time, inform management immediately and develop an appropriate plan. Remember, communication is key!

As you travel on your journey as a new HF/E professional, remember that in your first year, the reality is that you have to produce high quality work. In order to produce high quality work, you can't rely on your education background alone. In many instances, you are going to have to depend on your communication skills, on-the-job training, and the experiences of your management and colleagues. Regularly, things are going to go well, but when they don't, you will still be an extraordinary HF/E professional if you turn your least favorite moments in your career into lessons learned that you can take with you for a lifetime.

THE SECOND YEAR: CREATING YOUR OWN OPPORTUNITIES

RAEGAN M. HOEFT

On the Job

It is hard to discuss the second year on the job without referring to the first year because the first year actually

dictates the following years. During your first year in industry, you slowly learn about how things operate, who the key players are, and, most importantly, the ins and outs of the new domain area. You should spend most of your first year *listening* and *learning*. However, this does not negate the fact that you have become an expert in human factors and do have something to contribute already. Be both humbled by your new environment, yet confident in your core abilities. This combination will take you a long way. It will show others that you are willing to learn from them and that you are not intimidated by them. By the time you reach your second year, you will have developed a mutual respect with your colleagues, and even with your superiors.

It is a combination of these working relationships you build, the domain knowledge you acquire, and your past performance which will lead to the opportunities you will *create* in your second year. If you have taken on responsibilities and leadership positions in your first year, you will be given more in your second year. If you have successfully accomplished tasks and made a name for yourself, others will start seeking you out when they need help. It is certainly much better to be a "go to person" than a nameless face in an organization. The endless cycle of opportunities on the job, though, is your responsibility to initiate and maintain. In addition, thinking outside of the box, or outside of the job, if you will, can also contribute to this cycle of opportunities.

Off the Job (Sort of)

In school, extracurricular activities were always seen as a plus. At work, there are different kinds of extracurricular activities that can be seen as highly valuable because of their impact on the company. For instance, adjunct teaching can be extremely worthwhile. I took the opportunity to adjunct teach an Introduction to Human Factors (HF) Psychology course at a local college my second year on the job. Refreshing my mind with an introductory textbook actually improved my abilities at work, as I relearned some of those core concepts that had slipped my mind years ago. Further, it improved my public speaking skills, my own critical thinking skills, and it looked good on my annual performance evaluation. Finally, adjunct teaching also provides an opportunity to find interns, students who might have otherwise been unreachable.

A second extracurricular activity that can be extremely critical is networking, simply establishing and maintaining relationships with others in the HF community. Companies are often looking for new business opportunities, such as partnering with small businesses and universities. They are also often looking to hire new employees. As an employee looking to establish yourself as an integral part of the company, being able to reach out to your social network to create these opportunities can get you recognized and bring even more opportunities your way. For example, a colleague who I met at the Human factors and Ergonomics Society (HFES) Annual Meeting contacted me to ask if I would

sponsor one of her classes by providing a real world defense-related topic for them to do a semester long project on. My management so fully supported this collaboration that they funded my trips to the school and even sent an acting director with me on one of the trips. A fellow employee commented that he had been with the company 10 years and wished he could get face time with the acting director. Networking does pay off, and using your external contacts can be a great way to establish critical internal contacts which may look to you in the future.

**ASKING THE CRITICAL QUESTIONS:
YEARS TWO TO FIVE
RONALD G. SHAPIRO**

During the second to fifth years post graduate school you have established your reputation in your company and in the profession. While it is not too late to make changes, you do need to do some serious reviews of where you are and where you want to be by year 10. You need to be sure that you are on a path with a plan to achieve those goals. If you are on a path to achieve your goals, that is terrific. If not, now is the time to make changes in your employment, your career path, or your profession. Now is also the time to be sure that your skills are not becoming obsolete. While it may not be fun and it is easy to procrastinate, you should find the time to ask yourself some critical questions:

- Are you pleased with your career and the direction that it has taken?
- Is your company/manager pleased with your contribution?
- Are your goals aligned with your company's goals?
- Do you and your company/manager agree on what you may reasonably expect to achieve over the next five years?
- Have you been "type cast" in a way that would make you "surplus" to your company if a particular change were to occur in your company's technology?
- Is your salary meeting your expectations?
- Are you saving enough money in your 401K plan, and/or your Individual Retirement Account (IRA) to enable you to have financial freedom while you are still young enough to enjoy it?
- Have you maintained a professional reputation within the HF community so that you will have career options should you need or want to make changes in the future?
- Are you meeting your personal (e.g., family, travel, free time) as well as your professional goals?
- Are you maintaining desired professional skills?
- Do you have requisite business skills?
- Are you prepared to work in the global economy?
- If your company were to fail would you be widely sought after by other companies?
- Are you a good leader? Are you able to work as a team member, work through others, as well as individually?

- Do you have mentors and mentees?
- Do you have a great professional network of advisors, perhaps a personal board of directors?

Based upon the outcome of the above questions you will need to develop action plans. Be sure to document (in writing) your plans and be sure that you are making progress towards achieving them. The following questions may help you to make some important decisions:

- Do you wish to stay with your current employer?
- Do you want to grow into a technical or management leadership role with the company?
- Do you want to do more in depth work with your current projects or do you wish to move onto other projects?
- Do you want to stay with a specialization in HF or do you want to move to another area of specialization?
- Do you need to do a job other than HF for awhile to grow with your company?
- Do you want to do some supplemental teaching, take some courses, or become more involved in your professional association?

You should also be maintaining some important documentation:

- For each project you have completed have you documented for yourself what the major accomplishments have been for the project and what your role has been? Is this documentation available to you on some media which is not controlled by your employer that is readable by technology which you own?
- Do you have a written personal development plan that you check periodically?

SUMMARY

This paper has provided some interesting themes to think about as you prepare for a change from school to career. You will develop and grow, but may never actually be able to answer the question, *what do I want to do when I grow up?* If the difficulty answering the question stems from you constantly being prepared for change, then you are in great shape. If it stems from a lack of preparedness, now is the time to take action. As a poster says *life is a journey, not a destination*. Always keep on learning and maintain flexibility growing in the work force.

NOTE

The views expressed in this paper and panel discussion are those of the individual participants only and do not necessarily reflect the views of their employers.