

Developing A Successful Career: How to Find a Job, Continue to Learn, and Advance in Your Career

Demetrios Karis
demetrios.karis@gmail.com
September 10, 2023

Over the years, many people have asked me for advice about finding a job in the user experience (UX) field, and in 2015 I finally put my thoughts to paper. I've continued to add content since then, and I expanded the paper to include multiple other topics, now arranged in three sections:

1. Networking and Finding a Job
2. Advancing Your Career
3. Continuing to Learn

Although at first the focus was on UX jobs, most of this document is now relevant to practically any professional job. Note that where I provide specific information for UX jobs, you can almost always find similar information for other jobs (e.g., I suggest multiple online courses for user research and related areas, but there are now online courses for almost all disciplines). There are two books that may also be useful: *The UX Careers Handbook* (Cory Lebson, 2016, <https://uxcareershandbook.com/>) and *Get Started in UX* (Magain & Chambers, https://uxmastery.com/get-started-in-ux/?utm_source=youtube&utm_medium=video&utm_campaign=getstartedinux or on Amazon). I have not read either one. If you read one, let me know how useful it is. The Nielsen Norman Group often publishes short articles about UX Careers. This article by Mayya Azarova includes links to 30 other NN articles and videos: [Growing in Your UX Career: Study Guide](#).

How to use this document: It is unlikely that you will want to sit down and read through this entire document, and I don't recommend you do this. Here is what I recommend: Look through every page in this document (in the old days of paper I would say, "Turn the pages"). This takes only about ten minutes (as a UX Researcher I collected data on this rather than guessing). Read the headings, skim through the paragraphs, and look at the figures and you will get a very good idea of the content and organization. In fact, you might also want to take a few minutes and read through the section on "How to Optimize Learning" in Part 3. In that section, I explain SQ3R, an effective method for learning new material. The "S" stands for "Survey," which involves an initial review of the text (this is the ten-minute scan that I just recommended).

In addition, take a look at Appendix 2: Additional Pointers, where I include the comments and experiences of 12 people who reviewed an earlier version of this document. These UX professionals have many years of experience and provide advice in multiple areas.

If you're a coder: Most of the information in this document will be relevant if you're a coder/developer/computer science major. Specific information for coders and other non-UX

professionals can be found in the section at the end on Advice for Other Technology Professionals.

Another Guide: I recommend the NY Times guide, “How to Manage Your Career”: <https://www.nytimes.com/guides/business/manage-your-career?rref=collection%2Fspotlightcollection%2Fguides&redirect=true>. It covers many of the topics I discuss here, plus has links to other relevant guides and articles.

I hope that you find useful information here. If you do, please help me to improve this document for others. Send me your comments and suggestions, or share some of your experiences (demetrios.karis@gmail.com). Good luck!

Table of Contents

Part 1: Networking and Finding a Job	3
Network!	3
Network via Alumni: Using Your College Career Services' Department	6
Other College Resources	6
Network via Professors	7
Networking When You Work at Home	8
Personal CRM Products for Networking	8
Social Media Networking	10
LinkedIn	10
Twitter, Facebook, Instagram, and Snapchat	11
Slack	12
Academic Networking via Social Media	12
Conduct Informational Interviews	12
A Case Study: Weak Ties, a First Job, College Resources	13
Volunteer!	14
Find a Mentor	15
Serendipity	16
Articles and Courses	17
Interviews	18
Resumes	21
Portfolios	26
References and Letters of Recommendation	29
Non-native English Speakers	30
Job Search Websites	31
Recruiting Firms	32
Working for an Agency	33
Dealing with Rejection	34
When You Receive a Job Offer	36
What's an Appropriate Salary?	37
Equity Options	38
You should tell your co-workers how much you make!	38
Part 2: Advancing Your Career	39
Participate in Local Professional Organizations	39
How to Get the Most Out of National Conferences	40
Don't Read Blogs and Newsletters!	42
Look through CHI and UXPA Talks	42
Present and Publish	43
How to Give a Great Presentation	43
Review Conference Papers!	44
Statistics	45

Productivity and Time Management	45
How to Improve Meetings	46
If You're a Woman...	46
Common Experiences Few Talk About	48
Part 3: Continuing to Learn	50
Learn from Experts	51
Using a Search Engine	51
Online Resources	53
ACM Digital Library	53
Wikipedia	53
Online Courses for New Knowledge and Skills	54
ACM's Skillsoft Learning Collections	57
Coursera	57
edX	58
Udacity	59
Udemy	59
Interactive Design Foundation	60
Nielsen Norman Group	60
UIE's All You Can Learn Library	60
UXPA Webinars	60
Ideo.org	60
General Assembly	61
American Graphics Institute	61
Career Foundry	61
Trydesignlab.com	62
Learn UI Design: The Video Course	62
Lynda.com	62
LinkedIn Learning	63
Pluralsight	63
Free Webinars	63
Online Courses for Career Development	63
Online Courses for Credit, Accreditation, or Degrees	64
Traditional Courses	64
Top Graduate Programs	66
How to Optimize Learning: Lessons from Cognitive and Educational Psychology	67
"Optimizing Learning in College: Tips from Cognitive Psychology"	67
"Improving Students' Learning with Effective Learning Techniques: Promising Directions from Cognitive and Educational Psychology"	70
"Five Popular Study Strategies: Their Pitfalls and Optimal Implementations"	72
The Testing Effect	74
Rules for Good Studying	75

Related Topics	75
Creativity	75
Advice for Other Technology Professionals	76
Final Thoughts	77
Appendix 1: More Examples and Advice	78
A Master Networker	78
It's Okay to be a Beginner	79
UTEST	80
Example Request for an Informational Interview	81
Appendix 2: Additional Pointers from UX Professionals	82
Appendix 3: Rules for Good and Bad Studying	91
Appendix 4: Additional References	93
Appendix 5: Demetrios' Biography	93

Part 1: Networking and Finding a Job

Network!

Don't think of networking as "selling" or "marketing" yourself, but rather as making connections via teachers, bosses, colleagues, friends, and family. With the right attitude, networking can be fun and fulfilling, not a chore. Finding the best job (whether your first or fifth) requires gathering information, and networking makes this much easier and more efficient.

Networking is also an essential part of career advancement; the people in your network will help to keep you informed about advances in the field, new tools and resources, and the most influential groups, and it will also help you find colleagues for collaboration or professional activities.

If you contacted me directly and I sent you this document, great! Do more of that -- contact people you know who work in the field. The closer the connection, the better, but a close connection is not necessary. In fact, some argue that it is better to use "weak ties" rather than "strong ties"

(<https://www.forbes.com/sites/nextavenue/2016/08/17/to-get-a-job-use-your-weak-ties/#10e49c6c6b87>). There are several reasons for this, but the most important is that, "weak ties can ...exponentially expand your network."

Here's an example of how someone with a very weak tie to me got in touch: A year after I worked with a college student on a usability project, he emailed me to ask if I would talk with his sister about my ideas for finding a UX Researcher position. I replied that I would be happy to talk with her. She and I had only a weak tie, but it was enough.

If you're transitioning to the UX field or you're in the mid to late stages of your career, the following sections may not be relevant to you. You'll likely have plenty of contacts from your previous jobs. However, it may be worthwhile to make a few contacts through your alma mater, especially if you're active or become active in your college alumni association.

If you're still in school, you should make good use of your college or university alumni association and career services (note that some colleges have special programs or opportunities for recent alumni). There are many resources that can help you get your career started. You should also stay in touch with your professors. They may be able to alert you to job openings and help you understand the different types of opportunities available. Most college professors are excited to hear from recent alumni. Remember, their job is to teach. If their former students do well, it reflects well on them also. More important, really good teachers enjoy interacting with students, both during classes and after graduation, and will enjoy helping you. Other networking ideas are below. As LinkedIn writes in one of their ads, "80% of people find jobs through people they know." I don't know how accurate this 80% figure is, but there's no question that networking is important and can be very effective.

Take the edX course, listed below, on **Resume, Networking, and Interview Skills**. You can spend one hour on it, or many, but it is definitely worthwhile. (It used to be free, but is not any longer. When free I recommended it; now you can learn what it teaches for no cost from other sources, many listed in this document.)

Local Meetups is another way to network: <https://www.meetup.com/>. In many areas there are UX-related groups.

See Appendix 1 for the story of a master networker from the realm of politics.

Network via Alumni: Using Your College Career Services' Department

Most colleges have an alumni or career services' office that can put you in touch with alumni in different fields. Some colleges have databases of alumni that you can search. Getting in touch with alumni from your college or university who are doing some type of UX work is a great idea. Don't ask for a job, ask if you can talk to them about the field and get their advice (that is, you'll conduct an informational interview as described below). You went to the same college, so you have a connection. Many (most?) alumni are interested in learning about what's happening at their alma mater, so provide an update if the person is interested. Since most of us like to talk about ourselves, our careers, and the field in general, it is often not hard to find alumni willing (even eager) to talk with you.

I went to a very small college (Swarthmore), but they have an excellent Career Services' Department. They provide students and alumni with a Networking guide that they allowed me to share with you:

<https://www.swarthmore.edu/sites/default/files/assets/documents/career-services/Networking.pdf>

There is also an alumni online directory, an alumni social media catalog, and a Swarthmore Mentoring and Networking group on LinkedIn. Your college or university probably provides similar resources, and they can be very useful. Group identification is powerful, and when you think about it, it's not really fair. Why should I go out of my way to help person A more than person B just because A attended the same college (and may have graduated decades after I did)? But this is the way the world works.

For example, my son, while a freshman at Connecticut College, looked up alumni in the Boston area (using their online directory), chose those at companies that might provide summer jobs, and emailed them. He was amazed to receive friendly replies within hours, and although he didn't immediately find a job, he received a variety of tips for continuing his job search.

Other College Resources

Northeastern University is known for its internship program and probably also offers more online resources than most colleges and universities. In addition, it has career fairs, workshops, and 49 career guides with information about a wide range of careers. Here are 6 of the 13 online resources that Northeastern offers its students and alumni:

<https://www.northeastern.edu/careers/jobs-internships/online-resources/>

Your college or university probably offers some of these. If not, I think these are all (except NUCareers) available to everyone on the web, although you may have to pay to access all their features.

NUCareers: "Northeastern students and alumni who have 0-3 years of work experience can use NUCareers to research and apply for internships and after-graduation jobs. On-campus recruiting opportunities for graduating students are also available."

PathSource: "Connect the dots between education, careers, lifestyle and budget. Exclusive informational interviews with professionals give you unbiased insights into thousands of careers."

Buzzfile: “With detailed information on 18 million companies, 150+ majors, and 18,000 industries, Buzzfile is the most comprehensive employers by major resource available. Discover and research thousands of potential employers in your field and geographic area.”

If you don’t have access via your college, I think Buzzfile basic is free:

<https://www.buzzfile.com/Home/Basic>

Biginterview: “Practice interviewing online using your webcam.”

If you don’t have access via your college, it is \$79/month, but you can cancel at any time.

<https://biginterview.com/>

Rep’nUp: “Use Rep’nUp to clean up your Facebook, Twitter, and Instagram accounts and get rid of harmful content before starting your job search. Their image processing algorithms present you with problematic photos and texts from your profile, allowing you to easily prepare your online image for the eyes of an employer.”

CandidCareer: “CandidCareer provides thousands of informational video interviews featuring industry professionals through an easy to use website.”

If you don’t have access via your college, three months cost \$19.99.

<https://www.candidcareer.com/>

Network via Professors

You will have some excellent teachers or professors, and keeping in contact with them can be valuable for you and them.

What to do

- After a class or workshop, send the professor a thank-you note. Even better, tell them what you really liked about the class and what could have been changed to make the class even better for you. A good teacher loves constructive feedback.
- A few months later, email the professor, remind him or her who you are, and ask a question (“I’m about to do my first X - a type of study -- and was wondering whether you think the following approach is appropriate...”) or provide some interesting information (“In your class you discussed X, and I just read a fascinating report that I thought might be of interest to you...”). If the professor responds, this could be the start of a professional relationship that continues for years.
- Contact five teachers over the years and I guarantee that at least one will respond and be a potential professional colleague, perhaps a mentor, and also someone who can alert you to job possibilities and help you find a job.

Continued contact with your professors and teachers can be a mutually beneficial relationship. You’ll get valuable advice. The teacher will get the satisfaction of helping a former student. Remember, most good teachers get great satisfaction in watching students develop into experienced practitioners or researchers. Contact with former students can also be beneficial to a teacher; over time, you can provide useful information to your teacher, and there are many cases in which students later publish research with former teachers, or even hire them as consultants.

How to contact former professors or teachers

Remember, don’t just ask, “How should I do a diary study?” Show some initiative by writing something like this: “You talked briefly about diary studies in your course. I read the articles you recommended and found a few more recent articles that I thought you might be interested in. I

then came up with this plan, and wondered whether you would have time to give me some quick feedback.” This shows that you’ve done your homework and you want some advice. You’re providing some new references that might be useful to your former teacher. You’ve demonstrated initiative. The teacher may hear about a job, and since he or she has just had positive contact with you, why wouldn’t he or she let you know about the job opportunity?

Summary: Don’t be lazy. Show initiative. Don’t ask your professor (or me!) a question that can be answered after a 10-minute web search. Do some research, come up with a plan, and ask for feedback (this applies to questions about research, about jobs or companies that might be a good fit, and many other areas).

Networking When You Work at Home

From “7 ways to network when you work at home: Feeling the social isolation that can come with working from home? Boost your networking skills - and your professional relationships - with these expert tips”:

<https://enterprisersproject.com/article/2018/10/7-ways-conquer-networking-challenges-when-you-work-remote>

1. Say yes to video calls
 - Video can help to connect you to your team – see the research I did at Google: Improving Remote Collaboration with Video Conferencing and Video Portals¹ [This now, in 2021, seems quaint, given that Zoom or other video conferencing is a way of life for most professionals.]
2. Attend industry events and conferences
 - Great for networking and socializing
 - [The travel and gathering restrictions will end sometime during 2021; get out and gather professionally in person!]
3. Schedule weekly status meetings
 - Facetime is important
4. Find peer groups outside your home
 - For example, meetup.com
5. Offer your expertise
 - Help a colleague who is working on a challenging project
6. Don’t neglect professional development
 - Go to training seminars or workshops (in person, not online!)
7. Remember the small stuff
 - Remember colleagues’ birthdays, ask about their families and vacations...

Personal CRM Products for Networking

Let’s assume you’re convinced that networking is valuable for lots of reasons. You meet people at conferences and professional events, you have colleagues at work, and there are people who were students with whom you want to keep in touch. How do you manage all these contacts? Email contact lists are a start, but they’re not really up to the task. It turns out that businesses have the same problem in that they need to keep track of their customers and all the interactions they have with them. And so, in the early 1990s, customer relationship management software was born

¹ · Demetrios Karis, Daniel Wildman & Amir Mane (2015): Improving Remote Collaboration with Video Conferencing and Video Portals, *Human-Computer Interaction*, DOI: [10.1080/07370024.2014.921506](https://doi.org/10.1080/07370024.2014.921506)

“Customer relationship management (CRM) is a technology for managing all your company's relationships and interactions with customers and potential customers. The goal is simple: Improve business relationships....A CRM solution helps you focus on your organization's relationships with individual people — including customers, service users, colleagues, or suppliers — throughout your lifecycle with them, including finding new customers, winning their business, and providing support and additional services throughout the relationship” (<https://www.salesforce.com/crm/what-is-crm/>).

You don't need to manage customers, but it would be great if you could keep track of all the people you meet (if you want to meet them again!), record not just their contact information but also a history of your interactions with them (via email, phone, or social media), plus any notes you wrote about them or these interactions. Then, when you want to run an eye-tracking study for the first time, and remember that you had a colleague two jobs ago who was interested in the technology, you can easily find this information, refresh your memory, and contact him or her. Or perhaps you are going to a large national conference and want to meet some old colleagues for a meal; your personal CRM software should help you find appropriate people to contact.

There are dozens of CRM systems that might work for an individual, but I'll just focus on a few of the free ones. Some are just extensions to gmail or other email programs, while others are full-featured database/spreadsheet combinations that can also be used for project management and other tasks. I'm just starting to use some of these programs and don't have much experience. If you have an experience that you are willing to share, let me know.

Here are some lists and products that you might want to consider:

- <https://ryzeapp.co/13-personal-crm-systems-for-your-everyday-life/>
- <https://zapier.com/blog/best-free-crm/>
- <https://zapier.com/blog/best-free-crm/#google> First, don't forget Google Contacts, a simple CRM inside of gmail
- <https://www.hubspot.com/> Highly rated; I have just started to use Hubspot. It's very powerful, but there's definitely a learning curve.
- <https://www.cloze.com/> Looks good
- <https://www.streak.com/> CRM built into gmail; primarily for managing workflow. A colleague wrote, “I have been using Streak. it's meant for small companies but I find it easy to use for my needs.”
- <https://www.marketcircle.com/> This is Daylite, which is just for the Mac, iPhone, and iPad, and is not free. I know someone who has been using Daylite since 2006 and loves it. He writes, “Does a wonderful job of syncing information between this desktop iMac, the iPad I had today & the iPhone.”
- <http://lincosphere.com/> Looks good, but currently just for the iPhone
- <https://etch.ai/index.html#Home> Also currently just for the iPhone
- <https://ryzeapp.co/> Why are so many of these just for the iPhone?
- <http://www.contacthubapp.com/> Currently in beta testing
- <https://airtable.com/> “Part spreadsheet, part database...”
- <https://followup.cc/followup-personal-crm> A personal CRM for managing relationships

See Appendix 2 for Ilona Posner's experiences using Apple's native contact and calendar apps as a personal CRM solution.

Kay Aubrey has been using Evernote as a CRM and reports that “Udemy has a great course on how to set up an Evernote Notebook to serve as a basic CRM. It works great and is low cost.”

The course is “Evernote for Business: Use Evernote in your working life” (<https://www.udemy.com/evernote-for-professionals/>). The cost fluctuates and is currently \$10.99 (April 2019).

Social Media Networking

See the NY Times guide on How to Use Social Media in Your Career:

<https://www.nytimes.com/guides/business/social-media-for-career-and-business>

LinkedIn

LinkedIn is an essential resource. From the edX course listed below: “In today’s world, having a LinkedIn profile is as important as having a resume.” Keep your profile up-to-date, and make sure you have a good photo². I’ve been contacted multiple times by recruiters who found me via LinkedIn. The site is free, but it is probably worthwhile to pay for a LinkedIn Premium account so you can contact recruiters directly. A premium account is free for the first month, then \$30/month -- expensive, but assuming you can cancel at any time, it’s probably worth paying for a few months if it helps you find a job.³

Your LinkedIn profile is important and you should spend time writing and refining it. Include essential keywords so that recruiters can find you. While it might be ideal for your resume to match your profile, this isn’t typically possible. Remember (see below), you should tailor your resume to the requirements of the job you’re applying for.

You should also spend some time reading a handful of the guides on how to use LinkedIn to find a job. One to two hours of reading guides on using LinkedIn and then refining your profile can make a significant difference and is definitely worth your time. Be sure to carefully check your settings. There is a setting you can turn on that lets recruiters know you’re looking for a job or contract.

Find your own guide on using LinkedIn, or start with these:

- Search for “10 Ways You Can Use Your LinkedIn Profile to Get Your Dream Job” for many articles
- <http://www.marieclaire.co.uk/life/work/10-ways-you-can-use-your-linkedin-profile-to-get-your-dream-job-98464>
- <https://www.job-hunt.org/social-networking/LinkedIn-job-search/LinkedIn-job-search.shtml>
And follow the links at the bottom of the article.
- <http://www.forbes.com/sites/lizryan/2014/05/19/ten-ways-to-use-linkedin-in-your-job-search/#7a6eb7535b29>

Note that you can search for a company and then use the filters that appear on the right. These can be helpful in locating people or companies in your field. You can also click on one of the

² Practically everyone has a photo on their LinkedIn account, so this is the norm. Note, however, that most experts strongly recommend against adding a photo to your resume.

³ Do you have a premium LinkedIn account? Was it worthwhile? Send me an email and let me know.

links at the top, ("Top, People, Jobs, ..."). (I now have trouble finding these filters; perhaps the interface has changed, or perhaps this feature is just difficult to find.)

Joining professional groups and following companies is also a great way to increase your networking power and reach. LinkedIn Jobs has some great features. You can track the jobs that you've applied to, and you can set up daily emails based on the keywords you've chosen. Another feature is the LinkedIn blog. Clear, concise blog posts can help you show your expertise and attract potential employers. Some people have attracted interest and received job offers in part based on their blogs (I've only read about this, so this is not first-hand knowledge).

LinkedIn Recommendations: A former student asked me about the value of LinkedIn recommendations. He wrote that another student from a team he was working on for a class project asked him if he would give her a recommendation and in exchange she offered to reciprocate. He had enjoyed working with her and he wrote the recommendation. Here's my experience and opinion on LinkedIn recommendations. I have been asked to write recommendations and have done so. I haven't asked anyone to write a recommendation for me, and I don't have any associated with my profile. I don't think they are useful, and if I am thinking of hiring someone and notice that they have lots of recommendations, I typically ignore them. After all, consider the situation my former student mentioned -- another student asked him for a recommendation and in exchange she wrote him one. In my opinion, that is not a reliable source of information about the person. Others may differ, and if you come across research or writing on the value of recommendations, please let me know. If I see a lot of recommendations on someone's LinkedIn profile, I might think that the person is motivated to ask for recommendations, but I wouldn't believe the content of the recommendations. There is an exception. If I know the person writing the recommendation, I would take it more seriously, and probably contact the person directly if this is a situation involving hiring someone. My feelings are similar with respect to the LinkedIn section on skills and endorsements. How meaningful is an endorsement by colleague X if LinkedIn sent X a message asking if X wanted to endorse you with respect to Usability or some other skill?

Twitter, Facebook, Instagram, and Snapchat

Read through the short NY Times Guide mentioned above for basic information on Twitter, Facebook, Instagram, and Snapchat and how you can use them to find a job and advance your career (<https://www.nytimes.com/guides/business/social-media-for-career-and-business>).

The book *Wired for Coding*, mentioned in the section on Advice for Other Technology Professionals at the end of this document, also has good advice, both for polishing your online "brand" and how to, "Lock down your Facebook profile so your information is more difficult to view and to prevent others from tagging you....set your profile to private and disable any friends-of-friends from being able to view your posts" (p.26).

Susan Farrell, in her document [Job Hunting Links](#) recommends using Twitter like this:

- "Go to twitter.com or use a tab-friendly client such as tweetdeck.com.
- Open browser tabs for each new search and search for all the job titles and variations in wording that might apply to you. "Senior User Experience Researcher" for example.
- Click Latest results (not "Top") on the website.

- Look each day at these tabs and see which jobs might be in your geographic range (don't over-constrain your search by adding the geography to your query though).
- Contact job posters immediately on Twitter or LinkedIn.
- Also read hashtags: #jobs, #hiring"

Slack

A colleague told me about Slack a few years ago and wrote to me explaining that, "Slack is a free cloud-based communication tool that a lot of Tech Groups use (here's a recent article: https://www.nytimes.com/2017/04/16/technology/slack-employee-messaging-workplace.html?_r=0). Basically, it's like an IM tool that has become extremely popular. In any case, there's a pretty active Boston UX Slack group that's great for networking. They have multiple focus areas like Local Events, Get UX Feedback (for even things like UX Portfolios and Surveys), Job Postings, and UX Resources. I've only been using it for 3 months, but it seems extremely helpful. The way you join is to go to their main website: <http://www.bostonuxarmy.com> and sign up." I've since used Slack as part of two projects, and can attest to its usefulness.

Academic Networking via Social Media

If you have an academic background, or have published any of your research, then there are other forms of networking and social media that you should explore. The following is from Carolyn Davies' article, "Work the Network: 5 Smart Ways to Enhance Your Research Using Social Media" (APS Observer, Vol.28, No. 3, March 2015, pp. 38-39; <http://www.psychologicalscience.org/index.php/publications/observer/2015/march-15/work-the-network.html>):

ResearchGate and Academia.edu: "With minimal effort, researchers can create a profile, upload articles they have written, and connect with others who are interested in their work."

Google Scholar: "Google Scholar is ubiquitously used among researchers as a publication search tool, but it can also be used to set alerts for articles that contain certain keywords. If you are interested in the work of a particular researcher on Google Scholar, you can click the link on their citations page to 'Follow new articles' or set up a specific alert with their name."

Conduct Informational Interviews

I never knew about informational interviewing when I was first applying for jobs, but I wish I had, as they can be extraordinarily valuable. Some of the online information (see below or search for "Informational Interviewing") suggest that they can actually lead to a job offer, but that shouldn't be your goal. An informational interview is a way for you, a person interested in the field, to get information and advice from someone with a lot of experience about what the field or industry is like and how to effectively gather information about job openings, the culture, and so on. Check out the online resources. Here's an Information Interviewing Tutorial: http://www.quintcareers.com/informational_interviewing.html (Note the terrible UI/page design; there are links on this page to the different sections of the tutorial, but they're easy to miss.)

This Networking Guide, mentioned above, has an excellent section on Informational Interviews, including many sample introductions: <http://www.swarthmore.edu/sites/default/files/assets/documents/career-services/Networking.pdf>

Also note that this guide considers informational interviews an important type of networking; after the informational interview, you should try to follow-up and maintain contact with the person. It won't always happen, but it's possible that this initial contact via an informational interview can lead to a long-term relationship in which you maintain contact. This guide also emphasizes how important it is to prepare for your meeting. Has the person written any books and articles, do they have a website, have they been in the news recently? Show you're motivated and do some research before you talk. Once again, don't be lazy!

I've included an example of a request for an informational interview at the end of this document.

Also, see this blog article:

<http://www.vault.com/blog/interviewing/how-informational-interviews-can-lead-to-a-job-offer#.WHZJ4owY4js.linkedin>

EdX even has an 8-week course on "Conducting an Informational Interview"! It is free, and part of a series on networking from the University of Washington. The course is so extensive because it includes a lot of material on using LinkedIn and other tools to research a person you want to interview, preparing for the interview, and then conducting it and sharing the lessons you learned (I have not taken this course).

<https://www.edx.org/course/conducting-an-informational-interview>

A Case Study: Weak Ties, a First Job, College Resources

Here's a recent example, with some commentary. I went to a BostonCHI meeting. Before the presentation, there was pizza and a period for networking. I talked with a recent college graduate, new to the Boston area, who was looking for a UX job.

- Comment: Going to a professional meeting is a great thing to do, both to learn from the presentation and to meet new people during the social hour. People tend to be friendly, and it's easy to go up and start speaking to a stranger, which is how I met this young man (I don't remember his name!). (Caveat: Meetings vary, and the people who attend will vary; don't be discouraged if you go to a meeting and don't have any interesting conversations or make any useful connections. Go to another meeting, which may be much better.)

I offered to send the man I met an earlier version of this paper, and he accepted. He read it and sent me some comments and suggestions. He later told another recent college graduate about the paper. She contacted me, and I sent her a copy. She read the paper, asked if we could meet, and I met her at a local Starbucks for coffee and conversation about what she should do to get a UX job.

- Comment: There is a very weak link between the woman and me, but it turned out to work for her.

This woman had just graduated from Northeastern University with a M.SC. in Information Systems. (She gave me permission to discuss her situation here.) She had only taken one relevant academic course, but had done several relevant class projects and one relevant internship. She was currently taking a free online course. She didn't know the field well. For example, she didn't know about BostonCHI or the annual CHI conference and its proceedings.

- Comment: Asking to meet me was an excellent thing to do. It was a type of informational interview. We met in a public place, which is also the right thing to do. If I had asked her to come over to my apartment to talk with me over coffee, how should she have

responded? She should have politely declined and suggested again that we meet in a public place.

Here is the advice I gave her, which I think applies to many people so I include it here.

- Finish reading this document (she had read parts but not the entire thing; of course, skim or skip parts that aren't relevant to you)
- Go to a BostonCHI meeting (and/or other local professional meetings)
- Take free online courses
- Continue adding to your portfolio
- Look through the latest Proceedings of the 2017 CHI Conference on Human Factors in Computing Systems (the 2018 and 2019 proceedings are also available now)
 - The abstracts are free, but for the full-text you must have access to the ACM Digital Library
- Look through talks from the last International UXPA conference; this is more practitioner focused: <http://uxpa2017.org/schedule/> and the slides for 2018 are here: <https://www.slideshare.net/search/slideshow?searchfrom=header&q=uxpa2018>
- Apply for jobs and ask for feedback if you're not successful
- Use the available resources at Northeastern University (or your college or university)
- Do volunteer UX work to gain experience if you're not currently working

Comment: Like most people new to the field, this young woman didn't have a very comprehensive understanding of all the types of work being done within the UX/UI/Design fields. Just looking through the titles of all the papers of the recent CHI and UXPA conferences will be very useful (and, of course, if you read some of the abstracts that will be even better). Northeastern is known for their excellent internship program (which is required for undergraduates), and they have an outstanding selection of tools and services to help students and recent graduates get jobs. I list some of these above.

I agreed to be a part-time mentor for this woman, and it is already a mutually beneficial relationship. I gave her advice, and she sent me a long list of links to articles that she has found useful. I have added some of these to this paper. She promised more feedback from her job search, and I promised more advice. Update: our relationship as mentor-mentee didn't last long, and that's okay; sometimes these relationships continue for many months, or even years, and sometimes they peter out quickly.

Volunteer!

All the jobs you see listed require experience, but you have none. What should you do? This is a very difficult, and very common, situation. Many courses involve extensive external projects that provide experience, and you can add descriptions of these projects and your role to your portfolio. This is true for both online courses and courses as part of degree programs. For example, in the Bentley HFID master's program where I teach, many of the courses involved semester-long projects with different companies. I've set up projects for groups of students (typically three or four in a group) with many companies, including Wayfair, iRobot, Nuance Healthcare, Spring Health, Examity, Constant Contact, the Diversity Dashboard, the MA Trial Court, and others. Students create a detailed final report and presentation, and often add the project to their portfolio.

Class projects help but are often not enough. If you have time, you can also try to create a project by yourself. For example, you could offer to do usability studies or graphic design for a nonprofit. Even better, you can try to find an appropriate group project. This is often better

because you can learn from other more experienced people on the project. One former student of mine worked on an open source application for Code for Boston, and he worked on UX (including some UX research) and visual design. Based on his work, he had an impressive project to add to his portfolio.

Find a Mentor

If you're persistent, and perhaps a little lucky, you'll find a mentor, someone who will help guide you in your career, especially in the early stages when you need the most help. A mentor can give you advice on searching for a job, and may be able to provide introductions to others in the field who have job openings.

If you're a student, you can request a mentor via MentorNet (<http://mentornet.org/>). This can be very helpful, but isn't nearly as good as having a mentor (once you graduate) at your company who you can meet with regularly and talk about your work, career, and the company over coffee. I've been a mentor on MentorNet to several graduate students in UX/CHI, and it was fun and interesting for me (I hope it was useful for them!). It is primarily centered around email exchanges, which are facilitated by MentorNet: "Pairs communicate 15-20 minutes weekly during MentorNet's four-month mentoring cycle in which 16 prompts are presented for discussion. Following a cycle, protégés may invite their current mentor or a new one to begin a new mentorship. As the protégé advances, MentorNet provides prompts relevant to their current educational level and personal interests." The prompts (basically items for discussion) were actually important topics to discuss, and MentorNet provided useful information, but you can talk about whatever the two of you find interesting and useful. The main focus of MentorNet is STEM fields, but UX fits as it is part of the T (technology). Although I think the original focus was women and minorities, MentorNet now accepts anyone in the STEM fields.

You could also find a mentor through local chapters of professional organizations. It can be difficult to ask someone directly, so my suggestion is to talk with one of the officers of a local chapter (UXPA, ACM SIGCHI⁴) and ask for their help. If you're lucky, he or she will talk to colleagues or send out an email trying to find a mentor for you. If I were a woman, I'd request a female mentor; sadly, the days of sexual discrimination and harassment are not behind us, and it will help to be able to talk with a woman professional about these issues. I haven't read it yet, but I ordered this book for my daughter, which came highly recommended by a former classmate: *Nice Girls Don't Get the Corner Office: Unconscious Mistakes Women Make That Sabotage Their Careers*, by Lois P. Frankel (there's an updated version now available).

Most colleges now have alumni directories, and in some directories, alumni can indicate that they're willing to be a mentor. This is another excellent approach to investigate.

Update: The UXPA recently started a mentorship program (spring 2019). If you are interested in becoming a mentee or a mentor, you can sign up here: <https://uxpa.org/mentorship>. In addition, I've heard from BostonCHI that they are interested in starting an informal mentoring program. The UXPA is starting another mentoring cycle on March 1, 2021 (sign up at the link above).

⁴ User Experience Professionals Association; Association for Computing Machinery Special Interest Group on Computer-Human Interaction

Mentor-Mentee Relationships

So, what would a relationship with a mentor be like? It could be via email/phone/video chat, but ideally it would be face-to-face. Let's assume your mentor is someone at your company or within the same city. Once a month you could plan to get together for lunch or just a short chat over coffee. You would tell your mentor what you were doing and how your professional life was going. You might want to get advice about dealing with a difficult colleague or boss, or about what conferences to attend, or how to create an acceptable work-life balance. Your mentor will be older and have a lot of experience in the field, and there are a million possible topics of discussion. You should prepare for each meeting by having a list of questions or topics that you'd like to discuss. Again, don't be lazy. Be proactive and take the initiative.

Why would a mentor want to spend time with you and give you all this free advice? Well, not everyone would. But many people like to be seen as "experts" or "elder statesmen" and enjoy meeting and helping young colleagues (and, as described above in the section on Network via Professors, it can be advantageous to the mentor in a variety of ways). If you can find someone who has just retired, or who is semi-retired, you may be lucky and find someone who doesn't want to leave their professional life completely behind and is willing to spend considerable time with you. It can't hurt to ask; you may get a few rejections, but eventually you'll find someone who will agree.

Now that we're in the Age of Zoom, it's easier and more acceptable to meet with a Mentor over video. It's nice meeting face-to-face over coffee or a lunch, but for a busy mentor, nothing beats the efficiency of Zoom.

One-time mentoring: Some conferences and meetings have mentoring sessions where those new to the field can meet with experienced practitioners and researchers. For example, in the one-day Boston UXPA conference, there are two mentoring sessions during the day.

Serendipity

Chance plays a part in the course our lives take, but there are some things we can do to increase the chance of a serendipitous job event happening. For example, if you happen to apply for a job or talk with someone at a company where you'd like to work at the moment when a job opening occurs, that's a lucky event.

I used to think of this all the time when there was an opening in my group and I just happened to receive a resume or a call about a job at the same time. People used to send me resumes all the time, and if they looked good, I would put them in a folder and save them. Then, when an opening occurred, I would rarely go back and find that folder and look through the resumes. And if I did find that folder, I would think to myself, this person looks really good, but what is the probability of him/her still being available after six months?

So, what's my recommendation? If there's a company you want to work at, and especially if you have some contact with a person in the company or the group you want to work in, check in with them periodically. You don't want to be a pest and contact them every week, but for me, once every three to four months is fine (I'm guessing that others might say once every 6 months is appropriate).

You also want to talk with your friends and professional contacts about job openings. When you hear of one, contact the company. There are links to articles (above, in the LinkedIn section) that

you can review on how to use LinkedIn to research and find a person at a company with whom you have some shared interests or background.

Articles and Courses

Get Started in UX: The Complete Guide to Launching a Career in User Experience Design by Matthew Magain and Luke Chambers, April 21, 2014. Here's a sample chapter:

<http://www.uxmatters.com/mt/archives/2014/04/get-started-in-ux-the-complete-guide-to-launching-a-career-in-user-experience-design.php>

User Experience Career Advice: "How to Learn UX and Get a Job," by Susan Farrell and Jakob Nielsen, Jan. 12, 2014

<http://www.nngroup.com/articles/ux-career-advice/>

User Experience Careers

<https://www.nngroup.com/reports/user-experience-careers/>

This is the full report behind the short article above.

"This 189-page free report analyzes how UX pros educated and trained themselves for their careers. We surveyed 963 people working in the field to find out what they do at work, what is most useful to know, and which kinds of people thrive in UX research, interaction design, and information architecture."

Qualities that May Help you Get Hired at Google

In "Searching for Unicorns," Andrew (Andy) Warr, a research manager who has worked at Microsoft, Google, and Facebook, describes some of the traits that may help you get hired by Google and other top tech companies:

<https://medium.com/@andywarr/searching-for-unicorns-3fcaadee1711#.r2fewo9ge>

More articles? Just search for: **How to find a UX job**

edX Course: Resume, Networking, and Interview Skills: This free four-week course is self-paced; they suggest spending two hours a week, but you can go through as quickly or slowly as you want. There are three main sections:

- **Section 1: Resume.** "Learn how to effectively build a resume, cover letter, and other supplements, as well as how to customize key documents for different opportunities."
- **Section 2. Networking.** Learn how to make things happen for yourself by preparing for, performing in, and following up on networking opportunities.
- **Section 3: Interview Skills.** Learn how to prepare for a variety of interview types by acing common interview questions and mastering other key strategies. Finally, learn how to secure—and accept—your next job opportunity."

Update, 1/18/2021: Not free anymore! \$149.

I went through this course, and it is good. Take it! It is primarily text, rather than videos, so you can go through quickly, focusing on the areas that are of greatest interest to you. There are also exercises and test questions. It goes over the main, general points as well as many detailed points.

An example of a detailed point: They suggest 11 or 12-point font for your resume so it's readable, and recommend Calibri or Arial for a contemporary look and Times New Roman or another serif

style for a more traditional approach. The course provides detailed information on formatting, and provides resume examples and templates in Word format. There is lots of good information.

For example:

- Attach additional requested documents (like your resume) as PDFs, because they retain your formatting and should display correctly on a hiring manager's computer (Ah, but now some claim ATS systems may not do as well with PDFs compared to a Word doc; see below)
- Name each file with your name and its contents
 - If you just name your file "Resume" it's more likely to get lost. You want to make it easy for the hiring manager to find and identify the files you've sent. I always appreciate it when resumes and documents are named and labeled intelligently.
- Cold versus warm networking and how to approach each
- How to get a conversation going

Some data: Here's information on the number of stages in the hiring process, the average number of interviews, interview durations, and the time to hire. Lever is a company that "supports over a thousand companies around the world from startup to enterprise in proactively sourcing, nurturing and hiring the right talent....This report aggregates data from over million candidate considerations, tens of thousands of hires, and approximately Lever customers, from August to July":
https://cdn2.hubspot.net/hubfs/463671/The_Little_Grey_Book_of_Recruiting_Benchmarks_2016.pdf?t=1485803790929

Jeremy Schifeling uses these data to "figure out which techniques have the highest result-to-time ratio" or job offers per hour of work (<https://www.linkedin.com/pulse/new-data-heres-fastest-way-get-job-jeremy-schifeling>). He compares online applications, LinkedIn, headhunters, and employee referrals. I haven't checked his analysis, but he concludes that you should start with referral opportunities, then go to headhunters and LinkedIn, and only then invest the time in applying yourself to online job postings.

However, if you're new to the field and don't know many people in the field, online job postings can help you learn what companies in your area hire for UX. From there, you can do your research and check LinkedIn to see if any of your former co-workers are employed at those companies.

Interviews

The web is filled with "job interview tips" (search on this or related terms). Read these!

I would just like to emphasize a few points:

1. Do some research and find out about the company and the person interviewing you. It's a very bad sign if during your interview it becomes clear that you know nothing (or very little) about the company.
2. Get there early (if it's in-person), dress appropriately, and come with your own list of questions. To get the latest information and news about a company or individual in that company, set up a Google alert (<https://www.google.com/alerts>)
3. Interviewing is exhausting. Get lots of sleep. Research each person who will interview you (you may not be told who will interview you, but you can ask before the interview)

Interviews may require not only a presentation of your work, but also going through a design exercise on the spot. See Sandi Murtland's experiences in Appendix 2.

Types of Interviews

There are screening interviews, substantive interviews, and behavioral or test-based interviews. For each type of interview, be prepared by reviewing a list of the most common interviewing questions and typical answers. You can find a number of these through a quick Google search. Of course, always try to personalize your answers by highlighting your education and experience.

- **Screening interviews:** In many companies you may have to go through a series of interviews before being hired. The first is typically a screening interview, often over the phone, and typically with an HR (human resources) person. The interview's goal is to see if you have the basic qualifications and are a strong enough candidate to bring back for a second round.
- **Substantive (traditional) interviews:** These are typically held by a hiring manager and/or people in the group that is hiring. For some jobs you may actually come in for a half (or even an entire) day and interview with multiple people. The interviewers try to assess your skills and fit for the open position. This includes not just your technical expertise, but how well you are likely to fit into the group socially and interactionally. This is also your opportunity to determine if you'll like working with them.
- **Behavioral and test-based interviews:** Behavioral interviews often involve detailed questions about past behaviors in particular situations (e.g., "Tell me about a particular situation in which x happened, what you did, and the outcome."). Test-based interviews are just what the term implies, a test. For a UX position I've heard of a company that described a new mobile app and then asked the job applicant to sketch out a series of screens, or plan how to design the interaction. This can happen in real time during the interview, or you may be given an hour or a day to come up with a design or plan. (I just talked to a recent graduate who was given a week to work on a design problem; she wasn't working at the time and spent a lot of time on this project. Asking a candidate to spend this much time on a project seems excessive and unfair to me.)

Reliability and Validity

The most common type of interview is actually probably the worst in terms of reliability and validity. These are unstructured interviews in which you sit and talk with the hiring manager and perhaps members of the team where you'll be working. Validity here can be defined as how accurately the interview and selection process predict job performance. Reliability is consistency over time and interviewers. Will different people interviewing the same candidate come up with the same results?

Research on the hiring process finds these unstructured interviews have very low validity and reliability. Structured interviews have much higher validity. In this type of interview, there is a fixed set of questions and a scoring rubric for grading the answers. (See McDaniel, M. A., Whetzel, D. L., Schmidt, F. L., & Maurer, S. D. (1994). The validity of employment interviews: A comprehensive review and meta-analysis. *Journal of Applied Psychology*, 79(4), 599–616. <https://doi.org/10.1037/0021-9010.79.4.599>
<https://home.ubalt.edu/tmitch/645/articles/McDanieletal1994CriterionValidityInterviewsMeta.pdf>

Illegal Interview Questions

Search for “illegal interview questions” to find a number of articles, including articles that advise you on how to handle illegal questions. In general, questions about the following are illegal in the United States:

- Age
- Race, ethnicity, or color
- Gender or sex
- Country of national origin or birth place
- Religion
- Disability
- Marital or family status or pregnancy

Finding out about a company: The first step, obviously, is the company’s website. Also search online news about the company and the industry, and then look through the company’s LinkedIn page. If it’s a company you’re interested in, follow it.

Ask Questions!

You’re at the interview to answer questions, but you should also ask questions. This is very important because it shows your interest in the position, the team, and the company. I’ve been amazed when I’ve interviewed someone and they had no questions for me. I assume you want the job, as you’re interviewing for it. If you land the job, it will be a very large part of your life. Aren’t there things you’re curious about? What, exactly, will you be working on? How often do projects change? How does this group fit into the overall organization and how is it perceived by other groups? Will you have a chance to work with many different people? Do group members get together outside of work? Will the company send you to conferences or pay for additional training? Can you buy special software? Is there flexibility in work hours? Can you telecommute? The list is endless. In addition, the interviewer will be much more engaged if you are asking some of the questions.

Practice!

Many conferences, workshops, and college career services departments offer practice by allowing you to engage in mock interviews. These are just practice interviews conducted by someone with experience interviewing job applications. After going through the interview, the interviewer gives you feedback on your performance and advice on how to improve. A former student told me that she found BigInterview useful. As a Bentley student she accessed it for free, but it is also available at \$79/month. She sent me this paragraph:

[Biginterview.com](https://www.biginterview.com) is a platform dedicated to helping you succeed in your job search. The platform offers video tutorials that will walk you through interview questions, negotiation techniques, resume tips, and advice for the first 90 days. Videos are delivered in short 3-5 min. segments. You can also practice interviewing by recording yourself answering interview questions. The videos are analyzed using AI so you can see how your answers compare with top performers. I have found this tool to be very useful. It’s like having a career coach at the tip of my fingers.

Logistics Checklist

If these bullet points seem obvious, good!:

- Confirm the location; the exact location. Some large organizations have multiple locations and buildings. Google or Waze isn’t always reliable.
- Confirm the interview schedule (date and time) and if possible, learn who you will be speaking with so you can learn something about them ahead of time through LinkedIn.

(Did you go to the same college? Grow up in the same town? Perhaps you have friends or colleagues in common.)

- Check the directions and traffic (e.g., accidents, construction, etc.) and make sure you arrive early. Add in some extra time for getting lost.
- Bring copies of your resume.
- Dress appropriately; if you're not sure there's nothing wrong with asking.
- Send a thank-you email within 24 hours (to everyone you spoke with)

Here are some helpful articles:

The UX Interview: How to Crush It:

<http://www.usabilitycounts.com/2014/01/29/kill-ux-interview/>

Avoid Touchy Topics

<http://www.absolutelyabby.com/interviews/touchy-topics.html>

Answering Difficult Questions (“How Many Windows are in NYC?”)

<https://www.linkedin.com/pulse/solved-how-many-windows-nyc-any-interview-jeremy-schifeling>

“Tell me about yourself”: Impress Hiring Managers during the Interview

https://www.youtube.com/watch?v=pMRO2dI9z3w&list=PL89VZHllp_ASgQysmqDzx0VQvg6u7zgcV

If You Need to Cancel a Scheduled Job Interview

Illness, family emergencies, and other situations may force you to cancel an interview. If so, read these basic tips:

<http://www.vault.com/blog/interviewing/how-to-appropriately-cancel-a-job-interview#.WIQCSL1V8l8.linkedin>

Other articles

- <https://medium.springboard.com/the-7-questions-youll-be-asked-at-a-ux-design-interview-84f3214e0f29>
- <https://medium.com/salesforce-ux/10-questions-youll-be-asked-in-a-ux-interview-f93f0c78f31d>
- <https://uxdesign.cc/what-to-expect-in-ux-designer-job-interviews-c7d031c9619>
- <https://www.linkedin.com/pulse/acing-ux-interview-phillip-hunter/>
- <https://www.slideshare.net/bayuxdesign/64-ux-design-interview-questions-at-google-facebook-amazon-microsoft-salesforce-65374454>
- <http://uxpamagazine.org/onsite-ux-interviews/>
- <https://uxdesign.cc/5-steps-to-master-a-whiteboard-design-challenge-6ecbe9ec38b7>
- <https://medium.com/@nishthaHD/facebook-product-design-interview-part-1-3e5befe33a33>
- <https://medium.com/interactive-mind/cracking-the-ux-design-interview-3ea6407093f5>
- <https://library.gv.com/how-to-interview-a-designer-with-the-perfect-design-exercise-2c99e6646612>

Resumes

Resumes typically have four parts:

1. Personal information
2. Education

3. Professional Experience
4. Skills

Personal information is always at the top, and includes name, address, email, phone, and LinkedIn address. Education includes the college you graduated from and the degrees and activities you engaged in, while professional experience includes the positions and associated responsibilities you've held. Skills include job-related skills including software (prototyping or design tools) and programming languages, methodologies, and so on.

Exactly what to include in a resume depends a lot on your years of experience. When you're right out of school, it's appropriate to list college courses and your grade point average, but this information is no longer relevant after a few years of experience. The order also may change over time. Early in your career, education is more important than experience and typically comes first, whereas later in your career education often is put at the end of your resume. Look at examples! For example, The Northeastern site has examples and lots of good information on resumes: <https://careers.northeastern.edu/article/resumes/>. In one of the PowerPoint decks you can download from this page they also list these interesting statistics:

- 76% of resumes are ignored if your email address is unprofessional
- 84% of employers indicate your resume should be 1 page if you have less than 5 years of experience.
- 88% job rejection rate if you include a photo on your resume

Note that although a photo is expected on LinkedIn, most experts say that you should not include a photo on your resume.

There's an enormous amount of good information on the web about resumes, and I suggest you spend time researching on the web (after reading the tips here!).

- For lots of information, start with the edX course listed above (Resume, Networking, and Interview Skills).
- Do a search on "UX Design Resumes" and then select Images for lots of examples.
- The best suggestion, in my opinion, is to have several people in the field critique your resume. Twenty-five years ago, I had several friends over for dinner. I told them I had just updated my resume and asked them to take a look. It was brutal; I thought I had done a good job, but there were multiple problems and they had many suggestions. Based on their critique I was able to improve my resume dramatically.

One manager noted that she liked the fact that I included my ZIP+4 in my address. She was looking for someone detailed oriented for an applied research position, and as trivial as it is, for her using ZIP+4 was a good sign. I doubt this particular example generalizes, but I know that some bad signs are almost universally recognized. For example, spelling or grammatical mistakes are unforgivable. If you can't proofread your resume carefully, how can a hiring manager be confident that you'll be careful and detail oriented while planning, carrying out, and analyzing the results from a usability study? Go through your resume yourself, and then have others go through it also. This is especially important if you're a non-native speaker.

Note that the importance of traditional resumes is changing. I've been told by some people that some employers look more at a LinkedIn profile than a resume. And consider this assessment from a NYTimes article on preparing for an automated future: "Résumés simply are too two-dimensional to properly communicate someone's skill set," wrote Meryl Krieger, a career specialist at Indiana University. "Three-dimensional materials — in essence, job reels that

demonstrate expertise — will be the ultimate demonstration of an individual worker's skills" (see https://www.nytimes.com/2017/05/03/upshot/how-to-prepare-for-an-automated-future.html?_r=0).

Eliminate Old Non-UX Jobs

Before you entered the UX field you may have had a series of jobs. Many of these may have been important to you, may have been a big part of your past life, and you may have done a great job in them. However, they are far less relevant now. Maybe you were a great fitness instructor or a chef at a small restaurant. If you have sections on past non-UX work you can leave them in if you want, but you need to reduce the amount of space devoted to them and add, instead, more about your UX education or career.

Tools and Methods

A lot of people list a gazillion tools and methods on their resume, and this doesn't impress me or anyone else. It's not impressive because junior people with no experience right out of school often list dozens of tools and methods on their resume. Someone just starting out is indistinguishable from someone with 20 years of experience! My suggestion is to list the level of proficiency with each tool or technique. The goal here should be clear: I want to know what you are really skilled with and have experience at versus what you have had some exposure to but no real experience.

How long should your resume be?

The answer, of course, is that it depends on where you are in your career. If you're applying for your first job, or within a few years of college, then one page is typically recommended and certainly no more than two.

I asked Nancy Burkett, the Director of Career Services at Swarthmore College, about resume length, and she responded with what I think is an excellent summary:

"For academic positions (e.g., a research assistant), we counsel students that a two-page CV is fine; for industry, typically, a one page resume is best. If a student is adamant they need more space then we always tell them this is their document; but I find in most cases the students simply think everything is relevant and a good advising session helps them focus the resume to be more effective. I worked in HR in industry prior to transitioning to career counseling; I always felt it was a little pretentious when an entry-level candidate had more than a one page resume. And when reading through a stack of 500, unfortunately you're always looking for a reason to weed someone out... We actually had a Google recruiter on campus a couple of weeks ago and he gave us a guideline of 'one page per 10 years of experience'."

Customize your resume!

My first resume was typed on an electric typewriter (what an improvement over the manual ones!). Now we have computers and word processing programs, so use them! You can -- and should in most cases -- send a slightly different resume to every job you are serious about. Once again, don't be lazy. Do your research and customize your resume to fit the job opening. I'm not asking you to lie or be misleading (that will backfire); I'm asking you to use some of the same terminology in the job posting, and emphasize your skills and experience that best match the position. Using the same keywords from the job description in your resume will improve your chances of the resume scanners earmarking your resume for review by HR and/or the hiring manager. See more about resume scanners below.

Here's an example. I have a friend in mid-career who has both a marketing and public relations (PR) background. After a move to a different state, she needed to find another job and was looking within both marketing and PR. She told me that she spent up to an entire day customizing her resume to focus on the relevant aspects of her experience for a particular job. For marketing jobs, she focused on her marketing experience while for PR jobs she focused on her PR experience. It was tempting to have one general resume that she could use for both types of jobs, but she put in the extra work and took the better approach, customizing her resume for each type of position.

Objective or Summary Statement: I strongly advocate including an objective or summary statement at the top of your resume. This should be a sentence or two that describes who you are and what type of job you're looking for. I have an objective statement with three bullet points, but whether that is better than a sentence or two I can't say.

Cover Letter: In most cases you should include a brief cover letter. See the edX course for guidance in how to write a cover letter and why it's important to have one.

Technical Resumes

Here are some tips for technical resumes from the Swarthmore Career Services department (e.g., software engineer, systems engineer, data scientist, performance engineer, etc.).

General

- Add LinkedIn and GitHub links to the heading of your resume
- Focus on results and impact rather than job descriptions
- Include any open-source project links
- Register the domain of any personal websites with GoDaddy.com so it won't expire

Education Section

- List key courses in math and computer science; e.g., Discrete Math, Data Structures, Algorithms, Advanced Algorithms, Databases, Machine Learning, Artificial Intelligence, Distributed systems, Linear Algebra, Vector Calculus, and so on.
- Include major course projects and group research
- Include prizes from hackathons

Technical Skills

- List object-oriented programming languages (e.g., Java, JavaScript, C++, C, C#, Python, Swift) in order of proficiency from most proficient to least proficient
- If you say that you're proficient in a language, be prepared to answer questions about it during an interview

Experience Section

- Showcase your academic research, mobile app, web development, and open-source projects (e.g., contributed x lines of code to y open-source project and include a GitHub link)
- If you have publications, presentations, papers, or patents, include them.

RezScore: <http://rezscore.com/>

Upload your resume and get a free report. It just takes a few seconds so you might as well try it -- only act on the recommendations you receive, however, if you agree with them or have heard them from other sources. My resume received a B+; I received a low score for brevity, and my resume, at three pages, IS longer than recommended. However, as a senior person it's okay to

have a longer resume (see the section above on resume length). Here's what this service said about my resume:

- **Your resume is too long.** Our analysis demonstrates resumes seldom need to be longer than nine hundred words. Not only will hiring managers tune out excess detail, but they will usually count it against your resume.
- **Remove your objective section; try a professional headline instead.** We detected an objective section in your resume. Our studies consistently show these lower the quality of a resume. Your only relevant objective is to provide value to your employer.
- **Your outstanding education puts your resume into the top tier.** An excellent academic pedigree makes a difference in a tight job market. You're in the top 10%.

Professional headline: "Popularized by LinkedIn, a professional headline is a short description about what you do, who you are, and where you want to go. Just like Superman is known as the "man of steel", think of a professional headline as a summary of your professional self. Apart from LinkedIn, consider using your professional headline on other social media sites, your personal webpage, or even in your email signature."

Comment: Well, I like my objectives section, and I think it's useful -- but I also like the idea of a professional headline; you can have both! Remember, these are all part of our professional brand. Make sure they represent you well and your passion for improving the user experience.

Other Resume Evaluation Services

There are many other websites and services that will evaluate your resume; RezScore is just one example. Another example is Monster.com: "Free Resume Assessments: Employers on average spend 31 seconds scanning resumes to identify potential matches. Make sure you're telling the most compelling story."

ATS Systems

In 2016, I worked with a college student on a project for an entrepreneurial competition, and started reading some articles about bias in hiring and Application Tracking Systems (ATS). Practically all large corporations now use these systems (I've seen it stated in one place that 70% of all companies use an ATS, while Jobscan, below, claims the figure is 90%, and in late 2018 I read that 95% of Fortune 500 companies use ATS systems). These systems will search for keywords in each resume for each position. Those with the most matches are reviewed by human resources.

If you're applying to a large company and not sending your resume to someone you know, your resume will probably be handled by one of these systems. You should be aware of some of the tips people give (e.g., make sure you use the same terms from the job ad in your resume). Although the following articles don't provide tips, they provide background information that you should probably be aware of:

- "Your Résumé vs. Oblivion: Inundated Companies Resort to Software to Sift Job Applications for Right Skills"
(<http://www.wsj.com/articles/SB10001424052970204624204577178941034941330>)
- A guide to ATS:
<https://www.betterbuys.com/ats/definitive-guide-applicant-tracking-systems/>
- Also: <https://www.topresume.com/career-advice/what-is-an-ats-resume>
- <https://www.jobscan.co/blog/ats-resume/>

In addition, see the comments below in the Appendix on preparing a resume from people who reviewed an earlier version of this document. A few years ago, some of these articles claimed that some ATS systems (there are many) had trouble with PDF formats. As a consequence, they suggested using Word format. It is still the case (2018) that experts recommend submitting your resume in Word unless a site states that PDF files are acceptable.

The most common tip is to use keywords; it's also good to be specific. It's better to write, "Proficient in Python, PHP, CSS, and HTML" rather than, "team player" or "self-starter." Even better is to go on and describe what you like about using each tool or language. I've rarely seen this on resumes, but I love it as it gives me confidence that you actually know that language or tool and have thought about it.

Since some ATS systems don't scan headers or footers, don't include anything important in these places. If you want it to be seen, include it in the body of the document.

Jobscan

Jobscan claims that they will, "Boost your interview chances. Optimize your resume keywords or your LinkedIn profile against job descriptions."

<https://www.jobscan.co/>

After uploading your resume and pasting in a job description, Jobscan analyzes them together and provides recommendations.

According to the Jobscan website, "Get Past Resume Robots. Ninety percent of large companies use Applicant Tracking Systems to search for qualified candidates from large applicant pools. These systems help employers by analyzing resumes and CVs, surfacing candidates that best match the position and filtering out those who don't. We have researched the top systems used by thousands of companies, and built our algorithm based on the common patterns among them."

See the edX course for some detailed information on submitting your resume to an ATS system.

Portfolios

Do you need an online portfolio of your work? For some jobs it's essential, for others it's not required. In the old days, when I started out, only graphic designers had a portfolio. The situation is entirely different now, and practically everyone hiring UX people expect them to have a portfolio. Ask colleagues or others in your area about their portfolios and examine them. You don't just need a portfolio -- you may also have to present it. See Sandi Murtland's comments in Appendix 2.

Caveat: do not include confidential or proprietary material from a previous employer in your portfolio.

I've reviewed multiple portfolios during the last few years. Here are my general comments.

1. First, have multiple people review your portfolio; you'll get different feedback from people with different backgrounds, and you may often get conflicting feedback. It's your portfolio, you're responsible, so you need to collect all the feedback and decide what changes to make. This is obvious, of course, but very important -- just because someone says, "You should definitely do X" doesn't mean that you should do X. Perhaps others don't agree. But if several people all say, "Do X!" then you should seriously consider doing X. You can often get feedback from the career services department of your college or university, and

sometimes public agencies hold workshops or free job training where you can get feedback on your portfolio and resume.

2. You want to be a UX researcher or designer or some type of UX person. Therefore, it's critical that you look at your portfolio from multiple UX perspectives.
3. One UX perspective is usability, and as you probably realize, a person who designs something is often not capable of evaluating it. That's why you should have multiple people look at your portfolio. It's not a usability study, but they are likely to catch any major usability problems that exist.
4. You've done great work and you may want to describe it all in great detail, but it's unlikely that the people reviewing your portfolio will have a lot of time to read lots of text. This leads to the next section: Write for the web!

Write for the web!

I'm a wordy person; my PowerPoint slides start out filled with words. But even I often say, "Too many words!" when I review a portfolio. If you're reviewing slides from one of my classes, you're trying to learn the material and should be willing to read through the material on the slides carefully, and this takes time. However, if I'm a hiring manager or a person in a group that is considering hiring you, I do NOT have a lot of time to review your portfolio. I am NOT going to sit there for 15 or 20 minutes reading through a detailed description of some of your projects.

Others may have a different opinion, but here's what I want (ideally) when you present a project in your portfolio:

1. First, an easy to scan summary of the project. Ideally, with some photos, charts, graphics, etc. showing work products and other artifacts. I want to be able to see very quickly what the project was about, what you did, and the results.
2. Second, if I'm really interested in the project, I'd like to see a link to a report or to more detailed information.

So, to summarize: Present quickly what you did, using lots of photos, illustrations, and various types of graphics, and also present a link to a more detailed report, or another web page with details.

Be Specific

For a UX research project:

- What was the goal, what were you trying to do?
- Who was the customer, why were you doing this?
- What was the methodology; this is important, and give details
- How did you analyze the data you collected?
- What were the results and the outcome of the research?
- Did the research have a positive impact on the product or service?

If the project involved some sort of graphic or visual design, then all these steps may not be necessary.

But this is a lot of work!

Yes, it requires a tremendous amount of work to create and refine a portfolio. It also takes a lot of work to create a good resume, and to find, apply, and interview for jobs.

Case Studies

Your portfolio will include one or more case studies highlighting what you have done. For people just out of school or a UX Design Boot Camp or intensive short course, the case studies in your

portfolio will most likely consist of various class projects. The following article makes a lot of interesting points: <https://essays.uxdesign.cc/case-study-factory/>

The authors criticize these short courses that are developed in part to help students create a portfolio and get their first UX job. There's nothing wrong with focusing a course on practical projects that can be highlighted in a portfolio, but the article asks this question: "Is this formulaic approach to the design process endangering young professionals' capacity for critical thinking?" It's clear how they would answer this question. However, this does not concern me: so what if you followed an outline and template produced by the course instructors? You're just learning and just because you're following a formulaic approach on your first project doesn't mean your capacity for critical thinking is diminished! Nevertheless, this article is worth reading and has lots of good advice. I do disagree with this statement, however: "Focus on insights rather than process." Yes, focus on insights, but I am very interested in the process and in particular the methodology if this is a UX research project.

My Pet Peeve

You want a job and it's your portfolio, so YOU should do the work. Don't make me do extra work. Don't make me struggle to figure out what you did, what a photo or graph represents, what an acronym means. Explain it clearly for me, label the photos and graphics, write well, help me understand what you did quickly, easily, and without a lot of effort. I'll appreciate this, and I'll be upset with you if you force me to do unnecessary work.

Essential Information/Sections

The main purpose of a portfolio is to showcase your work, whether it's a research project or a visual design or the documentation for a new product. But you should also include the following:

- Some information about who you are. This can be purely professional, or can include some personal information if it is something you want to share.
- Contact information, of course, including email, social media, and a phone number
- Your resume: there should be a link to your resume.

10 Tips

A former student just pointed out this blog with 10 tips. Jen makes many of the same points that I make above. This short blog is definitely worth reading.

10 Tips for a Killer UX Portfolio by Jen McGinn

<https://blog.usejournal.com/10-tips-for-a-killer-ux-portfolio-c918ae5ccb50>

Designing Your Portfolio

Jen McGinn and Bob Thomas gave a presentation on resumes and portfolios at the 2019 UXPA conference. Here is their 46-page slide deck:

[Crafting Your UX Resume and Designing Your Portfolio](#)

It is worthwhile going through this deck, which also includes multiple links to articles and examples on the web.

Online Resources

Here are several links about creating an effective portfolio:

[There are a lot more online resources than these, of course -- if you know of something really good, please send it to me.]

UX Portfolios: How to Tell Your Story,

<http://www.usabilitycounts.com/2013/12/10/ux-portfolios-tell-story/>

UX Portfolio Tips

<http://www.slideshare.net/Hugeinc/ux-portfolio-tips?related=1>

Basic information, but good points. In particular: “Apply the same UX principles you use on projects to your portfolio:

- Clear
- Scannable
- Easy to read
- Good design sensibility
- Not too long”

From the Nielsen Norman Group

Search for “portfolios” on the NN Group web site and you’ll find even more videos and articles.

Creating a UX Design Portfolio Case Study:

<https://www.nngroup.com/videos/ux-design-portfolio-case-study/>

Portfolios for UX Researchers: Top 10 Recommendations:

<https://www.nngroup.com/articles/ux-researcher-portfolio/>

UX Portfolios: <https://www.nngroup.com/videos/ux-portfolios/>

Should you Create an Online or PDF UX Design Portfolio?

As the article below makes clear, you need both, but an online portfolio is essential. You need a static (PDF) portfolio to use to give presentations (e.g., during a job interview), while you can list the online portfolio on your resume. The online portfolio can be discovered by search engines, and it is much preferred by hiring managers, as they can quickly get information about the projects you’ve worked on and your design skills.

<https://www.interaction-design.org/literature/article/should-you-create-an-online-or-pdf-ux-design-portfolio>

Creating an Online Design Portfolio

This article provides information on popular platforms, including Behance, WordPress, Squarespace, and many others. It also provides a variety of advice.

<https://www.interaction-design.org/literature/article/how-to-create-an-online-ux-design-portfolio>

Examples of UX Design Portfolios

<https://careerfoundry.com/en/blog/ux-design/ux-portfolio-examples-inspiration/>

Portfolio Templates

You can get a template for your portfolio at

http://www.w3schools.com/w3css/w3css_templates.asp

Portfolio Sites

You’ll need to choose a company to host your website (you DO need a website for your portfolio). A former student let me know that she is happy with [Semplice](#)/WordPress.

If you have an account with Adobe, you can get a free, online portfolio site. It will connect with Behance, a popular portfolio site for designers. Wix and Squarespace also have free options (<https://www.wix.com/> and <https://www.squarespace.com/>).

[I am collecting information from people on their hosting experiences -- if you have a hosting site that you recommend, please let me know.]

References and Letters of Recommendation

The past is the best predictor of the future. Your performance in a previous job is a better predictor of success in a new job than performance in the job interview. This is why recommendations are so important.

Don't assume anyone you ask will serve as a reference or write you a letter of recommendation. And remember, you want a good reference.

- Ask nicely and make it easy for the person to decline. Some people also recommend including a template or sample letter, although I've never done this or experienced it. For example:
 - "If for any reason you don't feel comfortable writing a letter on my behalf, I completely understand. If you are willing to do so, however, please feel free to take the attached sample letter and use it as a template however you see fit. I have tried to address my core strengths as a strategic thinker and team player and I have highlighted several marketing campaigns I'm particularly proud of" (Harvard Business Review, short and worth reading: <https://hbr.org/2010/04/how-to-ask-for-a-reference-let-1-2>).
- Always send your resume to a person who has agreed to serve as a reference or write you a letter. The person should remember you well (of course!) but they may not remember exactly when you worked together, and they may not know about all your skills and experiences, and your resume will remind them of this information. Personally, I'd rather receive a resume with a note highlighting parts that are relevant for the job you're applying to rather than receiving a template or sample letter, which I think is somewhat presumptuous.
- In addition, the person acting as a reference should know about the job you're applying to. Describe the job, or provide a link to the job description.
- If possible, ask the person face-to-face (I realize that this is often not possible, but when the person you're asking is at your company or in your area, try to ask in person).
- Keep those who provide a reference up to date with the latest information about your job search.
- Send a thank you note, and let them know the outcome.

Non-native English Speakers

If you're a non-native English speaker, you have additional challenges to overcome. If your accent is so strong that people have trouble understanding you, then this would obviously be a problem if you were to moderate usability sessions or conduct interviews. If your writing is filled with grammatical errors and misspellings, this is also a problem. If I were hiring someone for a position that involved interacting with participants in UX research, I would be more concerned about the accent than writing ability. I would edit reports but expect the person to improve quickly over time. Note that you may be up against stiff competition -- I've known non-native English speakers who spoke and wrote better than the average U.S. citizen.

A recent graduate who is a non-native English speaker suggested these links to me:

- How I Became Fluent In English -- And How You Can Too
<https://www.youtube.com/watch?v=SVcuxrbyxGY>

- “How UX helped me learn English”: She wrote that this article was “very helpful and inspiring”:
<https://uxdesign.cc/how-ux-helped-me-learn-english-7f763b81bf0e>

There’s also an edX course that may be worthwhile: “English for Business Networking: Learn essential skills for networking in English to expand your career and business options, using social connections, email, conversational strategies, and more” (<https://www.edx.org/professional-certificate/uwashingtonx-english-for-business-networking>). This is a four-course, 16-week program. It costs \$356 if you want a certificate, but you can audit the four individual courses at no cost.

Job Search Websites

I don’t have direct experience in using these sites. There are a lot more you can find with a web search.

- UX Jobs Board: <https://www.uxjobsboard.com/>
- Indeed.com: one of the better search engines in the job board space
- Glassdoor.com: This one also includes reviews of companies from current and former employees
- Dice.com: This is primarily for developers and programmers
- LinkedIn Jobs
- Monster: <https://www.monster.com/>

Susan Farrell, in her document [Job Hunting Links](#), lists over 50 websites where you can search for jobs and post resumes. Check it out!

Note: Sometimes these sites will continue advertising a position for 30 days or more. Remember to check the post date to ensure you aren’t spending time and energy applying for a job that may already be filled.

Job Search Tracking

To stay organized during your job search, you may want to create a spreadsheet to track the details of your job search. You will likely be applying to a number of jobs and/or contracts. Keeping track of these after a few weeks can be difficult.

If you’re applying to full-time, permanent jobs, you may want to track the company name, job title, job description, job location, when you applied, the specific resume version you submitted, contact names, phone numbers, interview dates and times, and interviewers’ names and contacts.

If you’re also submitting your resume to recruiters for contracts (see more about that below), then you should also track all of that information as well. That way when a recruiter or prospective employer calls you about a position, you can easily retrieve the information and the version of the resume you submitted. You can also use this information to begin your next job search, especially if you find yourself looking for a new position within a year.

Professional Organizations

Most professional organizations now maintain some type of job listings. I need to add to this list, but here’s a start:

- UXPA International Job Bank:
https://uxpa.org/job-bank/?utm_source=UXPA+Marketing+List&utm_campaign=c634dd9374-EMAIL_CAMPAIGN_2019_04_17_05_12_COPY_01&utm_medium=email&utm_term=0_6b76a75ed5-c634dd9374-37950509
- Jobs in New England from the UXPA: <https://groups.google.com/g/boston-ux-jobs?pli=1>
- ACM SIGCHI jobs (mostly academic): <http://acm-sigchi.1086187.n5.nabble.com/HCI-acm-org-Jobs-f9543.html>

Recruiting Firms

Many companies, both small and large, use recruiting firms. There are literally thousands of recruiting firms around the world; they have many names, including talent agencies, search firms, creative staffing agencies, technical recruiting, IT Staffing, and on and on.

Here's a sample list of companies that have either contacted me or are active in the Boston area; all these firms work with UX people. During early 2017, I was contacted by about one recruiter a week via LinkedIn. I am not recommending these firms. I'm just providing these as a sample of recruiting firms for people not familiar with them.

- Bestica: <http://www.bestica.com/>
- Jobspring Partners: <http://www.jobspringpartners.com/> now Motion Recruitment (<https://motionrecruitment.com/>)
- Randstad Technologies: <https://www.randstadusa.com/technologies/jobs/>
- Clear/Point UX Staffing Consultants: <http://www.clearpnt.net/>
- Starpoint I Creative & Digital Solutions : <http://creative.starpoint.com/>
- Workbridge Associates: <http://www.workbridgeassociates.com/>
- Vitamin T: <http://vitamintalent.com/>
- Hireminds: <http://www.hireminds.com/>
- BeyondTekIT: <http://www.beyondtekit.com/>
- Aries Group, Inc.: <http://www.ariesgroupinc.com/>
- Avid Technical Resources: <http://www.avidtr.com/>
- Intepros Consulting: <http://intepros.com/>
- Onward Search: <http://www.onwardsearch.com/>
- Allegis Global Solutions: <https://www.allegisglobalsolutions.com/>
- Xsell Resources: <http://xsellresources.com/>
- Curate Partners: <http://www.curatepartners.com/>
- The KOHL Group: <http://kohlgroupp.com/>
 - I actually do recommend the KOHL group, as I've worked for them and had good experiences. One of their specialties is user experience research and usability, and they have worked a lot with the telecommunications industry.

Local recruiting agencies can be very helpful in finding a job since many companies don't actually post their job listings on LinkedIn, Monster, or other sites. A colleague (who's in the Boston area) who recently switched jobs wrote to me and explained that,

"I would never have found my current job if I weren't working with Jobspring Partners [now Motion Recruitment]. The two local recruiting agencies that I've found useful and tied to local companies are Jobspring Partners and Randstad Technologies. The only issue I've found in working with these agencies is that they may ask you to provide 3 or 4 references right up front. So, candidates need to be aware that they may have to ask their references for multiple references early in their job search which may become a nuisance."

I've also heard recently (2021) from a former colleague who found several software jobs through WinterWyman (<https://www.winterwyman.com/>). Note that practically all firms that work with UX people also work with software developers.

ReferHire: The P2P Social Hiring Network <https://referhire.com/>: I know nothing about this site, but I've been getting lots of email invitations from people I don't know: "Hi Demetrios, ReferHire is the world's fastest growing peer to peer social hiring network and [name here] would like you to also join the ReferHire community." Let me know if you have direct experience with them.

Working for an Agency

If you get a job as a contract employee (e.g., via one of the agencies above), you'll have to sign a contract (often called an employment agreement). Sometimes these include objectionable or even illegal or legally unenforceable clauses. (My only experience is in the US, and I assume the situation is different in other countries.) My advice:

- Read these carefully. If you're concerned, have a lawyer look it over. (Yes, I know, this is easy to say but may be difficult and/or expensive to actually do; note, however, that there are now multiple online legal firm -- such as Legalzoom -- that provide legal services at a small fraction of what a regular lawyer charges.)
- If there are objectionable clauses, ask to have them removed. This typically does not work, but it's worth a try and sometimes it does work.
- You have a job! You're excited, but don't feel you have to sign immediately. Once you sign, your negotiating power is gone.
- There are lots of variations, but many large companies (at least in the US) use an agency to bring in contractors. You, the contractor, are an employee of the agency even though you'll be working for Company X. The agency may offer a 401K, health insurance, and so on.
- You may be hired as a W2 or 1099 employee, depending on the company and agency, and in some cases, you may have a choice (this refers to the US). There are tax and other consequences; if you have a choice, do some research and find out which option is the best for you. If you're on a W2 the contracting firm is paying part of your social security and Medicare tax, while if you're a 1099 employee you're paying it all. That's why with a 1099 you should ask for a higher hourly rate that covers these expenses.
- The agency may not want you to talk directly to the employer (Company X) before you're officially hired, but the more you talk with the employer the better. Ideally, you've made contact on your own with someone at the company, and they've sent you to one of the agencies they work with. If you have a contact at the company, you can talk with them about salary and other matters, even if the agency objects. **Note: It is illegal for private companies to prohibit you from talking to others about your salary!**
- There's the hourly rate and the bill rate. Let's say that you are making \$50/hour. The bill rate may be \$85/hour; this is what the company pays to the agency. The agency has some costs, and also pays some taxes for you, but then it wants to make a profit, and some agencies want to make a lot of profit...and often at your expense. The employer, Company X, may not even know what your hourly rate is, and you will almost certainly not know what the bill rate is. Given a certain bill rate, the lower the hourly rate the more profit for the agency. Keeping things secret is in the agencies interest, transparency is in your interest.
- I've seen employment agreements in which the contractor is prohibited from discussing his or her salary with the employer! If you're in contact with someone at the company

where you hope to work, talk with them about salary before signing the contract, or ask the agency to have this clause removed. Again, **Note: It is illegal for private companies to prohibit you from talking to others about your salary!**

- It's typical for an agreement to prohibit you from working for the same company for some period of time after you stop working for the agency (often a year). This makes sense if the agency found you for the company. But if you and the company found each other and the company is bringing you in via one of the agencies, then the agency should not be able to prohibit you from switching agencies or working for the company in some other capacity. You may not be able to get this clause removed by yourself, but your contact at the company may succeed here, as the agency wants to continue working for the company.
- This may all be a little confusing if you're new to contract work and don't have experience with these agencies (and I realize that this section is neither complete nor straightforward). As usual, try to find someone with experience that you can talk to about all this.

Being a Consultant, Freelancer, or Contractor: Pros and Cons:

<http://www.nolo.com/legal-encyclopedia/being-consultant-freelancer-or-contractor-29593.html>

Employee vs. contractor: A tax distinction:

<http://www.bankrate.com/finance/taxes/employee-vs-contractor.aspx>

The Pro's and Con's of Contract Employment:

<https://www.monster.ca/career-advice/article/the-pros-and-cons-of-contract-employment-canada>

An Hourly Rate Calculator

https://hourlyrate.beewits.com/?utm_source=of%20a%20kind&utm_medium=referral&utm_campaign=10thingsnewsletter

Agencies typically charge anywhere from \$75 to \$130 for a UX Researcher (to the company where you're working), and this means that the researcher would get \$50 to \$100/hour. There are certainly outliers who receive much more than \$100/hour. Note that although \$100/hour sounds like a lot -- especially when you translate that into a yearly salary -- there is typically no paid vacation or sick days. You may also have to buy your own computer and equipment, and if you work on short-term assignments you may have a lot of (unpaid) downtime in between contract jobs.

Note also that I'm not being very precise here with my terms. Many people make a distinction between contractors, who may work for months or even years for a company, versus consultants, who typically come in for shorter periods of time. Consultant fees are typically much higher than contractor fees, and whereas contractors may be treated as employees in the sense of being told what to do, consultants are more likely to plan and carry out a project on their own (and hence the higher pay).

Dealing with Rejection

How you deal with rejection is important. Everyone is rejected at various points in their life -- when applying for a job, or to college; when submitting an article or paper (to a newspaper or journal, etc.); when trying out for a musical group, and on and on. How you deal with rejection is very important.

1. First, you need to realize that a rejection is not always a reflection on your skills or abilities. Consider the situation when you apply for a job and it goes to an internal person; there are times when a group leader knows exactly who she wants to hire for a job before advertising, but is forced to advertise by company and government policies. In this case, you may not have a chance no matter how good you are. But, of course, there are other times when another candidate is more impressive -- perhaps has more experience, a better education, better references, a better interview, and so on. This leads to the second point.
2. Second, you need to know your own abilities. You need to have fairly accurate "metacognition," or knowledge about your own knowledge and abilities. This is tough, so again, it helps to have others you can talk to and ask to give you realistic feedback. Also, look at what you've done, and how well you've done it, either in school or at your first job (or an internship). What type of grades or feedback did you receive? What type of programs and courses have you taken?
3. Third, believe in yourself, and be tenacious. Most people know the story of JK Rowling, and how she was turned down by 12 publishers before finally finding someone to publish her first Harry Potter book. Similarly, I read an article recently about famous research psychologists and how some of their initial research was rejected for publication...but then was eventually published to great acclaim. This brings us to the fourth point.
4. Fourth, reviewers (and hiring managers) are human. They make mistakes, and although some are very thorough and fair, some don't spend the time required to evaluate your article or proposal or resume (or you!) and make some very stupid comments and suggestions. This is why for professional journals there are typically multiple reviewers, plus an editor or board that evaluates and makes a decision based on the reviews. But the process often breaks down, and an excellent paper or proposal is sometimes rejected. And sometimes a paper or proposal is acknowledged as excellent but rejected because its topic or format doesn't fit into the program or journal. This is why you need to have a good idea of your own abilities and the quality of your work. Read the reviews and learn from them. But if they are off the mark, argue back (if this is an option), or have confidence in your work and submit it someplace else.

Here's what you should not do

You should not take rejection as an indication that you are worthless or not as good as others. Did you receive any feedback along with the rejection? If so, is it accurate? Again, ask others for their opinion if you are not sure. It's easy to evaluate the feedback that, "You don't have enough Python programming experience." But what if you're told that, "The quality of your graphic designs is just not up to our level." This is inappropriate feedback, in my opinion, but it is this type of feedback that can destroy your self-confidence. Don't believe it! (One of your designs may not be very good, but the next one may be superb.) Try to evaluate your abilities by comparing what you do to what you've seen others do, and by asking for honest feedback from friends and colleagues (and of course a mentor, if you have one). Perhaps you're not cut out to be a graphic designer, but your user-interface ideas are awesome. You need to gravitate to where your strengths are. I've never done graphic design, but I've done a variety of UI design in my career, and over time it became very clear to me that I was much better at evaluating designs rather than coming up with them in the first place.

My latest rejection: I submitted a proposal for a talk at a conference. I knew it was good, based on comments I had received from colleagues who had seen parts of it, and because I knew I had worked hard on it and had lots of interesting information to share. The reviewers were generally very positive, but it was still rejected -- perhaps other proposals were rated even higher, or perhaps the topic didn't fit into the organizers' plan for the conference. In any case,

rather than give up, I contacted another organization about turning this material into a half-day workshop. They agreed, and I ended up giving a half-day workshop that was very successful. Now I'm updating the material, and hope to give another workshop (or lecture) on this material again.

Should you ask for feedback when you do NOT receive an offer?

There are good points in this short article:

<http://www.vault.com/blog/interviewing/ask-vault-is-it-a-bad-idea-to-request-feedback-after-an-interview#.WNWFUcH0TQ8.linkedin>

When You Receive a Job Offer

You may want to accept immediately -- especially if this is your first job -- but there are many advantages to slowing down a little. Yes, you can immediately express gratitude and excitement, but you don't have to immediately accept. No company is going to rescind their offer if you don't accept on the spot. Consider these points:

- Ask for a written offer, which makes it official. Don't turn down other offers or tell your current employer you're leaving until you receive a written offer.
- You still may have questions, and now's the time to ask them. What will you be working on, with whom, in what group, reporting to whom, and what's the expectation with respect to travel? And so on. Ideally, you've already asked these questions, but there are always some you forgot to ask, and now's the time. You need to make sure that your expectations about the job correspond to reality. It's not unusual for a job description to change between the time a job is posted and an offer is made.
- What's the salary, and is it appropriate? There are salary surveys available from many professional associations and a lot of salary information available online. How about health insurance, retirement, vacation time, a 401K, and so on -- what's included? Take into account where you'll be working, as there are dramatic differences in rents and housing across the country.
- Employers are less willing to negotiate with entry-level candidates than with more experienced candidates, but it can't hurt to ask -- just be professional about it. And even when the salary is not negotiable, sometimes other aspects of the job are, such as a signing bonus, relocation expenses, and so on.
- It's reasonable to ask for a few days to consider the offer. In my experience, it's typical to give someone a week to respond, although I just read a salary negotiation guide for college seniors applying for their first job and it said that two weeks is common. They made you an offer so they want you, and you will almost always be asked if you have more questions and want to talk to your new manager or people in the group. Take advantage of this offer and talk to people.
- Your first job is likely to be one of a series of jobs you'll have throughout your career. Salary is important, of course, but many other factors are also important: will you develop new skills and gain valuable experience? Will you meet -- and perhaps be mentored -- by senior people whom you admire? Do you think you'll enjoy the work, the culture, and your new colleagues?
- Plan a path to your career goals. Evaluate whether this job will help you reach those goals.

Check out the following guide: "10 Considerations Before Signing an Employment Contract":

<https://www.monster.com/career-advice/article/employment-contract-guide>

What's an Appropriate Salary?

How much do different types of jobs pay, and what is typical for different companies in various areas around the country? This type of information used to be very difficult to collect, but is much easier now. Check out Glassdoor.com, which is not only a job site, but has a tremendous amount of salary information as well as information about the culture of different companies.

Here's a description from the company's website:

"Glassdoor is one of the fastest growing jobs and recruiting sites. Glassdoor holds a growing database of millions of company reviews, CEO approval ratings, salary reports, interview reviews and questions, benefits reviews, office photos and more. Unlike other jobs sites, all of this information is entirely shared by those who know a company best — the employees. Add to that millions of the latest jobs — no other site allows you to see which employers are hiring, what it's really like to work or interview there according to employees, and how much you could earn. Glassdoor is also available via its mobile app on iOS and Android platforms."

Professional organizations often send out salary surveys; sometimes the results are available only to members, but often they are public. For example, UXPA makes their results public: see <https://uxpa.org/article/2016-ux-salary-survey-results>. "The biggest predictors of salaries are: location (country and US region), job-level, company size, age, education and years of related job experience."

They also provide a salary calculator. For example, "The estimated salary for a 31-year-old female, mid-level non-supervisor, with five years of experience at a mid-sized company (1,500 employees), in the Southeast US, and holding a Bachelor's degree is \$81,916, with a 95% confidence interval of \$68,579 and \$97,764. There was one person in the sample who met these criteria in the survey with a salary of \$81,499—showing good agreement between the predicted and actual values."

Update: The UXPA 2022 Salary Survey: <https://uxpa.org/2022-ux-salary-survey/>

Highlights, verbatim:

UXPA International in partnership with MeasuringU are excited to share the 2022 UX Salary Survey Results.

- Data collected from July, 2021 through March, 2022.
- 625 responses from 31 countries, with 72% of the responses coming from the US and 9% UK.
- The median salary across all jobs is \$109K, 15% higher than the 2018 UXPA report (\$95K). But factoring inflation using constant 2021 dollars the median salary is about the same as it was in 2011.
- The biggest factors that impact salaries are:
 - Where you live, US Northern California has the highest median (\$179k) versus \$95k in the US Mountain Region.
 - Job Level: Senior-level supervisors make almost 2x entry-level employees (\$140K vs. \$75K).
- UX Managers make on average \$150k, User Researchers \$107k, Designers \$115k.

This NYTimes article is worth reading: [What Do You Think You Should Be Paid?](#) By Emily Peck.

UX Salaries

From the 2018 UXPA Survey, the median salary is \$95,000. Salary depends on where you live, job level, company size (larger company, larger paycheck), experience, age, and education. See the following articles, based on the UXPA survey:

- User Experience Salaries and Calculator, <https://measuringu.com/salary-survey2018/>
- Salary Trends for UX Professionals, <https://www.nngroup.com/articles/salary-trends-usability-professionals/>

Here's an article that reviews multiple salary surveys: 2017 UX Salary Resources (<https://medium.com/@m3.mcgrath/2017-ux-salary-resources-a4ac2b55ba8c>).

The first mentioned is Payscale (<https://www.payscale.com/>), which asks you a number of questions about education, skills, years in the field, location, etc. and then give you a salary range. When I filled it out, the results seemed fairly accurate.

Other information about salaries:

- <https://www.payscale.com/>
- <https://www.salary.com/>
- <https://www.linkedin.com/salary/>

Equity Options

In addition to a base salary, your compensation may include a yearly bonus and equity (i.e., stock) options. Stock options typically allow you to buy stock at a future date at the price it is when it is offered to you. However, you typically must wait some period of time (usually a few years) until it is vested. Restricted stock units (RSUs) are stock you receive that you can sell immediately. In many cases, you receive RSUs based on the performance of the company. The higher up in management you are, the more likely it is that you will receive stock options, but sometimes even workers at the bottom of the corporate hierarchy receive stock.

For example, until recently Amazon warehouse workers received some stock awards. The company raised salaries but eliminated the stock awards, and some long-time employees complained that this would result in a net loss of income (<https://www.bloomberg.com/news/articles/2018-10-03/amazon-eliminating-bonuses-stock-awards-to-help-pay-for-raises>).

You should tell your co-workers how much you make!

First, the law: since 1935, when the National Labor Relation Act was passed, private sector employers cannot prohibit employees from discussing their salary and other compensation. Some employers are either ignorant of the law, however, or don't follow it, and it is common for employees to be told they can't discuss their salaries with colleagues. When employees don't know what others make, then employers can often pay less.

Women and minorities still receive lower pay for the same work compared to men, and more transparency about pay will make it more difficult for companies to discriminate. In 2017 and 2018, there were a number of stories in the national media about women finding out what men in similar positions were making, and they were all shocked at the discrepancy. (For example, <https://www.nytimes.com/2018/07/06/arts/music/boston-symphony-orchestra-equal-pay-massachusetts.html> and <https://www.nytimes.com/2018/07/11/world/europe/uk-bbc-pay-gender.html>).

Some states (including Massachusetts, Connecticut, and California) even forbid employers from asking a job candidate for their salary history (which can harm women and minorities who have been discriminated against in the past). The following articles provide some additional reasons why it is to your benefit to discuss salary with co-workers:

<https://www.nytimes.com/2018/08/31/smarter-living/pay-secrecy-national-labor-rights-act.html>

National Jealousy Day

From <https://www.nytimes.com/2018/11/01/world/europe/finland-national-jealousy-day.html>:

“Pamplona can boast of the running of the bulls, Rio de Janeiro has Carnival, but Helsinki is alone in observing “National Jealousy Day,” when every Finnish citizen’s taxable income is made public at 8 a.m. sharp.... Though some complain that the tradition is an invasion of privacy, most say it has helped the country resist the trend toward growing inequality that has crept across of the rest of Europe.... “When we do publish the figures, the people who have lower salary start to think, ‘Why do my colleagues make more?’” he said. “Our work has the effect that people are paid more.” Employers, he said, “have to behave better than in conditions where there is no transparency.” Also: “Economists in the United States have shown great interest in salary disclosure in recent years, in part as a way of reducing gender or racial disparities in pay.”

You found a job, but don’t stop now!

Congratulations, you just found a job! Now continue with most of the recommendations here. I’m sure that you want to advance in your career, and the odds are high that your first job will not be your last job. One day you’ll need to find another job. Keep reading this document! Keep networking, participate in local professional organizations, keep your resume up-to-date, keep learning new skills, keep exploring the field, don’t be shy about asking others for advice and feedback, and once you’re established, help your junior colleagues the way others helped you.

Getting that first job: Getting your first job is tough. If you recently started your first job, help me improve this paper by sending me your story. How did you get your first job? What worked for you?

Part 2: Advancing Your Career

There’s definitely an overlap between finding a job and advancing your career, and these first two sections are not meant to be mutually exclusive.

Participate in Local Professional Organizations

Boston Area

If you’re in a major city, you’re in luck. Here’s some information for Boston, but there are similar organizations and events at other major cities around the country:

- Join BostonCHI (just \$15/year; <http://www.bostonchi.org/>), which gives you access to their jobs’ list. At the monthly meetings you can network and dessert is often sponsored by a recruiting firm (recently by Vitamin T). Talk with the recruiter who is there. At the beginning of meetings, people looking for jobs can stand up, say they’re looking for a job, and describe their background and what they’re looking for. More important, people looking to hire UX people also stand up and list their current openings.
- CHI Chapters: <https://sigchi.org/chapters/>
- Check out the Boston Interactions Calendar available at <http://www.bostonchi.org/BostonInteractions/> and on the website of member organizations.

- UXPA Boston (<http://uxpaboston.org/>) is the local chapters of UXPA (User Experience Professionals Association). They have regular meetings and an excellent one-day conference. Current attendance at the conference is now over 1,000. It's great for networking, and several companies and recruiting firms have booths there (<http://conference.uxpaboston.org/>).
- UXPA Chapters: <https://uxpa.org/chapters-by-name/>
- UX Meetups: <https://www.meetup.com/find/?keywords=UX&location=us--ny--New%20York&source=EVENTS>
- Designer Hangout: <https://www.designerhangout.co/>
- There is a New England chapter of HFES (Human Factors and Ergonomics Society); <http://www.nechfes.org/>. It is not as active as BostonCHI or UXPA Boston.
- Although I am not personally involved, there is an active local chapter of the Society for Technical Communication (<http://www.stc.org/>).
- AIGA is the largest professional design network in the country), <http://boston.aiga.org>
- IXDA, Interactive Design Association, has over 80,000 members, <http://ixda.org>
- There are many other professional organizations active in the Boston area.

Volunteer: Consider volunteering for local professional organizations. For example, the BostonCHI Steering Committee is always looking for members, and no experience or expertise is required. It's a good way to meet people in the field.

Usability Net (<http://www.usabilitynet.org/home.htm>) has information on professional organizations around the world (although it's out of date; have a better source? Send it to me).

How to Get the Most Out of National Conferences

National conferences can be very rewarding...but they can also be very lonely places if you don't already know people in the field. Imagine that you've come out of a major HCI program and you've been in the field for many years. A national conference is a time to catch up with old friends and colleagues, and you may not be particularly interested in meeting new people. But what should you do if you're that new person? If you're going to a national conference alone or don't know many people in the field, do some preparation. Find out if other junior people are attending from your area and set up times to get together with them to discuss the conference and what you're learning. Try to set up some lunch or dinner arrangements ahead of time. Write to someone giving a talk that you're very interested in (or an area that you know something about) and ask if you can meet briefly with him or her to discuss the talk.

Some conferences are so large that you may not cross paths with old friends or colleagues unless you set up something ahead of time. I've missed some meetings with old friends at large conferences because I failed to contact them ahead of time to set up a meeting. In one case, I was on the lookout for person X only to discover that he was already gone, having only attended the first two days of the conference. There may be people who you don't know well but have met once or twice. Contact them before the conference, ask if they're going, and let them know you want to get together during the conference.

Some conferences now have several types of activities for people new to the field -- these could be social events, mentoring sessions, talks on how to make the most of the conference, and so on. Take advantage of these type of events! Workshops can also be a good way to both learn new skills and meet new people.

Workshops

Attending workshops have been the most rewarding conference experiences for me. These workshops range from a half to a full day, include only a small group of people, and consist primarily of discussion rather than lectures. You typically have to write a short position paper to be accepted. Don't be intimidated! You should know something about the topic, but you don't have to be an expert. In fact, workshop organizers will typically want to include practitioners or researchers new to the field. Here's information about CHI Workshops:

"Workshops are a gathering place for attendees with shared interests to meet in the context of a focused and interactive discussion. They are an opportunity to move a field forward and build community: a chance to find people who care about the same issues, questions, and research agendas as you. CHI workshops might address basic research, applied research, HCI practice, HCI education, new methodologies, emerging application areas, or design innovations. Each workshop should generate ideas that will give the HCI community a new, organized way of thinking about the topic or that suggest promising directions for future work. If you are working in an emerging area in HCI, please consider organizing a workshop.

...A typical workshop will have 12 to 25 participants....

Workshops are intended to foster discussion and exchange ideas. Because focused interaction among participants is important, participants should have informed positions based on prior experience. This is typically expressed in position papers submitted by workshop attendees. Workshops should not be miniature paper presentation sessions, but focus on community building and communal knowledge creation. Please note that CHI workshops are not classes in which instructors teach content."

<https://chi2021.acm.org/for-authors/interacting-discussing/workshops-symposia>

The workshop organizers typically write a brief summary to share with the rest of the field. Here's what I wrote with three colleagues after a workshop on speech recognition that we organized over 20 years ago: <https://dl.acm.org/doi/10.1145/279044.279053>

More Conference Advice

Here's more advice on conferences from academic psychology, but relevant to all professional conferences. In an article in the APS Observer, Lia J. Smith (2019) provides some excellent advice from her perspective as a graduate student:

"Keep in mind that many of the opportunities to connect with people may be embedded in preconference events, post-symposia windows, and gatherings after the day's sessions are over. Rather than pack your day with sessions where you sit quietly and then rush out, seek opportunities to genuinely connect with other members in your field. I recommend planning a smaller set of key sessions and events where like-minded individuals and senior members of the field are likely to attend, leaving yourself time before and after to make meaningful connections through more in-depth conversations."

<https://www.psychologicalscience.org/observer/making-the-most-of-academic-conventions>

Don't Read Blogs and Newsletters!

Well, of course you can read blogs and newsletters, and follow well-known UX people on social media...but you're probably spending too much time on this! Be selective in what you choose to read.

Consider this scenario. Amy is an experienced (fictitious) UX researcher who works for one of the major technology companies. She writes a blog and contributes to online forums, and she does a variety of interesting research that she presents at conferences such as CHI, where it is published. Amy does a large project for her company that investigates how different generations in the same family use technology and what their unmet needs are. She (and her colleagues, most likely, as research like this is seldom done by a single researcher), spend months on the study, then spend hundreds of hours writing the paper and improving it based on feedback from colleagues and the CHI reviewers. Let us say that this research is very relevant to the work you're doing. Is it better to read the full research paper or just a short blog posting? It's fine to read the blog, but much more important to read the actual research paper, where you'll get all the details and lots of discussion, as well as a review of previous research. The point of this paragraph should be clear. Read research papers and books and journal articles. Don't limit yourself to short articles on the web. Don't be lazy! It's better to spend time on something that a researcher has spent 100 hours preparing rather than 1 hour.

Popular Blogs and Newsletters

Despite what I write above, you will continue to read blogs and newsletters. If you do, you might as well read good ones. I follow my own advice here and spend very little time on blogs and newsletters, but students in my Bentley class recommended these:

- UXmatters: <https://www.uxmatters.com/>
- MeasuringU: <https://measuringu.com/>
- Interaction Design Foundation: <https://www.interaction-design.org/literature>
- Nielsen Norman Group: <https://www.nngroup.com/articles/>
- LukeW: <https://www.lukew.com/ff/>
- IDEO, The Octopus: <https://www.ideo.com/blog>
- UX Collective: <https://uxdesign.cc/>
- UX Myths: <https://uxmyths.com/>

For one perspective on The State of UX: 100 Design Lessons for 2021, see <https://trends.uxdesign.cc/>

Look through CHI and UXPA Talks

Once a year, after their annual meeting, look through the Proceedings of the 2021 (or whatever year it is) CHI Conference on Human Factors in Computing Systems:

<https://dl.acm.org/doi/proceedings/10.1145/3313831> (& <https://dl.acm.org/citation.cfm?id=3173574>).

The abstracts are free (videos accompanying papers are also free). However, if you'd like to access the full-text, you must have access to the ACM Digital Library.

For a more practitioner focus, also look through talks from the last International UXPA conference. The slides for 2018 are here:

<https://www.slideshare.net/search/slideshow?searchfrom=header&q=uxpa2018>

Why do this? There are many benefits. You'll get a feel for hot new topics, you will find articles relevant to your work, and you'll learn where interesting research and studies are being done (by noting the affiliations of the authors).

Present and Publish

Presenting at local meetings or conferences is an excellent way to advance your career. You don't need an advanced degree or training in research or statistics. The key is to talk about something you know well. Perhaps you've spent a significant amount of time with some new tool or software that you're using at work. Give a talk about it or write a short article. Imagine that you've completed a large project and learned a lot via trial and error; others will probably want to hear about your experiences. Give a presentation on what you learned at a local meeting or conference. On LinkedIn, you can publish a blog and build a following. It's free and may actually help you to find your dream job.

Do you have some research experience? Great, now try to collect some data as you go about your UX work. There are a million things you could do. Try different usability moderating techniques and examine the results. Try to replicate some of the CUE (Comparative Usability Evaluation) findings but in a different domain (e.g., using an interface not associated with a publicly available website). You should be familiar with the series of CUE studies (<http://www.dialogdesign.dk/CUE.html>).

Yes, **YOU** can give a talk at a local meeting or publish a paper in a professional magazine or journal. Here's how you can do this:

1. **Start with experience:** You should have some experience in the area – a prototyping tool (e.g., Axure, Balsamiq), a technique or methodology (e.g., eye-tracking, diary studies), a development or management approach (e.g., Agile), etc.
2. **Learn more:** Your experience may not be generalizable to other domains, so you need to learn more by reading books, articles, taking online courses, and talking with other practitioners.
3. **Get feedback:** Create a presentation or document and get feedback from multiple people with knowledge in the area.
4. **Update and expand:** Based on feedback and your continued learning, update the material and add new information.

How to Give a Great Presentation

You shouldn't deploy a survey or conduct user research without doing a pilot test, and you also shouldn't give a presentation without "testing" it by giving a practice talk to colleagues and getting feedback. The best advice is to prepare, rehearse, get feedback, update, then rehearse again. Consider the extremes in preparation -- a TED talk. The TEDx organizer guide includes this statement: "Your speakers should be taking weeks or months to rehearse and memorize their talk"

(<https://www.ted.com/participate/organize-a-local-tedx-event/tedx-organizer-guide/speakers-program/prepare-your-speaker>). Few of us will ever give a TED talk, and we don't need to spend weeks or months preparing for the presentations that we do give, but some of the tips for preparing TED talks are still relevant.

For example, Simon Tam suggests (in "7 Essential Tips to Prepare for a TED Talk" https://www.huffingtonpost.com/simon-young/7-essential-tips-to-prepare-for-a-tedx-talk/b_7537228.html) that you "Don't practice. Rehearse instead." That is, give practice talks under conditions as similar as possible to the final presentation. He also suggests listening and watching yourself, which is an excellent idea. Take "...a video of yourself delivering the talk too so you can monitor your gestures, awkward body movements, your posture...". I was shocked when I watched a video of myself giving a talk at a local meeting -- I never said all those "uhms" and "ahs" so how did they get into the video recording!

Review Conference Papers!

An email I received from ACM SIGCHI (September 22, 2017) contains some great advice.

The ACM CHI Conference on Human Factors in Computing Systems (<https://chi2018.acm.org/>) is the premier international conference of Human-Computer Interaction. If you submitted yesterday, thank you for your patience with PCS. We received a record number of submissions. These now need to be peer reviewed by subject experts - and this is why we are reaching out to you. Without the help of thousands of reviewers, we will be unable to ensure that the standard of reviews, and the consequent recognition that research at the event receives, remains as high as it is.

If you haven't reviewed for ACM CHI before, there are many valuable reasons to do so - not least because you get to see how expert reviewers go about assessing papers for when you submit your own papers to the conference. We strongly encourage new reviewers from industry and research students to take part in reviewing; the committee members will balance topic expertise and prior experience to ensure that less experienced researchers will work alongside at least two other highly experienced researchers as reviewers.

You don't need to be a researcher to review papers for many conferences, but you do need some experience or expertise in one of the areas covered by the conference. Reviewing is a service to the professional community, but it is also good for you -- you read new research and information before it is available to the public, and you become known to people in your professional community.

Also, note that after everyone has submitted their review, the reviewers get to read each other's review, and you will learn a lot from the more experienced reviewers. Also note that being a reviewer can take a considerable amount of time. It takes several hours to read a paper, think about it, and write a review. A really thorough review of a paper submitted to a journal can easily take 10 to 20 hours. Note, however, that reviewing for journals generally takes much more time than reviewing for conferences.

How to Review a Paper

Papers submitted both to conferences and journals are sent out for peer review. I encourage you to review papers. If you have no experience, don't worry! Everyone who reviews papers starts their first review with no experience. Read through some of the information below and let the paper chair or editor in charge know about your background and inexperience and ask for advice.

Here is the CHI2020 Guide to Reviewing Papers
<https://chi2020.acm.org/guide-to-reviewing-papers/>

There is actually a CHI paper on how to review!
<http://mobilehci.acm.org/2015/download/ExcellenceInReviewsforHCICommunity.pdf>

Dan Cosley, on How I Review Papers:
<http://blogs.cornell.edu/danco/2014/06/12/how-i-review-papers/>

And here's Dan Randall, on reviewing for the CSCW conference:
<https://cscw.acm.org/2016/volunteer/DaveRandallReviewingforCSCW.pdf>

Statistics

At some point in your career, you'll probably need to use inferential statistics to determine whether a difference is statistically significant, perform a cluster or regression analysis, and so on. If you don't have a good background in statistics, take one (or more!) of the online courses available free from Coursera, edX, and other services.

In the past, I've used BMDP, SAS, SPSS, Systat, and other programs. But now, some researchers in the social sciences suggest that you toss out all of your statistical packages, Excel, graphing packages, everything...and just use R, the open source statistical package that can (people say) do everything (see Weston and Yee's article in the APS Observer from March 2017, *Why You Should Become a User: A Brief Introduction to R*, http://www.psychologicalscience.org/observer/why-you-should-become-a-user-a-brief-introduction-to-r#.WMHgC_krJaQ). There are several million R users worldwide, and over 10,000 "packages," or code entered by users that anyone can use. There are many tutorials available, and you can download R from the R Foundation site: <https://www.r-project.org/>. R was developed after I had learned other statistical packages, but my advice to you is this: if you regularly do statistical analysis as part of your job -- unless you're at the end of your career -- learn and use R.

Productivity and Time Management

Definitely look through this NY Times Guide, "How to Make the Most of Your Workday": <https://www.nytimes.com/guides/business/how-to-improve-your-productivity-at-work>. It has excellent advice on multitasking, to-do lists, your desk, your computer, taking control of email, taking breaks, and other topics.

The PDF of this short book is available free:

The One Minute To-Do List by Michael Linenberger

<http://www.michaellinenberger.com/TheOneMinuteTo-DoList-Ebook.pdf>

You can quickly read the first three chapters in less than 30 minutes, and perhaps it will help. He describes creating three to-do lists.

- First Critical Now items that must be completed today
- Second, Opportunity Now items that are due within the next ten days and which you'd work on today if the opportunity arose
- Third, Over the Horizon items, which are due more than 10 days from now.

How to use these lists, how many items should be on each list, and so on -- read the book if you're interested.

I've used Toodledo (<https://www.toodledo.com/index.php>), but there are many free programs (see <https://todoist.com/>, <https://www.omnigroup.com/omnifocus/> for the Mac, and for a list of these apps, <https://zapier.com/blog/best-todo-list-apps/>). Many email programs also have Task or To Do lists built in.

Email

Most of us can do better in managing our email. There are 10 good tips in this blog post: *Master your email with these essential Gmail tips*

(<https://www.blog.google/products/gmail/master-your-email/>). In particular, I liked these:

- Cut down on notifications on your phone by having only high priority emails lead to a notification
- "Sorting, reading and answering emails should be separate activities"

- “To find what you need, just search”

How to Improve Meetings

If your job is typical, you will spend many hours a week in meetings, and many of these meetings will be run inefficiently and will not follow best practices. Meetings are necessary for sharing information, solving problems, developing strategies, and so on. You should be aware that there is a scientific field of workplace-meetings research. Here is a short, excellent recent review article that summarizes the results from almost 200 recent studies: “Do We Really Need Another Meeting? The Science of Workplace Meetings” by Mroz, Allen, Verhoeven, & Shuffler, in *Current Directions in Psychological Science*, 2018, Vol. 27(6), 484-491.

Mroz et al. summarize the main practices that result in effective meetings in their Table 3, which I reprint verbatim below. Some of these may seem like common sense (and they are!), but most meetings violate many of these best practices. Follow these recommendations and you will be happier and more efficient at work.

Before-meeting considerations

- Meeting Design
 - Call a meeting only when necessary.
 - Schedule meeting length to fit with meeting goals; avoid long meetings.
 - Keep meeting size small by including only those people whose expertise and knowledge are required.
 - Match technology to meeting objectives -- use rich media (e.g., videoconferencing, teleconferencing) for virtual attendees.
- Leader and attendee responsibilities
 - Set clear goals and desired outcomes for the meeting.
 - Prepare an agenda that is circulated in advance.
 - Make sure the meeting is relevant to everyone invited.
 - Come prepared by reviewing the agenda.
 - Ensure that technology is working and ready to go prior to the meeting start time.

During-meeting considerations

- Attendee responsibilities
 - Arrive early (or on time).
 - Avoid complaining, dominating communication behavior, and inappropriate verbal statements.
 - Avoid doing unrelated activities and nonparticipation.
- Leader responsibilities
 - Follow an agenda that lays out clear goals and outcomes for the meeting.
 - Start the meeting on time.
 - Avoid distractions and multitasking during the meeting.
 - Allow attendees to participate in the decision-making process. If a decision is already made, let everyone know.
 - Actively encourage everyone to participate.
 - Intervene when interpersonal communication patterns become dysfunctional.

After-meeting considerations

- Short term
 - Send meeting minutes and action items out immediately following meeting.

- Briefly assess meeting satisfaction and quality immediately following meetings to inform future meeting design.
- Long term
 - Incorporate meeting satisfaction as a component of organization-wide employee engagement and satisfaction surveys.
 - Have leaders critically examine routine meetings to determine their necessity and value.

If You're a Woman...

The American Association of University Women (AAUW) is a nonprofit organization and a top-rated charity. It is, "... the nation's leading voice promoting equity and education for women and girls. Since our founding in 1881, AAUW members have examined and taken positions on the fundamental issues of the day — educational, social, economic, and political."

If I were a woman, I would attend one of their salary negotiation workshops. They have separate workshops for students and for working women:

<http://www.aauw.org/what-we-do/salary-negotiation-workshops/>

They used to hold these two-hour workshops in person in multiple locations around Boston (and other cities), but now they are all online. I assume that in the future, when social distancing is no longer required, they will return to being in person. (However, as many have noted, many things will never return to "normal" and even if they return to in-person meetings, I assume that they will also continue having some over video, given how convenient they are.)

"Women working full time in the United States typically are paid just 80 percent of what white men are paid, a gap of 20 percent — and it's even worse for women of color. Through AAUW Start Smart and AAUW Work Smart, we are fighting to close the pay gap, one workshop at a time."

"AAUW's Start Smart and Work Smart programs are designed to empower women with the skills and confidence to successfully negotiate their salary and benefits packages. By learning strategies and practicing effective language, participants gain valuable skills they can use throughout their lives — well beyond their next negotiation."

I received feedback about these salary negotiation seminars from a woman I met at a BostonCHI meeting (as I've mentioned, these are great networking events). She wrote, "I attended one last year. I found it eye opening and very useful and recommend it wholeheartedly. One tidbit they shared was that not all salary data on the web are of the same quality. They recommended salary.com—this one is based on actual HR data, rather than being self reported as many of the others are. While I understand that rationale, personally, I find the data at payscale.com more nuanced and I have successfully used it at my former employer to justify salaries when hiring or doing internal equity reviews."

And here's part of an interview with a workshop attendee from the website

(<https://www.aauw.org/resources/faces-of-aauw/salary/katie-wynne-2/>):

What was most helpful to you in the training?

When you're not in the midst of an actual negotiation process, it's hard to be aware of what you need to ask. Being able to role play and learn specific phrases I could use was invaluable. It gave me confidence to be able to practice, to get comfortable, and then to think about the delivery of what I'm saying, which is just as important as the words themselves.

Talk about how you applied the skills you learned when you were offered a job.

After I was offered a salary, I said “Thank you so much, I’m so excited, but I need a few days to think this through.” Ultimately, I asked the employer for more money.

They came back with: “We really want to have you, and we’re never going to let money get in the way of working with the right candidate. But what you asked for was a little high. Can you come in at this level?”

Since the amount was within the range of where I needed to be — and it was \$10,000 higher than the initial offer — I accepted it, with the agreement that we’d revisit my compensation after a few months.

And did they?

Yes! Three months later — I didn’t even have to prompt them for it — my boss asked to speak with me and the chief operating officer. I thought I was in trouble!

Instead, they said they were pleased with my performance, so they bumped me up by another \$10,000! So I was able to negotiate a total of \$20,000 through the tactics and the strategies from this workshop. I never would have known you can ask an employer to look at your work product in a few months and see if there’s a raise possible. I truly owe a lot of thanks to Work Smart.

Mentoring

Some professional societies have special mentoring programs for women. For example, in the Human Factors and Ergonomics Society there is a Women’s Mentoring and Networking group (<http://hfwomensgroup.com/>), although I’m not sure how active it is. Search for and join these groups if you find them (and let me know and I’ll add the information here).

Tech’s Diversity Problem

An article from the Harvard Business Review: Hacking Tech’s Diversity Problem: <https://hbr.org/2014/10/hacking-techs-diversity-problem>

In addition, don’t forget the book I mentioned above, *Nice Girls Don’t Get the Corner Office: Unconscious Mistakes Women Make That Sabotage Their Careers*, by Lois P. Frankel (there’s an updated version now available).

Common Experiences Few Talk About

During your career you may experience repeated rejection, imposter syndrome, and burnout. Although there have been some articles in UX journals about imposter syndrome, in general these are the type of experiences that are not discussed frequently...but should be. These experiences are common in all fields, and a recent article in a research psychology journal provides excellent advice.

The article: Jaremka, L. M., Ackerman, J. M., Gawronski, B., Rule, N. O., Sweeny, K., Tropp, L. R., Metz, M. A., Molina, L., Ryan, W. S., & Vick, S. B. (2020). Common Academic Experiences No One Talks About: Repeated Rejection, Impostor Syndrome, and Burnout. *Perspectives on Psychological Science*, 15(3), 519–543. <https://doi.org/10.1177/1745691619898848>

In the article, the authors all discuss their own personal experiences and provide recommendations. The first thing you may notice about the article, however, is that despite these experiences, all the authors have academic appointments at well-known colleges and universities. In Table 1, they provide individual-level recommendations, which I present below verbatim. In Table 2, they provide cultural and structural recommendations. For example, with

respect to rejection: “People in positions of power should be aware of the dynamics of providing feedback and the ways in which critical comments can be framed as collaborative rather than rejecting.”

Table 1. Summary of Individual-Level Recommendations

Rejection

Kate Sweeny

- Remember that rejection is not failure; it is an inevitable step on the path to success.
- Do not dwell on rejection.
- Take time before moving to the next step.
- Persistence is key.
- Do not be afraid to seek help from a counselor or therapist.
- Identify trusted colleagues with whom you can openly discuss your harshest and most embarrassing experiences with rejection.

Joshua Ackerman

- Do nothing. Allow yourself time to feel psychological distance from rejections and recognize that the impact of each rejection will diminish with further experience.
- Reframe attributions for rejection to external reasons.
- Take charge of what you can: Find places to take control of your response to rejection.
- Know what you are getting into: Embrace the state of not knowing and understand the likelihood of success.

Ludwin Molina

- Accept that rejection is part of the process of being an academic.
- Accept the possibility that rejection hurts because it is about an evaluation of your ideas.
- Let a little time pass before you engage and start figuring out “next steps” with rejections that really hurt.
- Seek support from close friends and/or colleagues to give you some perspective on the rejection.

Imposter Syndrome

Nicholas Rule

- It is a myth that a professor, CEO, or doctor looks, acts, or sounds a certain way. Recognize this myth instead of internalizing those messages such that we subscribe to them ourselves.
- Seek help from a counselor or therapist.

Linda Tropp

- Remember that our ideas are likely to be at least as good as anyone else’s, even if our impostor concerns are telling us otherwise.
- “Feel the fear and do it anyway”; try not to let feelings of insecurity or unworthiness dictate your behavior.
- Remember that you may see yourself as an impostor but others are not likely to see you in the same way.

S. Brooke Vick

- Focus on past successes as evidence refuting impostor syndrome; use these as resources to draw on when you feel as if you are not good enough.

- Develop a relationship with a therapist or counselor who can help you to recognize unfounded beliefs that maintain impostor syndrome.
- Create spaces in which your identities are represented and celebrated, as reminders of your belonging.
- Reflect others' values, skills, and talents back to them and help them resist impostor beliefs; the act of helping others can serve as a helpful reminder to yourself.

Burnout

Bertram Gawronski

- Know that you are not alone.
- Have physical space to recharge without being reminded of your work (e.g., no work at home).
- Recognize that “more work” does not always mean “more productivity.” At some point, more time for work just leads to exhaustion, and exhaustion increases the amount of time needed to complete a given task. Give yourself time to recharge.
- Get a good night's sleep.

Lisa Jaremka

- Engage in some introspection: Identify what your burnout is telling you, as if it were a person speaking to you.
- Engage in some introspection: Determine whether burnout and impostor syndrome are linked, and which seems to fuel the other.
- Seek help from a therapist or counselor.
- Set explicit boundaries around your work (e.g., no work on weekends).

Molly Metz and William Ryan

- Minimize social comparison when possible or limit it to others who have similar goals or positions.
- Engage in some introspection: Identify your goals and determine whether your path is best set up to help you achieve them.
- Engage in some introspection: Are your needs being met? What do you need to feel revitalized or motivated? What brings you meaning and intrinsic joy?
- Seek help from a therapist.
- Appreciate psychological and geographical distance from the sources of burnout.
- Find a social outlet entirely unrelated to your work.
- Seek the help of trusted others (in person or virtually) to provide an outside perspective on your current situation or struggles.
- Build a self-care toolbox (e.g., exercise, meditation, socializing, spending time with a pet).
- Find meaning in helping or mentoring others.

All bullet items above are taken verbatim from the Jeremka et al., 2020 article cited above. If you're interested in these topics, check out Tables 3 and 4 from the article: “Other Commentaries and Opinion Pieces Relevant to Rejection, Imposter Syndrome, or Burnout” and “Reviews of Scholarly Work About Rejection, Imposter Syndrome, or Burnout.”

Part 3: Continuing to Learn

In ten years, you'll be expected to do things that are not being taught today, and you'll be expected to learn new areas and skills throughout your career.

In this section, you'll find:

- Some tips for using search engines
- A review of online and traditional learning opportunities, including the three Coursera specializations that are highly relevant to UX work (if you're in another field, search for relevant online courses).
- A listing of a variety of online resources and a review of Wikipedia ratings on quality and importance.
- An overview of lessons from cognitive psychology on how to optimize learning. These include traditional and well-researched approaches such as the superiority of distributed (spaced) versus massed practice, the "read, recite, and review" approach (aka, SQ3R), and newer advice, some counter intuitive, such as answering questions about new material before you study it.

Automation is coming, and machines will replace many jobs; this is inevitable. What should you do? A recent article in the NYTimes gives much of the same advice found in this section: "In school, the most important thing they can learn is how to learn." And, "Consider it part of your job description to keep learning... — learn new skills on the job, take classes, teach yourself new things."

(https://www.nytimes.com/2017/05/03/upshot/how-to-prepare-for-an-automated-future.html?_r=0)

Learn from Experts

Take online and traditional courses, read books and articles, attend talks by experts at professional meetings and conferences, and join online communities. You need to find a community that matches your interests and needs. A lot of great information is shared on UTEST (see Appendix 1), and I've heard good things about the Leaders of Awesomeness (don't let the name turn you off!). This is a "community of UX leaders, designers, researchers, and writers from all over the world" (<https://leaders.centercentre.com/>); You can also find information at <https://www.uie.com/>). There are free weekly presentations and discussion sessions on Mondays at 2 pm EST. There was even a free five day intensive course on Agile and UX. A former student of mine took this course (in 2020) and said it was excellent. This is his summary: "There was an enormous amount of information provided in a clear and thoughtful manner by Jared. I learned a great deal as an inexperienced UX designer. One of the most important things I learned was how Agile worked, its purpose, and its relation to UX design. I also learned a great deal of how UX teams work together, the optimum size (one 2 pizza team) and the ultimate question, does this product or feature add delight to my life?" He also added, "This class offered more content and materials per hour than any paid seminar I have attended."

Using a Search Engine

Why include a section on using a search engine? You know how to search, and you probably use a search engine every day, and probably multiple times a day. The same question could be asked about the section below on Wikipedia, and the answer is identical. Everyone searches and everyone uses Wikipedia, but most people don't know about important characteristics of these tools (e.g., the importance and quality ratings in Wikipedia) or advanced features that can make you more productive and save you hundreds of hours a year.

So you think you can search? Answer this: "An 11-foot bird lives less than two miles from 30.891383,-102.885032. What's his name?"⁵ More of these problems can be found here: <http://www.agoogleaday.com/> (and note, some problems are much more difficult than this one).

What happens if you're on a site that doesn't have a good search engine? Well, simple -- just do a Google search limited to the site you're interested in. For example, do a Google search for "site:nytimes.com geoengineering" and you'll only get back results from the NY Times' site about geoengineering (note that the NY Times does have a good search capability).

You can also search sites in just one domain; e.g., "site:.gov heart disease" will return results only from .gov sites such as <https://www.cdc.gov/heartdisease/>. You really need to know this -- plus other advanced features. The utility of the site search capability became very clear to me when I conducted usability studies on college websites. We had many tasks that required finding all types of information about the college, and on some college websites the task was very difficult. But in those cases, you could typically find the information more quickly if you were to do a Google search (e.g., "site:www.hofstra.edu/ freshman housing rules").

Some other tips, verbatim from <https://support.google.com/websearch/answer/2466433>:

Did you know you could:

- Search for an exact match: Put a word or phrase inside quotes. For example, "tallest building".
- Search for a file type such as PDF, DOC, or TXT; "filetype:PDF"
- Find definitions: "Define audacity"
- Search for wildcards or unknown words: Put a * in your word or phrase where you want to leave a placeholder. For example, "largest * in the world".
- Combine searches: Put "OR" between each search query. For example, marathon OR race.
- Exclude words from your search: Put - in front of a word you want to leave out. For example, jaguar speed -car
- Search social media: Put @ in front of a word to search social media. For example: @twitter.
- Search for a price: Put \$ in front of a number. For example: camera \$400.
- Search hashtags: Put # in front of a word. For example: #throwbackthursday
- Search within a range of numbers: Put .. between two numbers. For example, camera \$50..\$100.
- Search within a specific site or domain: Put "site:" in front of a site or domain. For example, site:youtube.com or site:.gov.
- Search for related sites: Put "related:" in front of a web address you already know. For example, related:time.com.
- Get details about a site: Put "info:" in front of the site address.

There's lots more. Check out the following:

⁵ "Put your search skills and Google's tools to use. For instance, you can enter 30.891383, -102.885032 right inside the search bar, and learn that it's directly in the center of Ft. Stockton, TX. A quick Search for [Giant bird ft stockton TX] (or perhaps you're the adventurous type who'll "walk" there in Street View) and you'll have your bird: Paisano Pete." Note that because this question appears in a Google search tutorial, and has been repeated in many places across the web, the answer is very easy to find.

Google Search: Two self-paced courses -- Power Searching and Advanced Power Searching:
<http://www.powersearchingwithgoogle.com/>

2021 Update: These two courses are no longer free (\$268.20 on EdX; why the 20 cents?). Don't spend the money -- just buy the instructor's book, *The Joy of Search: A Google Insider's Guide to Going Beyond the Basics*, by Daniel M. Russell, 2019.

Bing Search: <https://help.bing.microsoft.com/#!>

Online Resources

ACM Digital Library

If you work for a large company, you may already have access to the ACM digital library. ACM stands for Association for Computing Machinery, and there is a SIG (Special Interest Group) on CHI (Computer Human Interaction). I suggest you join SIGCHI as mentioned in the networking section of this paper. In addition to my ACM membership, I pay \$99 per year for access to the digital library. It's not cheap, but it's worth it to me. Find out whether you have access through your company; if you work for a large company, it's likely.

Here's a brief description of SIGCHI from its website:

"SIGCHI is the premier international society for professionals, academics and students who are interested in human-technology and human-computer interaction (HCI). We provide a forum for the discussion of all aspects of HCI through our conferences, publications, web sites, email discussion groups, and other services. We advance education in HCI through tutorials, workshops and outreach, and we promote informal access to a wide range of individuals and organizations involved in HCI. Members can be involved in HCI-related activities with others in their region through Local SIGCHI chapters. SIGCHI is also involved in public policy."

"The ACM Digital Library (DL) is the most comprehensive collection of full-text articles and bibliographic records in existence today covering the fields of computing and information technology. The full-text database includes the complete collection of ACM's publications, including journals, conference proceedings, magazines, newsletters, and multimedia titles and currently consists of:

- 407,367 Full-text articles
- 2.0+ Million Pages of full-text articles
- 18,000+ New full-text articles added each year
- 44+ High Impact Journals with 2-3 new journals being launched each year
- 275+ Conference Proceedings Titles added each year
- 2,000+ Proceedings Volumes

Wikipedia

Everyone knows about and uses Wikipedia, but not everyone realizes that there are multiple Wikipedia initiatives, and that Wikipedia articles are rated on quality and importance.

For example, the Association for Psychological Science (APS) is the largest psychological research organization in the world, and it has a Wikipedia initiative to rewrite and improve articles on psychological topics (see

<http://www.psychologicalscience.org/index.php/members/aps-wikipedia-initiative>.

Mahzarin Banaji, "Harnessing the Power of Wikipedia for Scientific Psychology: A Call to Action" *APS Observer*, Vol. 24, No. 2, February 2011, page 5).

APS Wikipedia Initiative

"More than 3,300 psychological scientists and their students have joined the APS Wikipedia Initiative (APSWI) by editing and rating article quality and students, under the supervision of their professors, are using Wikipedia entries as course writing assignments."

In October 2015 there were 8,598 psychology-related articles in Wikipedia.

Example: "Confirmation Bias": >7,000 word Wikipedia featured article with 145 references

- What's a "featured article"?: Wikipedia articles are rated on quality and importance (as described below)
- Go to the Confirmation Bias article, then click on the "Talk" tab at the top. You'll then have information and links about featured articles and different WikiProjects. The Psychology WikiProject is here: https://en.wikipedia.org/wiki/Wikipedia:WikiProject_Psychology and includes a table listing all the psychology articles along with ratings of quality and importance (reprinted below). Click on the rating (e.g., GA for Good Article) to see a list of articles of that quality.

Quality and Importance Scale

https://en.wikipedia.org/wiki/Wikipedia:WikiProject_Psychology/Assessment#Quality_scale

The table on the next page shows psychology articles by quality and importance. The first column has the quality scale (e.g., FA = featured article, see list of acronyms below), and the first row has the Importance Scale (see definitions below). You can see that there is only one psychology article with the highest rated quality (FA) and top importance, while there are six articles of highest quality and high importance. If you go to Wikipedia by following the link above, you can click on the numbers in the table to get a list of the articles matching that quality/importance rating (you may need to first scroll up).

Quality Scale

FA = Featured article

FL = Featured list

GA = Good article

B = Mostly complete...

C = Substantial, but missing important content

Start = Developing, but incomplete

Stub = A basic description; all bad articles are in this category

Importance Scale (regardless of quality)

Top = Subject is a must-have for a print encyclopedia

High = Subject contributes a depth of knowledge

Mid = Subject fills in more minor details but is still important

Low = Subject is peripheral knowledge, possibly trivial

Psychology articles by quality and importance							
Quality	Importance						
	Top	High	Mid	Low	NA	???	Total
★ FA	1	6	4	5			16
★ FL		1	1				2
⊕ GA	2	9	17	33			61
B	19	124	176	75		78	472
C	10	132	443	239	1	342	1,167
Start	11	180	666	960	21	1,699	3,537
Stub		2	103	492	52	1,486	2,135
List		10	30	40	1	2	83
Category		1			905		906
Disambig					10		10
File					2		2
Portal					14		14
Project					5		5
Template					93		93
NA				2	234		236
Other			1	1	11		13
Assessed	43	465	1,441	1,847	1,349	3,607	8,752
Unassessed				1		1,398	1,399
Total	43	465	1,441	1,848	1,349	5,005	10,151
WikiWork factors (?)		$\omega = 24,886$			$\Omega = 4.88$		

Online Courses for New Knowledge and Skills

Many top universities offer free courses (search for “MOOCs”), but I’ll focus here on the primary online MOOCs (Massive Open Online Courses). My favorite is Coursera, because it offers the widest range of courses and the most courses relevant to UX professionals (examples are below). I have also taken courses from edX. Coursera has “Specializations” that included several courses, while edX has MicroMasters Programs and XSeries, which also include multiple courses, including a series of UX courses. Note that although taking a Specialization or MicroMaster series and receiving a certificate costs a few hundred dollars, you can take these courses without getting a certificate for free (but many people don’t realize this, as the UI is designed on purpose to make it seem as if you have to pay for these courses).

I focus here on courses of interest to UX professionals. If you want to learn about web development, data science, or statistics, there are dozens of additional courses. You should also know about the Khan Academy (<https://www.khanacademy.org/>), a wonderful organization, although it focuses on courses and instructional videos for children from kindergarten through high school. I don’t think they have any courses on UX topics.

I’ve started to add some of the many for-profit training programs, such as those offered by General Assembly, AGI, the Nielsen Norman Group, and others. Some of these also include in-class courses and workshops.

As a UI designer or UX researcher, you often have to evaluate evidence, and this is a critical skill. It is often very difficult to know what to conclude from a set of data or how far to generalize from a study. How much should we trust the opinions from colleagues or “experts” in the field, and so on. In my opinion, very few people evaluate information accurately (in any discipline) and there are numerous cognitive biases that can also impact your decision making (just look at this list!: https://en.wikipedia.org/wiki/List_of_cognitive_biases). I include this introductory paragraph as a warning, because some of the evaluative statements I make below are based on very little data. I include my own experiences, and when people send me their experiences, I include them. Send me your experiences with online courses and this section will improve. But please use it primarily as just a list, and investigate further yourself. One reason I always strongly recommend Coursera and Edx is because they are free and you can try them out and see whether they meet your needs. Plus, based on my experience, most courses offered by these two platforms are taught by highly qualified instructors. Some people have reported very positive experiences with for-profit training companies, but please note that the quality of your experience is likely to depend in large part on the quality of the instructor, and there is likely to be quite a lot of variability among instructors.

An Example: Data Scientists

From a survey of more than 16,000 people:

(<https://www.techrepublic.com/article/report-59-of-employed-data-scientists-learned-skills-on-their-own-or-via-a-mooc/>)

- “Data scientists are in high demand and short supply, but they may not need a degree in computer science to get a job, according to a new report from Kaggle.”
- “32% of full-time data scientists started learning machine learning or data science through a MOOC, while 27% were self-taught. -Kaggle, 2017”
- “30% of employed data scientists have an undergraduate major in computer science. -Kaggle, 2017”
- “More than half of currently employed data scientists still use MOOCs for ongoing education and skillbuilding...”

ACM's Skillsoft Learning Collections

If you're a coder or computer scientist, you should definitely join ACM. If you're a UX person, I recommend joining ACM's SIGCHI. If you join ACM, you will have access to its Skillsoft Learning Collections. Most of the courses are less than an hour, while some approach two hours. The videos are generally less than 30 minutes. The books are full-length and can be read online. Here's a brief description from their website: "ACM's Skillsoft Learning Collections features award-winning content covering the most in-demand skills, software, and technologies for computing professionals. The total assets number 1,750+ online courses, 4,800+ eBooks, and thousands of short videos."

Several other type of learning resources are also available. You'll also have "access to the entire Safari collection of 40,000+ online books from O'Reilly...5,000+ video courses...300+ live online training classes" and more. See the information at <https://learning.acm.org/skillsoft/index.cfm#> and on the ACM website.

Coursera

Coursera has several "Specializations" that are relevant to UX professionals.

Survey Data Collection and Analytics Specialization

"This specialization covers the fundamentals of surveys as used in market research, evaluation research, social science and political research, official government statistics, and many other topic domains. In six courses you will learn the basics of questionnaire design, data collection methods, sampling design, dealing with missing values, making estimates, combining data from different sources and the analysis of survey data."

There are six courses in this specialization:

1. Framework for Data Collection and Analysis
2. Data Collection: Online, Telephone and Face-to-face
3. Questionnaire Design for Social Surveys
4. Sampling People, Networks and Records
5. Dealing with Missing Data
6. Combining and Analyzing Complex Data

Note: I've taken the third course, [Questionnaire Design for Social Surveys](#), and I recommend this for all UX people. With online tools it's possible to create and launch a survey in less than an hour. Of all the UX methods, however, it's easiest to make serious mistakes with surveys. If you make some mistakes in running a usability study or diary study, you'll still probably get interesting and useful results. However, if you don't design a survey correctly, the results may not be valid; the results may indicate one result, while reality may be very different. There are many, many ways to ruin a survey. It's worth signing up for this course just for the extensive list of references, but you'll also learn the best way to design questions and response sets, how to organize the questions and sections of a survey, and so on. You should also exit this course with a greater sense of humility with respect to your ability to create surveys, and this is good.

Methods and Statistics in Social Sciences

"This Specialization covers research methods, design and statistical analysis for social science research questions. In the final Capstone Project, you'll apply the skills you learned by

developing your own research question, gathering data, and analyzing and reporting on the results using statistical methods.”

There are four courses in this specialization:

1. Quantitative Methods
2. Qualitative Research Methods
3. Basic Statistics
4. Inferential Statistics

Note: I’ve taken most of the Qualitative Research Methods course, which I recommend (although the instructor is quite quirky). This covers a lot of material that you would find in a cultural anthropology or ethnography course.

Data Analysis and Presentation Skills: the PwC Approach Specialization

“This Specialization will help you get practical with data analysis, turning business intelligence into real-world outcomes. We’ll explore how a combination of better understanding, filtering, and application of data can help you solve problems faster – leading to smarter and more effective decision-making. You’ll learn how to use Microsoft Excel, PowerPoint, and other common data analysis and communication tools, and perhaps most importantly, we’ll help you to present data to others in a way that gets them engaged in your story and motivated to act.”

There are four courses in this specialization:

1. Data-driven Decision Making
2. Problem Solving with Excel
3. Data Visualization with Advanced Excel
4. Effective Business Presentations with PowerPoint

Note: I haven’t taken any of these courses, but if I were beginning my career, I’d go through them. Expertise with Excel and PowerPoint is important, and these also seem to go into problem solving and decision making based on data. Oh, but perhaps you already consider yourself an expert in Excel and PowerPoint -- then just download the slides from the lectures and go through quickly to see if there’s anything worthwhile and new to learn.

Market Research Specialization: “Research Techniques + Data = Marketing Superhero. Deliver valuable customer insights for your business.”

This is a new specialization and includes four courses:

1. Research Proposal: Initiating Research
2. Qualitative Research
3. Quantitative Research
4. Research Report: Delivering Insights

Note: I have not taken any of these courses.

Google UX Design Professional Certificate: There are seven courses within this certificate program. See <https://www.coursera.org/professional-certificates/google-ux-design>. Cost: “In the U.S. and Canada, Coursera charges \$39/month after the initial 7 day free trial period. The certificate can be completed in less than 6 months of part time study, meaning most learners complete for under \$300 USD.”

edX

From the edX website: “Founded by Harvard University and MIT in 2012, edX is an online learning destination and MOOC provider, offering high-quality courses from the world’s best

universities and institutions to learners everywhere. With more than 130 global partners, we are proud to count the world's leading universities, nonprofits, and institutions as our members.”

UX Research and Design

The University of Michigan has a UX Research and Design MicroMasters Program that looks very good.

Here's a brief description on their website: “Integrate UX Research and UX Design to create great products through understanding user needs, rapidly generating prototypes, and evaluating design concepts.” There are nine courses in this series:

1. Introduction to User Experience
2. Principles of Designing for Humans
3. Evaluating Designs with Users
4. UX Design: From Concept to Wireframe
5. UX Design: From Wireframe to Prototype
6. Understanding User Needs
7. UX Research Surveys
8. UX Research at Scale: Analytics and Online Experiments
9. UX (User Experience) Capstone

Courses range from 3 to 8 weeks long, and the time commitment ranges from 3 to 5 hours per week per course.

Note: I haven't taken any of these, but they're by professors from the University of Michigan, which has had excellent programs in these areas in the past.

2021 Update: I'm not sure if this is still available on EdX, but there is now a 6-course sequence on User Experience Research and Design available directly from the University of Michigan: <https://online.umich.edu/series/user-experience-research-and-design/>. It appears to be free.

edX also has a course on design: Product Design: The Delft Design Approach: “Using the Delft Design Approach. You will learn how to use a number of key design methods to create meaningful products and services.”

Udacity

Udacity has primarily technology courses and has little of interest to UX professionals. Their categories describe the content quite well: Android, Data Science, iOS, Software Engineering, Web Development. There is, however, a non-tech category that has a two-week course by Don Norman and two others, Intro to the Design of Everyday Things. I took it a few years ago and was disappointed, as it seemed very general and superficial. Two other courses that may be of interest to some UX people: Web Accessibility, a two-week course by Google, and Rapid Prototyping, another course by Google, but for three weeks. As with the other two services, the courses are free.

Udemy

According to their website: “Udemy is a global marketplace for learning and teaching online where students are mastering new skills and achieving their goals by learning from an extensive

library of over 55,000 courses taught by expert instructors.” Anyone can become a Udemy instructor and offer courses for free or for a price they set; this means, of course, that they are not all “expert.” Therefore, some courses provide quality information while others do not. There are UX courses that I haven’t taken and so can’t evaluate. For example, there is “User Experience Design Fundamentals: Design Web Sites and Mobile Apps that Your Users Love and Return to Again and Again with UX Expert Joe Natoli.”

(<https://www.udemy.com/user-experience-design-fundamentals/>). This course is currently discounted and available for \$12 (\$9.99 in late 2018). One UX person told me that Susan Weinschenk has some great courses on Udemy. I checked and she has 19 courses listed, most for \$124.99.

Interactive Design Foundation

<https://www.interaction-design.org/>

For \$13 per month, you will have access to a large number of UX-related courses. There is also a large number of articles and books that you can access. Most of the articles are free. “We are an independent nonprofit initiative with an objective that sounds like a paradox—to raise the level of global design education to an Ivy League standard, while at the same time reducing costs to as low as possible....Established in 2002 in Denmark, we were inspired by the Scandinavian educational system to create low-cost, high-quality education so as to change the way people learn design.”

Nielsen Norman Group

<https://www.nngroup.com/>

NN/g runs conferences, seminars, and UX certification. They also sell long, detailed reports and you can sign up to receive free articles that now appear more than once a week (I recommend these). The five-day conferences are held in multiple countries; those in the U.S. cost over \$3,000 for the full five days, but you can also pay for just one day.

UIE’s All You Can Learn Library

<https://aycl.uie.com/>

“A library of 293 seminars by experts in all things UX design.” These are primarily by practitioners, rather than academics, and cover a wide variety of topics. The cost is \$23/month or \$16/seminar. UIE, User Interface Engineering, was founded by Jared Spool. If you hear Jared Spool talk at a meeting or conference, he is likely to give you a code for a free seminar or access for a limited time. I took advantage of one of these offers, listened to one seminar, and found it informative and well presented. UIE also runs conferences; the three-day conferences cost about \$1,500.

UXPA Webinars

UXPA offers free webinars. You can find a list here: <https://uxpa.org/upcoming-webinars/>. Note that there are more than two dozen previous webinars that you can also watch. There are also a variety of educational links here: <http://uxpaboston.org/education/>

Ideo.org

“IDEO.org is the nonprofit arm of the world-renowned design firm, IDEO.”

I haven’t taken any courses from IDEO.org, but a recent graduate I advised found this course worthwhile: Introduction to Human-Centered Design: Learn from IDEO.org to use

human-centered design for social innovation

(<https://www.plusacumen.org/courses/introduction-human-centered-design>)

- Next course starts May 11, 2021
- Free
- 4 hours/week for 9 weeks

General Assembly

General Assembly offers lots of courses, including a User Experience Design Immersive, “a ten-week, full-time career accelerator in Boston.” I do not recommend General Assembly for one reason: the cost. This ten-week course costs \$14,950!! Why spend \$15,000 when you can learn from world-class experts in free online courses?

“With 20 campuses in six countries, we provide award-winning, dynamic training to a global community of professionals pursuing careers they love.” General Assembly is not accredited: “General Assembly is not accredited by a U.S. Department of Education-recognized accrediting body. This means that federal student loan aid cannot be used in conjunction with our courses.”

Update, 2021: As I learn more from talking to people who have taken these “bootcamp” type courses, I’m slowly starting to change my attitude towards them. Both for software engineering (where there are dozens) and UX, there may be situations when these types of immersive experiences are a good fit. If you have the money, and the time, then one of these programs may be right for you – but also compare them to one of the degree programs. The degree programs take longer, and cost more, but many people work full-time while enrolled in one of these programs (see Traditional Courses below).

American Graphics Institute

The American Graphics Institute (AGI) offers a UX Certificate Program for \$4,800. It’s a five week course, Monday through Friday, in class. They claim they have a 92% job placement rate and help with job placement. For more information:

<https://www.agitraining.com/ux/classes/ux-certificate>

Note: I know nothing about how AGI calculates their job placement rate, but I’ve read in many places that these figures are often inaccurate. As you should know, it’s easy to lie with statistics! Some software bootcamps even hire their graduates into part-time positions; this saves them money, as they pay very little, but it also increases their job placement rate.

Career Foundry

Career Foundry (<https://careerfoundry.com/en/home>) offers courses in UX Design, UX Fundamentals, UI Design, Web Development, and iOS Development. What is unusual about these online courses is the degree of personalized feedback and attention from a mentor assigned to you. I talked with one student who was in the middle of one of their courses, and she was very happy with the course and the weekly calls and feedback from her mentor (the calls lasted from 30 to 60 minutes). You can read about her experiences with CareerFoundry in Appendix 2. At \$6,000 these courses are not cheap.

They write, “With personalized course feedback from your dedicated mentor (with more than 8 years’ experience), you will get answers to all of your questions without the frustration of learning on your own. Not just content. Once you are 75% through the course our career services team will help you to refine your portfolio and personal brand to get you hired.”

Trydesignlab.com

A colleague of mine was an excellent interaction designer but wanted to learn more about visual design. Three years ago (2016) she took a four-week course from Trydesignlab.com called Design 101 (<http://trydesignlab.com/web-design-course/>). It currently costs \$399. She reports that the course was excellent and writes, “The best part of the course is the mentor, of course. I think this is particularly true for visual design, which is much more subjective than, say, learning Javascript (which I’m doing now)....Having never taken any visual art to speak of, I had no idea how to even approach a visual design. The class included a method for doing it. For example, there was an assignment to gather pictures from Pinterest and stock photo sites that conveyed the emotion that you want people to feel when they use your app. Then, you would use the eyedropper in Sketch to pull colors out of that image, and then use online tools to assemble a color palette...this was unlike anything I’d ever done. And then, to have someone to walk through this process with me and critique what I’d done --- incredible. It was about 10 hours of work every week....” (her instructor was Kenny Chen).

Learn UI Design: The Video Course

The same colleague who took the course from Trydesignlab.com started getting a free newsletter from Erik Kennedy (<http://erikdkennedy.com/>) several years ago. She thought it was excellent (“every time it came, there was something in it I could use”) and this is why she signed up for his online UI class (<https://learnui.design/>). “It was expensive (\$1000),” she wrote, “but worth it. I’m learning many more practical things that I can use than I did from my class at Design Lab a few years ago. It’s about 40 hours of video, where you mostly watch him do things in Sketch while he lectures. There are exercises for each lecture, and you can post your homework in Slack. Before you do, though, there is a usually a blog post with the 10 most common mistakes. And then, he comments on many of the posted homeworks. You can do the lectures at your own pace and in any order. This has been good for me, because I watch the lectures as I need them. It’s a lifetime membership, so you get any new content that he creates.”

Lynda.com

For \$20 per month, you will have access to 6,243 courses; note, however that most of these “courses” are videos that are less than an hour long. They have a variety of courses on User Experience and UX Design. From the About Us section of the site: “Lynda.com is a leading online learning platform that helps anyone learn business, software, technology and creative skills to achieve personal and professional goals. Through individual, corporate, academic and government subscriptions, members have access to the Lynda.com video library of engaging, top-quality courses taught by recognized industry experts. For 20 years, Lynda.com has helped students, leaders, IT and design pros, project managers—anyone in any role—develop software, creative, and business skills. Now part of LinkedIn, Lynda.com serves more than 10,000 organizations. With tutorials in five languages, Lynda.com is a global platform for success.”

LinkedIn Learning

In addition to owning Lynda, LinkedIn has its own set of courses. LinkedIn Learning advertises, “Over 5,000+ courses taught by industry experts” and “Personalized recommendations based on your profile.” Within user experience they list six subfields and offer more than 100 courses. Although they’re called “courses” most are single session videos ranging from 20 minutes to several hours (it seems to me most are between 20 and 40 minutes). They also have a lot of career development and skills courses. For example, see <https://www.linkedin.com/pulse/skills-companies-need-most-2018-courses-get-them-paul-petrone>

[/?trk=eml_ny-ss_learning&fromEmail=true](https://www.pluralsight.com/learning?trk=eml_ny-ss_learning&fromEmail=true), which lists a series of “soft skills that companies need most in 2018”. There are three courses in each of the following categories: Leadership, Communication, Collaboration, and Time Management. You can take courses free for one month, but after that it’s \$24.99 per month.

Pluralsight

Pluralsight (<https://www.pluralsight.com/>) offers a large number of courses, although practically all are in software development, IT, Data, and Security. They do have some web design and graphic design courses, but these seem focused primarily on learning the required software tools. It costs \$29 per month.

Free Webinars

Many companies and service providers offer free webinars, which you can watch live or view from their archives. For example, UserZoom (<https://www.userzoom.com/webinar/>) is currently advertising an upcoming webinar, “Designing Impactful UX Benchmark Studies with UserZoom: Research Platform Deep-Dive.” You could also choose to watch several past webinars, including these two: “Moving the Needle with UX Benchmarking,” and “Conducting Remote Moderated Research & Testing with UserZoom.” Of course, many of these webinars focus on the company’s product, but even so they can be worthwhile. UserZoom also has a UX library with short articles (<https://www.userzoom.com/ux-library/>)

Online Courses for Career Development

The following courses are not focused on UX, but I’m sure they’re good, and if you’re early in your career. I think that investing a few hours in them will be worthwhile. Note that you can audit these courses for free, but they make it difficult to see this option. Typically, when you audit you have access to the lectures and course material, but you will not receive feedback on assignments and will not receive a certificate. If you want a certificate, you can take the Coursera courses below for \$39 per month.

Coursera has a “**Career Success Specialization: Build Essential Skills for the Workplace.** Improve your employability and advance in today’s dynamic workforce.” There are ten courses:

1. Project Management: The Basics for Success
2. Work Smarter, Not Harder: Time Management for Personal & Professional Productivity
3. Finance for Non-Financial Professionals
4. Communication in the 21st Century
5. High-Impact Business Writing
6. The Art of Negotiation
7. Fundamentals of Management
8. Effective Problem-Solving and Decision-Making
9. Essentials of Entrepreneurship: Thinking & Action
10. Career Success Project

edX has an XSeries program: “**Career Development: Skills for Success:** Develop the professional skills you need to get hired, grow your career, and succeed in today’s competitive job market.” It includes four courses (descriptions are verbatim):

1. Self-Assessment -- Developing Your Strengths
 - Learn how to leverage your strengths for professional growth. Focus on your interests, and develop a strategic career roadmap.

2. Communication Skills and Teamwork
 - Effective writing and presentation skills are essential for career success. Learn how to create and deliver high-impact...
3. Problem Solving and Critical Thinking Skills
 - Develop your ability to tackle complex problems in the workplace using known analytical problem solving techniques...
4. Business and Data Analysis Skills
 - Learn key business management skills as well as tools and methods for analyzing data and presenting results.

Online Courses for Credit, Accreditation, or Degrees

My focus in this paper is on online courses to learn new knowledge and skills, but you can also take online courses to get credit, accreditation, or an actual degree. Many of these courses are not MOOCs (they are small, not “massive”!) and are offered directly from educational institutions rather than online platforms such as Coursera or EdX. You also need to evaluate them more carefully, both because you will end up paying a lot more for them, and because you don’t want to waste your time (e.g., by getting a degree or certification from a low-quality institution that is not accredited). See the following article by Kerry Hannon, and the main points from it below: “Multiple Choice: How to figure out which online program will work best for you (and how to get the most out of it),” at

<https://www.nytimes.com/2018/08/02/education/learning/choosing-best-online-program.html>.

Important points:

- Interview schools and professors
- Ask whether career services are available to help find jobs
- Calculate the cost (some can be expensive)
- Course structure (understand what you will be getting)
 - Some courses are entirely online, while some are part online and part face-to-face
 - Some experts write that peer-to-peer interaction is important; does the course provide it?
 - Are there live online question and answer sessions?
- Determine if the institution is accredited
- Other questions
 - How many students per class (or per instructor)? Some class are small, with only 15 students; what are the limits?
 - How are the professors selected and vetted?
 - Can you try out a class to see what it is like? Some institutions allow you to sign up for a weeklong module of a course.
 - How many hours/week are expected of the students?
 - What online platform is used, and is technical help available?

Traditional Courses

I live in the Boston area, so that’s what I’ll focus on here, but check out the colleges and universities in your area. In many cases, you can audit or take courses for credit without enrolling in a degree program. In the Boston area, there are programs with courses relevant to UX at Bentley University, Northeastern, Tufts, MIT, Brandeis, and Harvard.

Value Colleges has a list of the “Top 50 Best Value Interaction Design/UX/HCI Graduate Degrees 2018 (<https://www.valuecolleges.com/rankings/best-interaction-design-programs/>). Only four programs in the northeast are on the list: Bentley University (#7), MIT (#8), Tufts (#42), and

Brandeis (#49). It's best to use this as a nationwide list of graduate programs in these areas rather than a validation of a program's worth. Although people love ratings, all such college ratings are suspect, as slight changes in the criteria used and how they are rated can result in dramatic changes in the rankings.

Bentley University UX Certificate Program

I teach in this program, so of course I'll list it first. To get a User Experience Design Certificate you need to take three required courses and six electives (out of over two dozen; see <https://www.bentley.edu/centers/user-experience-center/certificate-program/certificate-program>). Each course is two full days, and you can take it in the classroom on the Bentley campus in Waltham, MA or on the web. You pay by the course and can take as many as you like, but won't get a certificate unless you meet the requirements above. Each course is currently \$1,400. This is a much more established program than the Brandeis program below, which only started in 2015.

Bentley University: Master of Science in Human Factors in Information Design

This is one of the oldest and most highly respected programs in the country (I teach here too!). You can take courses in person at the Bentley campus or online. Some courses are available in San Francisco. "The Masters in Human Factors is a 10-course program including three core human factors courses, five electives, and two business electives. California students can choose to take four of their courses at our satellite campus in San Francisco, five courses online and one at Bentley's User Experience Center on campus in Waltham."

<https://www.bentley.edu/academics/graduate-programs/masters-human-factors>

Brandeis University Graduate Professional Studies: Master of Science in User-Centered Design

I'm not sure if these are all online, but I know that you can take some online. You can take individual courses, or sign up for the 30-credit User-Centered Design degree (7 required courses and 3 electives). These are expensive: a three-credit course is \$3,325.

<http://www.brandeis.edu/gps/future-students/learn-about-our-programs/user-centered-design.html>
!

You can also get an online Master's Degree in Learning Experience Design and Digital Marketing and Design (<https://www.brandeis.edu/gps/future-students/index.html#gradprograms>).

Center Centre

"Center Centre is the user experience design school creating the next generation of industry-ready UX designers" (<https://www.centercentre.com/>). Center Centre was founded by Jared Spool and Leslie Jensen-Inman.

Human Factors and Ergonomics

Human Factors is related to and overlaps with UX/HCI. "Ergonomics and human factors use knowledge of human abilities and limitations to design systems, organizations, jobs, machines, tools, and consumer products for safe, efficient, and comfortable human use" (<https://www.hfes.org/ContentCMS/ContentPages/?Id=tPCKGvSy4aE=>). You can find a directory of both undergraduate and graduate programs in Human Factors and Ergonomics here: <https://www.hfes.org/ContentCMS/ContentPages/?Id=N448nemQob0=>.

Top Graduate Programs

In early 2022 I collected the following information for a student who was interested in graduate school. She has a research background from working in a lab for several years and is now

working as a UX Researcher. She is interested in a full-time graduate program with a research focus. I know there are all types of lists and rankings online, but I collected some data on my own. I spend a lot of time in my class on User Research Methods on methodology, so I realize the limitations of what I did, but I still think it is fairly accurate as a first and very rough approximation. I looked carefully through all of the articles from the 2022 Proceedings of CHI, quickly through some other CHI conferences (e.g., CSCW21, UIST21), and I also looked at the people who have won the various SIGCHI awards. In all cases, I ignored papers by people at companies and foreign countries, and I just recorded the academic institutions where people were located. I didn't note the department, and this is a serious limitation, as many people were located in a variety of departments, from psychology, to computer science, engineering and others not closely related to UX. Just examining the frequency of where people were located, I made two lists: the *Very Top Research Graduate Programs* and *Top Research Graduate Programs*. (Note: when I was counting frequency, if there were multiple authors from the same university I counted this just once. If there were authors from two different universities, I gave both universities credit.) Obviously, I'm focusing here on quantity and not quality, and that also means that large universities/programs will be more likely to rise to the top. My lists also reflect programs where the faculty and graduate students publish in CHI Proceedings, and this obviously emphasizes some types of UX research over others.

Summary: The five universities in the Very Top list came up repeatedly, especially Carnegie Mellon and the University of Washington. I'm confident that these two and the other three in the Very Top list would remain in almost any list of top graduate programs.

The universities in the second longer list all have lots of productive researchers. The main problem with this list is that it is not complete, and a more thorough data collection would add more universities to this list. It also wouldn't be hard, with a little effort, to create a three tier system rather than this two tiered system, as there are probably some substantial differences among the programs in the second list. A more thorough data collection might also move some universities from the second tier up to the first tier (e.g., perhaps MIT).

Very Top Research Graduate Programs (not in any order within the group)

Carnegie Mellon
University of Michigan
University of Washington
Georgia Institute of Technology
Northwestern

Other Top Research Graduate Programs (not in any order within the group)

MIT
University of Colorado Boulder
University of California Irvine
Cornell and Cornell Tech (Cornell Tech is not in Ithaca with the rest of Cornell, but on Roosevelt Island in NYCity)
Northeastern University
Clemson University
Harvard University
University of California Berkeley
University of California San Diego
Stanford
Virginia Tech
Michigan State University

Rochester Institute of Technology
University of Maryland
Purdue
University of Illinois Urbana-Champaign
Penn State
Many others

Final Note: I was amazed at the number and diversity of foreign universities represented at ACM CHI conferences. This is just a guess, but I think the percentage of papers from non-US universities and companies has increased significantly over the years.

How to Optimize Learning: Lessons from Cognitive and Educational Psychology

What's the best way to study and learn new material? It could be a traditional classroom course, an online course, a workshop, or a new technique or procedure that you're learning on your own from books, articles, or videos. There's a tremendous amount of research on learning from educational and cognitive psychology, and I review a number of tips and research findings here. In particular, the first article below is excellent.

“Optimizing Learning in College: Tips from Cognitive Psychology”

(Putnam et al., *Perspectives on Psychological Science*, 2016)

This article is focused on how to succeed in a college course, but the advice and recommendations apply to almost any type of learning. Here's a summary:

- Organize your time
- Answer comprehensive questions before you read the assigned chapter
- Generate questions about the important points
- Read, recite, and review
- Leave your laptop at home
- Study by quizzing yourself
 - “...taking practice quizzes may be better than rereading the textbook.”
- **Most important: Spaced practice: study each subject a little bit every day**

More Details and Explanations

Be an Active Learner

The key to many of the techniques is that students need, “...to actively think about what they are learning and to do so in a deeper, more meaningful way” (Putnam et al.). You need to relate the new material to information you already have. This is similar to some mnemonic techniques for memorizing new material. In these techniques you use some existing well-learned structure to remember new information (e.g., consider the method of loci, https://en.wikipedia.org/wiki/Method_of_loci).

Distributed Practice

If you want to learn something, distributed practice is best – multiple short study sessions are better than fewer long sessions (distributed, or spaced, practice is often contrasted with “massed” practice). When I teach, I put a lot of material on my slides; too much according to most guidelines, but my reasoning has to do with the principle of spaced practice. I tell my students, “Look through these slides again on your own. Looking at these slides a second, or third time will help you master the material.”

Leave Your Laptop at Home

There is now good research in both lab and classroom settings that comes to this conclusion: [When students use computers during a lecture, they learn less and earn worse grades](#). See Susan Dynarski for a review:

<https://www.brookings.edu/research/for-better-learning-in-college-lectures-lay-down-the-laptop-and-pick-up-a-pen/>. The explanation the researchers propose makes sense to me:

- “Learning researchers hypothesize that, because students can type faster than they can write, a lecturer’s words flow straight from the students’ ears through their typing fingers, without stopping in the brain for substantive processing. [Students writing by hand, by contrast, have to process and condense the material if their pens are to keep up with the lecture](#). Indeed...the notes of the laptop users more closely resembled transcripts than summaries of the lectures.”
- “Taking notes can serve two learning functions: the physical storage of content (ideally, for later review) and the cognitive encoding of that content. [These experiments suggest that laptops improve storage, but undermine encoding](#). On net, those who use laptops do worse, with any benefit of better storage swamped by worse encoding.”

Here’s another article summarizing some of this research: “Laptops Are Great. But Not During a Lecture or a Meeting” (Susan Dynarski, November 22, 2017, https://www.nytimes.com/2017/11/22/business/laptops-not-during-lecture-or-meeting.html?_r=0).

Beware! The Replicability Crisis Strikes Again

In all the social sciences and medicine there is currently a severe replicability crisis. If you don’t know anything about this, look it up. You should know what the following terms mean: p-hacking, HARKing, and the file-drawer problem. It turns out that part of the laptop research can’t be replicated. From a study just published (March, 2021), “Our direct replication of Mueller and Oppenheimer’s Study 1 showed that, relative to longhand note taking, laptop note taking boosted word count and verbatim overlap with lecture content, but it did not reduce knowledge of the lecture material after a brief delay with no opportunity to study. Results, thus, did not support the idea that longhand note taking improves performance via better encoding of information” (p. 337). The study was performed at Tufts as a class project and all the students were listed as authors, so there are probably about 75 authors: Urry et al. (2021). Don’t Ditch the Laptop Just Yet: A Direct Replication of Mueller and Oppenheimer’s (2014) Study 1 Plus Mini Meta-Analyses Across Similar Studies. *Psychological Science*, 32(3), 326-339.

Another Reason to Leave the Laptop at Home

Ravizza and her colleagues were able to objectively measure Internet usage during classes because students logged into a proxy server that monitored all online activity (Ravizza, S. M., Uitto, M. G., & Fenn, K. M. (2017). *Logged In and Zoned Out: How Laptop Internet Use Related to Classroom Learning*. *Psychological Science*, 28(2), 171-180.). “Our results showed that nonacademic Internet use was common among students who brought laptops to class and was inversely related to class performance. This relationship was upheld after we accounted for motivation, interest, and intelligence. Class-related Internet use was not associated with a benefit to classroom performance” (p.171).

Answer Questions Before Studying New Material

“Research suggests that answering questions about a topic before you start reading about it -- even if you’re just making educated guesses -- may help you to remember more than if you did not answer any questions.” This seems counterintuitive but follows from the point above about the need to think deeply about new material. “Answering questions beforehand activates any related knowledge you have about the topic and makes it easier to connect new information to

what you already know as you read.” Write down questions about important points because this makes you think deeply about the material.

Read, Recite, Review & SQ3R

The Putnam et al. article has a section called “Read, recite, and review” that is good, but they don’t focus on an initial scan or survey of the material, which I strongly recommend. There is, in fact, a large body of educational literature on this technique, which is often abbreviated as SQ3R (Survey, Question, Read, Recite, and Review). An initial scan/survey can give you a quick overview of the material and help you to generate questions that you can try to answer while you read. Remember, to learn effectively you must be an active reader, thinking about the material and relating it to what you already know.

From <http://www.adlit.org/strategies/19803/>

- **Survey:** Students review the text to gain initial meaning from the headings, bolded text, and charts.
- **Question:** Students begin to generate questions about their reading from previewing it.
- **Read:** As students read, they need to look for answers to the questions they formulated during their preview of the text. These questions, based on the structure of the text, help focus students' reading.
- **Recite:** As students move through the text they should recite or rehearse the answers to their questions and make notes about their answer for later studying.
- **Review:** After reading, students should review the text to answer lingering questions and recite the questions they previously answered.

You should quiz yourself during the review after you read the material. As Putnam et al. write, “Quizzing yourself after reading provides two benefits. It directly enhances your memory for what you just read, and it gives you a clear picture of the concepts on which you might need to spend more time.”

Time: But won’t this take a lot of time? Yes, it will. You can read a 20-page chapter in a novel very quickly, but using SQ3R to learn new material in a 20-page textbook chapter will typically take many times longer.

Quiz Yourself

You should also quiz yourself later, and this is a good technique to study for tests. “Using tests or quizzes as a learning tool is called *retrieval practice* because retrieving information from memory makes it easier to do so in the future -- you are literally practicing recalling that information, just as you will need to do so on the test.” See the section below on the Testing Effect, which is an example of quizzing yourself.

Read Multiple Sources

How do you become an expert in something? You learn best by actually working at the activity, so don’t be afraid of trying new things. But you also learn by reading what the experts say, or reading studies that use a technique you’re interested in. There are different perspectives and, of course, different techniques for different situations so don’t just read one expert or one study. Read many. As you read additional sources, it will reinforce what you already know and will add to it.

Consider another domain, history. If you’re interested in the US civil war, you don’t just read one book or article, you read many. You can read about particular battles, particular generals or politicians, and the culture and politics of the time. You could read for years and there would still

be more to learn. The point is that you're reading multiple sources that focus on different aspects of the civil war -- the actual fighting, the factors that led up to it, the individuals involved, the technology and culture at that time, and on and on.

Now, consider an example from user experience, usability testing. The situation is not quite as complex and diverse as the civil war, but there is still lots to learn in many different areas. There are different ways of running a lab-based study with a moderator, different ways of analyzing and rating usability problems, there are a variety of remote testing techniques, and there are different types of products and populations, and they all require something a little different. You can learn by trial and error during the course of your career, but you can also learn via books, articles, and talks.

Don't Read Too Quickly

There is a trade-off between speed and accuracy (comprehension; see the article listed below). Reading new difficult material is not like reading a novel for pleasure. You have to read slowly and think carefully about what you're reading.

The Need for Quiet

Study in a quiet place and minimize distractions. It makes sense, and there's research to back this up. Constantly switching attention is not good. Silence your phone, stay away from social media. Okay, perhaps you're addicted; check once an hour, but give yourself at least an hour of quiet, uninterrupted time.

Sleep and Exercise

Sleep is important for consolidating and organizing memories from the day (there's lots of research on this), while taking a break to exercise can help you focus (it also helps you sleep better!).

“Improving Students’ Learning with Effective Learning Techniques: Promising Directions from Cognitive and Educational Psychology”

(Dunlosky et al., *Psychological Science in the Public Interest*, 14(1), 2013.) This 50-page article thoroughly reviews the effectiveness of 10 different learning techniques. You can download this article for free, but I don't recommend trying to read the complete article, as it's very detailed and reviews hundreds of studies (there are over 350 references). It's complicated and detailed because the authors try to assess each technique with respect to multiple learning conditions, student characteristics, and the type of criterion (testing) tasks. I've included the main points in the material below and have tried to focus on the techniques that will be most useful for adult learners of job-related knowledge and skills. Moderate and low-utility techniques may still be very useful in some situations but may be limited in the number of situations in which they work well, or may be less effective than higher utility techniques.

High Utility

Practice Testing: “Self-testing or taking practice tests over to-be-learned material.”

The available evidence, “suggests that practice tests that require more generative responses (e.g., recall or short answer) are more effective than practice tests that require less generative responses (e.g., fill in the blank or recognition).” There are different theories about why practice testing works, but the research evidence is clear: practice testing works “...across an impressive range of practice-test formats, kinds of material, learner ages, outcome measures, and retention intervals.” Practice testing can be difficult and requires a lot more effort than just rereading, and it is effective in part due to this difficulty -- having to recall information may require effort, but

elaborative retrieval processes and the additional encoding during test taking has a positive effect on learning.

Distributed Practice: “Implementing a schedule of practice that spreads out study activities over time.”

There’s more description and discussion of distributed practice above. One research finding that’s worth noting here: “...criterion performance was best when the lag between sessions was approximately 10-20% of the desired retention interval. For example, to remember something for 1 week, learning episodes should be spaced 12 to 24 hours apart; to remember something for 5 years, the learning episodes should be spaced 6 to 12 months apart.”

Moderate Utility

Elaborative interrogation: “Generating an explanation for why an explicitly stated fact or concept is true.”

During learning, ask yourself, “Why does this make sense? Why is this true?” And so on.

Self explanation: “Explaining how new information is related to known information, or explaining steps taken during problem-solving.”

Interleaved Practice: “Implementing a schedule of practice that mixes different kinds of problems, or a schedule of study that mixes different kinds of material, within a single study session.”

Rather than study all the same type of material together (i.e., blocked practice; e.g., how to compute the volume of a particular geometric solid) it’s better to interleave the practice (e.g., alternative problems about how to calculate the volume of different types of solids). Note that this results in a type of distributed practice. Interleaved practice can help you learn how to identify the correct method or approach to solving a problem because you are solving different types of problems within the same group of problems.

Low Utility

Summarization: “Writing summaries (of various lengths) of to-be-learned texts.”

Although rated “Low Utility” in the article, summarization may be effective for readers of this document; “...summarization boosts learning and retention because it involves attending to and extracting the higher-level meaning and gist of the material....It can be an effective learning strategy for learners who are already skilled at summarizing; however, many learners (including children, high school students, and even some undergraduates) will require extensive training, which makes this strategy less feasible.”

Highlighting and Underlining: “Marking potentially important portions of to-be-learned materials while reading.”

“There’s great variability in what students actually mark,” and most undergraduates mark up too much text. So, although you probably highlight or underline (I do!), the research evidence isn’t good because this technique is often used in an ineffective way. Spending time on other techniques would be better. “It may help when students have the knowledge needed to highlight more effectively, or when texts are difficult, but it may actually hurt performance on higher level tasks that require inference making.” Highlighting and underlining can be very effective, in my opinion, when you return to the highlighted material to study it further and use it to engage in the moderate and high utility techniques above (this was not directly addressed in the article).

The Keyword Mnemonic: “Using keywords and mental imagery to associate verbal materials.”

This technique can help with certain types of material (e.g., foreign language vocabulary,

definitions, state-capital associations), but there are many limitations (e.g., it's best with concrete nouns), and "...it is not highly efficient (in terms of time needed for training and keyword generation), and it may not produce durable learning."

Rereading: "Restudying text material again after an initial reading." It does, of course, help when you reread textual material, and when this is spaced versus massed the learning is generally greater. The majority of students report using this technique. It is rated as low utility primarily because it is much less effective than other techniques.

Imagery for Text: "Attempting to form mental images of text materials while reading or listening." Although in some situations imagery can improve learning, "...the benefits of imagery are largely constrained to imagery-friendly materials and to tests of memory...."

"Five Popular Study Strategies: Their Pitfalls and Optimal Implementations"

This section is from Miyatsu, T., Nguyen, K., & McDaniel, M.A. (2018), *Perspectives on Psychological Science*, Vol. 13(3), 390-407.

Many of the low utility learning techniques listed above are actually quite popular and widely used. Miyatsu et al.'s approach is to study the techniques that students do use, assess their merit, and then provide tips on how to improve them. They review the research on five methods (there are over 150 references in their paper):

1. Rereading
2. Underlining and highlighting (marking)
3. Note-taking
4. Outlining
5. Using flash cards

Although the first two, rereading and underlining and highlighting, are listed as low utility by Dunlosky et al., according to Miyatsu et al. they "can be potent when properly used." Here are the best ways to use these five techniques.

Rereading

Tips for Optimal Implementation

- "Space out the readings"
- "Test yourself in between the readings"

"Reading is particularly effective when the first and second readings are spaced out." But how long should this space be? That depends on how long you want to remember the material. "For immediate tests, massed rereading is an effective strategy..." and rereading right before an exam can help. For long-term learning, longer durations between readings are better. Testing yourself helps identify what you don't know well, and this can help you focus most on what you still need to learn.

Underlining and highlighting (marking)

Tips for Optimal Implementation

- "Read through the text first before marking"
- "Pay attention to the text structure when identifying important information to mark" (Text structure refers to how the text is organized.)

Underlining and highlighting is one of the most popular study strategies. Marking can "benefit learning in two ways: (a) Selecting what is important in the text elicits elaborative thinking

(*generative function*), and (b) Underlining and highlighting important sections makes it easier to identify them later (*storage function*)." Read first, then mark: This "allows the learner to use the first read to identify the key points to be marked, thus eliciting active, elaborative processing of the text." Paying attention to text structure (i.e., how the text is organized) leads to marking main ideas rather than details.

Note-taking

Tips for Optimal Implementation

- "Make sure to review the notes before an exam"
- Engage "in generative processes while taking notes. Summarizing, paraphrasing, organizing, or outlining...the presented content" is especially helpful.

Taking notes has both encoding and storage benefits. "...encoding benefits refer to the benefits associated with the act of taking notes, whereas storage benefits refer to the benefits associated with being able to review the notes." Taking notes on a computer is typically worse than taking notes by hand because notes taken on a computer are more likely to be verbatim. The generative process of taking notes is superior.

The Five Rs of Note-Taking are effective because they involve extensive processing as described above (<http://tutorials.istudy.psu.edu/notetaking/notetaking8.html>):

1. **"Record:** During the lecture, write all meaningful information legibly.
2. **"Reduce:** After the lecture, write a summary of the ideas and facts using key words as cue words. Summarizing as you study helps to:
 - Clarify meanings and relationships of ideas
 - Reinforce continuity
 - Strengthen memory retention
 - Prepare for exams in advance
3. **"Recite:** To study properly, you must recite all the information in your own words without looking at our notes or the text.
4. **"Reflect:** Think about your own opinions and ideas as you read over your notes. Raise questions, then try to answer them creatively. Record original ideas in your notebook and review them regularly. Use your creative ideas when answering exam questions, in classroom discussions, and when writing papers.
5. **"Review:** Before reading or studying new material, take ten minutes to quickly review your older notes. Skim over the main ideas and details. Review enhances your retention of old material while adding new material to your memory."

Outlining

Tips for Optimal Implementation

- "Identify the main points after reading through the entire section."
- "Pay attention to the text structure."
- "Use skeletal outline as a guide."

Outlining is "a hierarchical representation of the main points of the material....it offers an opportunity for learners to engage in active learning through identification and structured organization of key information." If you have a skeletal (incomplete) outline to start with, use it.

“Correctly identifying the main points of the text is the fundamental component of successful outlining.” For textbooks, “...reading through the table of contents and building an understanding of how the text is organized is likely to improve comprehension and retention.”

Using Flashcards

Tips for Optimal Implementation

- “Retrieve an item correctly at least three times before dropping it from study.”
- “Students should space out their study of a given flash card.”

Using flash cards involves self-testing, a very effective strategy. “If the goal is to retain specific, detailed information, using flashcards is one of the most effective study strategies.” There are two benefits to continue even after getting an item correct: “(a) The additional practice is crucial for strengthening their memory for the target information, and (b) They will be able to avoid the pitfall of inaccurate metacognition (i.e., not discriminating between learned and unlearned information). Pay attention to the lag, or spacing, between studying an item. Longer lags yield better memory performance. “Thus, it is important for students not to just keep drilling the same item; rather, they should take a break and come back to that item later on.”

The Testing Effect

Testing yourself is an effective learning strategy and is often more effective than just reading the material again! Here’s a description of a classic study, which has now been replicated in hundreds of other studies (Roediger, H.L., III, & Karpicke, J. D.(2006). Test-enhanced learning: Taking memory tests improves long-term retention. *Psychological Science*, 17, 249-255; For an update, see Roediger, H.L., III, & Karpicke, J. D.(2018). Reflections on the Resurgence of Interest in the Testing Effect. *Perspectives on Psychological Science*, 13(2), 236-241).

Here is the design of the classic study:

Study (S) block: Participants are given a 250-word passage to learn (5 min)

Test (T) block: Participants are given a test: “Recall as much as possible” (5 min)

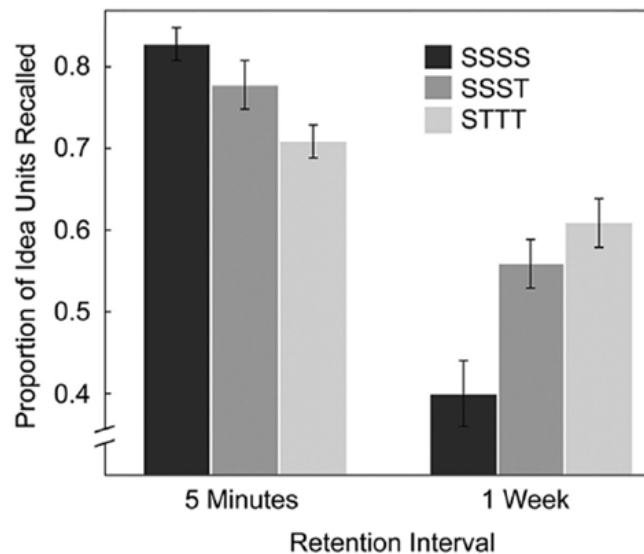
Learning condition 1: SSSS → Final test (after 5 minutes or 1 week)

Learning condition 2: SSST → Final test (after 5 minutes or 1 week)

Learning condition 3: STTT → Final test (after 5 minutes or 1 week)

In each of the three conditions, ½ of the participants had their final test 5 minutes after the last study or test block, and ½ of the participants had their final test 1 week later

Note that in condition 3 the participants only studied the prose passage for 5 minutes and then never saw it again -- in their three following Test blocks they tried to recall as much as possible from the passage but were not given any feedback. Given this, which groups do you think did best after 5 minutes and which after 1 week? The students in the study who were in the SSSS condition thought they would do the best after a week whereas those in the STTT condition thought they would do the worst. Do you agree with the students?



Wow!

•Fig. 1. Mean proportion of idea units recalled on the final test after a 5-min or 1-week retention interval as a function of learning condition (SSSS, SSST, or STTT) in Experiment 2. The labels for the learning conditions indicate the order of study (S) and test (T) periods. Error bars represent standard errors of the means.

•Published in: Henry L. Roediger III; Jeffrey D. Karpicke; *Perspect Psychol Sci* 13, 236-241.
 •DOI: 10.1177/1745691617718873
 •Copyright © 2017 Association for Psychological Science

The students were wrong. When you have five minutes to learn a passage, and then you have another 5 minutes, and another, and another -- four periods of seeing and learning the material, your recall is better than the other groups after five minutes. But the amazing result is what happens after a week. After a week, the group that remembers the most is the STTT condition. In this condition, the participants studied the material just once. Then for the next three five-minute periods they tried to recall as much as they could (without seeing the passage again or getting feedback about their recall).

As the authors point out, "...variables that slow initial learning and make it feel more difficult [i.e., a test in this case] may provide a beneficial effect on long-term retention." Note that the testing effect is one reason that the Putnam et al. (2016) article recommends studying by quizzing yourself ("...taking practice quizzes may be better than rereading the textbook").

Rules for Good Studying

The rules below follow directly from the research above, and are excerpted from the book *A Mind for Numbers: How to Excel in Math and Science (Even if You Flunked Algebra)*, by Barbara Oakley, Penguin, July, 2014. Barbara Oakley did the excerpting for her Coursera MOOC on Learning How to Learn. See Appendix 3 for a detailed explanation of these rules and the ten rules for Bad Studying.

10 Rules of Good Studying

1. Use recall.

2. Test yourself.
3. Chunk your problems.
4. Space your repetition.
5. Alternate different problem-solving techniques during your practice.
6. Take breaks.
7. Use explanatory questioning and simple analogies.
8. Focus.
9. Eat your frogs first.
10. Make a mental contrast.

Related Topics

Creativity

You need to focus when studying (see rule 8 above), and there is no question that mind wandering impairs performance, but the anecdotal evidence that mind wandering is associated with creativity is also true. You do need to focus to study or accomplish tasks efficiently, but it's also good to take breaks and let your mind wander. There is now some experimental evidence of the role of mind wandering and creative ideas: Gable, S. L., Hopper, E., A., & Schooler, J. W. (2019). When the Muses Strike: Creative Ideas of Physicists and Writers Routinely Occur During Mind Wandering. *Psychological Science*, 30(3), 396-404. Here is a description of the study from the abstract:

"In two studies (N = 98, N = 87), professional writers and physicists reported on their most creative idea of the day, what they were thinking about and doing when it occurred, whether the idea felt like an "aha" moment, and the quality of the idea. Participants reported that one fifth of their most significant ideas of the day were formed during spontaneous task-independent mind wandering -- operationalized here as (a) engaging in an activity other than working and (b) thinking about something unrelated to the generated idea. There were no differences between ratings of the creativity or importance of ideas that occurred during mind wandering and those that occurred on task. However, ideas that occurred during mind wandering were more likely to be associated with overcoming an impasse on a problem and to be experienced as "aha" moments, compared with ideas generated while on task."

Advice for Other Technology Professionals

As I wrote in the introduction, most of the information in this document will be relevant if you're a coder/developer/computer science major. In addition, you can check out the book by William Bushee, *Wired for Coding: How to Stand out from the Crowd and Land your First Job as a Developer*. It's only 137 pages (I read through it in less than two hours) but has excellent advice for those still in college or moving into a coding job.⁶ For example, it has a master checklist for success that starts one year before graduation ("Clean up Twitter or create account. Create a personal website. Create a blog associated with your career goals. Setup a GitHub account. Check in your website resources" and so on) and continues with lists for six months before graduating, one month before graduation, and after graduation. You can get a free "Master Checklist for Success" and read a chapter by signing up here: <http://www.wiredforcoding.com/worksheet>.

⁶ "This book is about what prospective employers in the coding field are looking for in recent graduates or entry-level developers, and how you need to prepare to meet the expectations necessary to land the career you want" (p.xii).

Another book you should look at is *Cracking the Coding Interview: 189 Programming Questions and Solutions* (2015, 6th Edition) by Gayle Laakmann McDowell.

You should definitely join [ACM](#) and you will then have access to their [online resources](#).

According to a recent article on jobs in Silicon Valley in 2018, "How to Hunt for Jobs in Silicon Valley," (<https://www.forbes.com/sites/laurencebradford/2018/01/30/how-to-hunt-for-jobs-in-silicon-valley-in-2018/#69b014427a5d>) these are the titles with the most job openings:

1. Software engineer
2. Front-end developer
3. Full-stack developer
4. Product manager
5. Development operations engineer
6. Software architect
7. Java developer
8. Software test engineer
9. Senior product manager
10. Engineering program manager

Practically all of the advice in this paper on networking, finding a job, advancing your career, and continuing to learn is also relevant for these jobs. There are some differences, however, and I plan to include advice specific to these more developer/computer science type professions in this (developing) section.

Here is the ACM Career and Job Center: <https://jobs.acm.org/>

Data Scientist

There's a constant stream of articles on different types of tech jobs, often with useful information. For example, here's some information on a "data scientist" from <https://www.techrepublic.com/article/here-are-the-10-skills-you-need-to-become-a-data-scientist-the-no-1-job-in-america/>

#1 in Glassdoor's Best Jobs in America

- Median base salary of \$110,000
- 10 most frequently mentioned skills
 1. Python
 2. R
 3. SQL
 4. Hadoop
 5. Java
 6. SAS
 7. Spark
 8. Matlab
 9. Hive
 10. Tableau

Three core skills (9 out of 10 job postings require 1 or more):

- Python (fastest growing programming language)

- R
- SQL

Final Thoughts

When I reread this document, I'm struck by the fact that what I'm suggesting is a lot of work. Just reading through this document and following the links will take a significant amount of time. And I write in a few places, "Don't be lazy!" It is a lot of work, but if you want to succeed, you'll have to be motivated and work hard. That's why it's so important to choose a career that's really interesting and fulfilling. Otherwise, it will be very, very difficult to put in the work required.

It takes time and work to:

- Develop a good resume and portfolio
- Prepare for an informational interview or actual job interview
- Meet people ... and then keep track of them
- Read current articles and newsletters
- Go to local and national meetings and network (but of course it can also be fun and rewarding)
- Audit online courses or take workshops and advance your skills
- Prepare a talk for a local professional society

But all these activities should help to advance you in your career, increase your skills and knowledge, and give you a sense of fulfillment and satisfaction. It feels good to be knowledgeable and skilled in your profession, to contribute to the field, and to help others get started. Once again, good luck!

Acknowledgements

The following people provided comments and/or suggestions on an earlier draft of this document, and their help improved it dramatically: Nancy Burkett (Director of Career Services, Swarthmore College), Hannah Moon, Paula Stanziani, Sagan Pope, Benjamin Basseches, Vivienne Layne, Kate Dobroth, Maria Cervone, Chris Snyder, Amir Mane, Yeseul Song, Mahshid Aryankhesal, Dave Philbin, Colin Guedj, Sampada Pulekar, Todd Chapin, Joe Grant, Ken Becker, Caroline Jarrett, Samantha Bailey, Chauncey Wilson, Matt Belge, Adrian Howard, Ed Malouf, and Marissa Thompson. And special thanks to Sandi Murtland, who read through the entire document and, according to Word, made 1,092 revisions of all types (practically all of which I accepted!).

Appendix 1: More Examples and Advice

A Master Networker

Bill Clinton was a master networker. From

<http://www.businessinsider.com/bill-clinton-networking-2011-5>:

In an excerpt from his *New York Times* bestseller, *Never Eat Alone*, Keith Ferrazzi describes networking techniques Bill Clinton practiced way back in 1968:

[While] a Rhodes Scholar at Oxford University, he met a graduate student named Jeffrey Stamps at a party. Clinton promptly pulled out a black address book.

"What are you doing here at Oxford, Jeff?" he asked.

"I'm at Pembroke on a Fulbright," Jeff replied. Clinton penned "Pembroke" into his book, then asked about Stamps's undergraduate school and his major.

"Bill, why are you writing this down?" asked Stamps.

"I'm going into politics and plan to run for governor of Arkansas, and I'm keeping track of everyone I meet," said Clinton.

Even while an undergraduate at Georgetown, Clinton used index cards to record the vital stats about everyone he met each day.

Two take-away points: First, Clinton knew where he was headed. Second, he was genuinely interested in people, and that made him popular.

Another article that claims it was Clinton's networking skills that helped him win the presidency, also has these excellent suggestions (from

<https://www.takeyoursuccess.com/networking-skills-got-clinton-the-white-house/>).

Prioritize helping other people first. The question, "How can I help you?" is so powerful.⁷ This unselfish question will be a breath of fresh air in the otherwise me-first world. And the odds are that this person will return the question to you, which will set the foundation for a trusting and mutually beneficial relationship.

Ask others to do favors for you. Although it's counterintuitive, studies show that when someone does a favor for you, they need to justify the action so they improve their perception of you. It seems crazy, but it's true!

⁷ It may be difficult for a recent graduate in his or her first job to offer help to a more senior person in the field, but don't underestimate all the ways you might be able to reciprocate. For example, you can point out new research or techniques that the senior person may not have heard about. If a student from one of my classes where I lecture on diary studies sends me an email with some links to recent articles using diary studies, or alerts me to a new software tool for carrying out diary studies, I would be very appreciative.

It's Okay to be a Beginner

If you're in the UX field, you should have access to the ACM digital library (see below), and so you can read Peter Denning's article, "*The Beginner's Creed*" (<https://cacm.acm.org/magazines/2017/7/218869-the-beginners-creed/abstract>). Attitude is very important. He taught a difficult course on operating systems, and many of his students were discouraged after they did poorly on the first exam. Then he wrote and distributed "*The Beginner's Creed*." His students were then more relaxed about their roles as beginners. You may feel inadequate and overwhelmed, and you will make mistakes. It's always difficult to learn a new field or methodology or technique. Here is part of "*The Beginner's Creed*":

"I am a beginner
I am entering a new game about which I know nothing.

...

There is much for me to learn

- The basic terminology
- The basic rules
- The basic moves of action
- The basic strategies

While I am learning these things I may feel various negative reactions:

- Overwhelmed at how much there is to learn
- Insecure that I do not know what to do
- Inadequate that I lack the capacity to do this
- Frustrated and discouraged that my progress is so slow
- Angry that I have been given insufficient guidance
- Anxious that I will never perform up to expectations on which my career depends
- Embarrassed that everyone can see my mistakes

But these moods are part of being a beginner. It does not serve my goal and ambition to dwell in them. Instead,

- If I make a mistake, I will ask what lesson does this teach.
- If I make a discovery, I will celebrate my aha! moment.
- If I feel alone, I will remember that I have many friends ready to help.
- If I am stuck, I will ask for help from my teachers

Over time, I will make fewer mistakes

- I will gain confidence in my abilities.
- I will need less guidance from my teachers and friends.

Recognizing what it means to be a beginner can help to deal with the negative reactions detailed above that you may experience. You will get over them! But you must accept that when you are learning something new, initially you will be a beginner, with all that being a beginner entails.

UTEST

UTEST is not a way to find a job, but it is a wonderful resource for people working in the area to connect with other professionals, learn from them, and share information and ideas. Here's an article with the history of UTEST, and information on how to join:

<https://uxpajournal.org/the-utest-community-celebrating-20-years-of-a-safe-space-for-ux-discussions/>

"If you are not a community member and are active as a UX practitioner or researcher, we invite you to join the community by reaching out to tharon@clemson.edu."

From a website that I can no longer reach:

"The UTEST list originally began as a space where a small group of colleagues from AT&T GIS, MicroSoft and from Clarkson, Clemson, and Purdue Universities could collaborate and share ideas about usability testing and user-centered design projects. The goal then and now was to create a "safe" space where practicing professionals could work on the problems and issues they confronted in their professional experiences.

Then as now, the list was intended to be a place where researchers could test out unpolished, inchoate ideas without fear that their ideas would be used out of context or attacked in other media. For this reason, it was decided very early on that UTEST's messages would never be archived, that UTEST's subscribers would not redistribute the list's messages in other groups and/or media, that membership on the list would be closed to the general public, and the new members would be allowed to join by invitation only. These practices are still followed today.

The UTEST list is supported by Clemson University hardware, software, and technical support as part of Clemson's commitment to outreach, research, and education. The effort required to maintain the list is voluntarily provided by Dr. Tharon Howard."

For subscription information, please contact:

Tharon Howard

tharon@hubcap.clemson.edu

Published with the permission of the UTEST Advisory Council on Oct. 17, 2002

Example Request for an Informational Interview

Vivienne Layne is now a UX researcher, but after college she went to graduate school in library science. Here is the email that she sent to a fellow alumna asking for an informational interview. How could you turn down a request like this! (You can find more sample introductory emails here:

<http://www.swarthmore.edu/sites/default/files/assets/documents/career-services/Networking%202016.pdf>.)

Dear XXX,

My name is Vivienne Layne and I am a Swarthmore senior English major interested in library science. I met with XXX of Career Services this morning to discuss possible career paths and since I mentioned my interest in academic librarianship, she gave me your contact info.

I've been researching librarianship through reading and the ALA website and I'm meeting with XXX, the Humanities Librarian, tonight. I want to learn more about the

field in general as well as what graduate school for information science is like and would love to hear about your experiences. I have some questions for you and would appreciate as much or as little information as you have time to give. Please let me know if you would like to chat over the phone or correspond.

Thank you for your time,

Vivienne Layne

Appendix 2: Additional Pointers from UX Professionals

Sandi Murtland comments on several aspects of the job search:

Sandi Murtland is a UX/UI designer in the Philadelphia area. After several years as an intranet designer and internal communications manager, she started a career transition to focus solely on user experience design. Luckily for me, I sent her this document during this transition period when she was able to provide insights into job searching for user experience design positions and had time to review it carefully. She provided hundreds of formatting, wording, organizational, and content suggestions (which I've incorporated) plus the comments below.

Informational Interviews

"When I was trying to decide if I wanted to leave my comfortable but monotonous communications career and switch to user experience design, I did some informational interviews. I took a couple of co-workers who were user experience designers to lunch to talk about the field and their careers. I also did a phone informational interview with a user experience designer who was a consultant for my company at the time. Both were extremely helpful."

Recruiting Firms

"Recruiting agencies have been key to my career transition. I've been able to land a few contracts in user experience design, and I'm hoping this will lead to a permanent position soon."

Should you ask for feedback when you do NOT receive an offer?

"You can, but 99.99% of the time, you won't get it. I've tried many times, but human resource recruiters typically aren't allowed to give any details."

You should tell your co-workers how much you make!

"I would not recommend this unless you know your co-worker very well. In my 25-year career, I've never discussed my salary with a co-worker. Generally, in a corporate environment, compensation includes many factors. Plus, it's considered none of your business what others make and it's none of theirs what you make. You might share this information but don't expect that they will, and if they do, they may not be truthful. Be careful. It's a slippery slope."

Portfolios and Job Interviews

After two months on the job market, Sandi sent me the following additional suggestions:

1. Portfolio presentations – Candidates are not only asked to discuss their online portfolio pieces, they are required to do in-depth presentations of specific portfolio pieces to show their thought process and how they overcome challenges. So a few well-designed, well-written case studies (stories) in PPT format are needed for final interviews. Also, job seekers should brush up on their public speaking and presenting skills and practice often. I honestly had no idea that this level of work was needed to get a job since I've been doing contracts rather than permanent positions the last few years. It seems as though requirements are not as demanding for contract work. (At least that's my experience so far.)
2. Whiteboarding sessions – Candidates are asked to show off their whiteboarding and collaboration skills in final interviews. I was given a design prompt and had to create a user flow and wireframes based on that. So staying sharp with whiteboarding skills is very important for job seekers.

3. Demonstrating your ability to lead design projects – I was very surprised by this because I always considered it was a given that you knew how to manage your workload, deliverables, and projects, but obviously it's not. Because I didn't talk about my ability to lead/drive my own design projects, I believe that's why I didn't land the two jobs that I was a finalist for. So, in the paper, you should make a strong point about showing your project plans or design process in your portfolio and your portfolio presentations. I truly was flabbergasted when I received this feedback. I have years and years of experience leading all kinds of design projects. I have no idea why interviewers thought otherwise.

Demetrios comments: I've heard many very positive comments about informational interviews and the advantages of recruiting firms. Concerning discussing your salary with co-workers, my experience was similar -- I never discussed salary with my colleagues at work. However, I think the world is changing, there's much more salary information online now, and if I were still working full-time, I would try talking with colleagues about my salary. Sandi makes the interviewing process sound quite daunting. Don't underestimate the amount of time you will need to prepare for interviews and job presentations.

Sampada Pulekar describes how networking and hard work made a difference in her life:

I met Sampada Pulekar after a BostonCHI event and sent her an earlier version of this document. She wrote back with this paragraph:

"I agree it [networking] is my number one formula to secure a job. I would like to share my experience on how I secured a job in the times of recession and got my employer to sponsor a visa for me.

In 2012, I had graduated with a M.Arch. from SUNY Buffalo but the Architecture industry was the last to pick up from the 2008 recession. Very unfortunately my fellow classmates were going back home to India after being disappointed in not getting a job. I moved from Buffalo to live with my cousin in Boston and applied to at least 10 companies every single day. I might be exaggerating because there weren't many openings but I was applying all over the US. Being an introvert, I also decided to get out of my comfort zone and attend all the free events at BSA - Boston Society of Architects. So I spent all my days at their space with home packed lunches in my bag and applied to companies between events. I printed my cards and handed them out to as many people I found at these events. I never said I wanted a job but always mentioned that I am looking for volunteer opportunities in the field of my interest. Finally it worked, an organizer connected me with a Harvard professor who also had his own 10 person firm. He asked me to work on a building model in his firm for 1 week as a volunteer. I used this opportunity to prove that I am a good candidate for this job and a month later he gave me an offer letter for a paid full time position. 6 months later when I had to apply for a visa he agreed to sponsor me too. This struggle taught me a lot of things but most of all - the value of networking. It applies to our personal life as well right and how people with more friends are more happier."

Sagan Pope, who is making a career change to UX, writes about her experiences with CareerFoundry:

"CareerFoundry currently offers two online UX Design courses for \$6,000 or \$8,500 USD that can be paid on a monthly payment plan throughout the course. The courses are designed to be completed at your own pace over an eight-month time frame -- however, depending on your own schedule you may finish the course even faster.

After extensive research for online and in-person "bootcamp" courses for UX Design, I decided to go with the online course at CareerFoundry based on reviews and the overall cost. I chose the \$6,000 USD Certified UX Designer three-part program which pairs each student with tutor and a mentor with whom you have unlimited Skype calls. Each reading / lesson finishes with an assignment that you must submit for your tutor to review. Your tutor will give constructive feedback in order to make sure you get the most out of each project. At the end of each unit - there are between 7-12 lessons per unit - your mentor will review your portfolio and offer feedback as well. There are currently a total of seven units in the course.

Your mentor is there for you to reach out to as often as you need in order to ask questions about the course, about design, or about the industry -- your calls are dedicated to what you need in regards to UX Design.

At the end of the entire course each student will have a completed project to add to your online portfolio! The course also offers an extra specialization course for you to take in order to deepen your knowledge within the field. Currently they are offering specializations in: UI Design, Frontend Development for Designers, or Voice User Interface Design.

- 7 units for the Certified UX Designer Course
- 7-12 assignments per unit
- total of 244 hours of course work for the Certified UX Designer Course
- plus an additional total of 78 hours on the UI Design Course (other specialization courses have similar completion hours as well)
- a total of 51 hours in their Job Preparation Course that helps you prepare for the search including tips on networking, mindset for career change, resume tips, and interviewing.

I recommend this course to anybody looking to make a career change or simply learn more about user experience design. I have been able to work full time, complete the course within five months and am now focusing on the job search! The mentors and tutors all work in the field and offer valuable feedback. CareerFoundry also builds a community of their students - past and present - on Slack that allows for great networking throughout and after the course."

Chris Snyder, who is making a career change to UX from journalism, writes about LinkedIn Premium

I've had a premium account since 2018. [It is now January 2021]

One of the "features" is some sort of algorithmic matching and rating for jobs they think you are a "good fit" for. I find the feature laughable. There's a job that it's telling me I would be among the top 10% of candidates for, based on my profile: Business Intelligence Analyst at Forbes. It lists the top ten skills candidates applying for this job have: MATLAB, event planning, Core Java, Program Management, relational databases, Cognos, quantitative analytics, requirements analysis, and systems analysis.

I have none of these skills listed on my profile. I've never been a Business Analyst and have no education that would allow me to be one.

Another premium feature is that you can see who has viewed your profile in the past 90 days-unless they're in Private Mode. Which is where most of my viewers are most of the time. This feature is semi-useful. I know that a UX Researcher at Sendible looked at my profile yesterday,

that "Someone at Deloitte" looked at it a month ago, and that many of my classmates also have, before sending a request to connect.

LinkedIn Learning is included in the premium subscription.

The last benefit I'll mention is that you get 5 monthly "credits" that allow you to send messages through LinkedIn to people not in your network, and these credits roll over.

Do I find LinkedIn Premium worthwhile? Not really, but I have made considerable use of LinkedIn Learning.

Demetrios comments: LinkedIn Premium may not be worthwhile long-term, but if you use LinkedIn Learning and the Premium features for job searching, then definitely sign up, at least during the period when you are learning and looking for a job.

Ilona Posner (www.ilonaposner.com, @ilonaposner) comments on her experience with a personal CRM solution

"Many moons ago, I started using the Palm Pilot as my first PDA for Contacts and Calendars. Then I migrated all my data to iPhone and Apple's native apps for these same functions. I have 3.5K contacts aggregating there since these early days with notes about dates of meetings, last encounters, and some really old email addresses & phone numbers. These days I update them with LinkedIn or FaceBook information when needed. Still works for me, synchs to iCloud and laptop for backups. I've kept my Google contacts separately. Sometimes having to look across social media (email, messenger, LinkedIn, text, Skype chat, Google chat, etc) for latest contact information and latest conversation is a huge pain, but I've not found a better solution, no matter what the promise of tools like Slack, etc..

To add to my details above, I use both Contacts and Calendars to cross reference my information. So I'll have the Lunches with Demetrios in my Calendar, which I have running continuously since 1993, and also Demetrios in Contacts. So I can do a Search in both places to find all the occurrences (assuming I spelled it correctly each time). The only shortcoming of this approach is that on the iPhone the search is limited to ONE YEAR of data while on the laptop it does the full 25 years search. This was a surprise discovery for me, when I was missing some search results, the same database of events produces different search results on different platforms, not impressive, but manageable if you know about it.

My years of experience transitioning my precious data (the extension of my memory, my external cognition, calendar & contacts) across different platforms and different versions of these apps, has had a few bumps. Some events & some contacts doubled and needed to be cleaned with some help of Apple's online support. But overall I am happy to have my data precious accessible. My paranoid attitude to any new software tool which may have limited longevity, due to the limited life expectancy of any smaller app, is that if they go out of business, and I depend on it, it will be a huge pain to transition to the next alternative to support my needs. So as you see, without any specialized software, I've been able to do my CRM like activities with these two native solutions, which I don't think are going to be retired anytime soon."

Matt Belge (www.visionlogic.com) gives advice to a UX researcher who was laid off and is considering contract work:

(Do you want to become an independent consultant/contractor or is this just something to do until you get another full-time position?)

...

"I think it's important that you either decide that being independent is what you want, or that it's only a temporary situation. The mindset for each is quite different.

For what it's worth, this happened to me many years ago when I worked for Sun. It actually happened to a whole bunch of us, they laid off almost the entire Boston area office. I ended up creating a solo consultant practice and did quite well financially for more than 20 years. After a while, I grew tired of being on my own and decided to find a good FT [full-time] position, but I am very happy and proud of my independent years.

A few words of advice: When I first started I had a conversation with another UX person, and he told me his friends were able to earn the equivalent of their old salary in their very first year. I resolved to do the same, and I did. And you should too. Don't forget to factor in the yearly cost of health insurance and the other ancillary fees like internet hosting.

As a way of calculating this, let's arbitrarily say your old salary was \$100,000 per year. To this we add \$10,000 for health insurance (much more if you have a family, but these are all example numbers). And to this let's add another \$5000 to cover internet fees, buying a laptop, and whatever software you might need. So now we're at \$115,000 to replace what you had at your old job.

There are about 2000 hours in a year (40 hours a week x 50 weeks). So if you bill out 2000 hours, your fee should be $\$115,000/2000 = \57.50 /hour.

However, you will almost certainly not bill out at 100 percent, so instead of 2000 hours we should assume about 75% or about 1500 hours. Why? Because some of the time you will be looking for work and doing all the other things like marketing that help bring in projects.

So now we're at $\$115,000/1500 = \76.6 per hour. Remember all these numbers are based on \$100K replacement salary. You should use your own numbers for this.

In the Boston area, UX consultants with 10 years experience charge well over \$100/hour. Cost of living here is more expensive than Denver, I think. Your rate should be a little bit scary to you - if it isn't you aren't charging enough. Too many really talented people undercharge what they are worth.

Finally, try to find work without using contracting agencies. They will typically take 25 to 33 percent of your wages. It may not be avoidable in some cases, for example big corporations often will only work with "approved vendors" and the contract agency might be your only way in. But there are lots of places that don't work like that, try to find them."

Demetrios comments: If you want to be a contractor/consultant for the long-term, it's great to get hired directly and not via an agency, for as Matt says, they will take a large percentage of each hour's wage. However, in my (limited) experience, practically all large companies will force you to work through one of the agencies that they already have agreements with. That way the agency does all the paperwork (including non-disclosure agreements (NDAs), etc.). Note that if you do not work through an agency, you will probably need to buy your own business liability insurance.

Joe Grant writes,

"I've been working at what are basically cubicles in an open area at Regus, which has various office spaces at different rates and prices throughout the nation. It has nice wifi, clean, professional-looking, good coffee, etc. Someone heard me on a phone conference doing my work, and made a point to ask me if I was looking for another job. They were genuinely curious about what I do. There are other places called co-working offices where people from different companies are sharing an office, either because they are independent professionals, or remote workers, which has been the case for me.

Anyway... the long and short of it... get out of the house at least occasionally, and find a co-working spot that fits your budget. You'll get out and meet others, which in itself is healthy, and learn to have conversations with people who don't know UCD."

Demetrios comments: Some people love working at home, some find it difficult. My impression is that more and more people are working at home these days [and I wrote this pre-pandemic!]. If I had to work full-time, or almost full-time at home, I would definitely try to find a co-working office where I could work. There are too many distractions for me at home, and I like the routine of getting up and going to an office. As the Latin saying goes, "De gustibus non est disputandum".

Dave Philbin writes,

1. "You have to kiss a lot of frogs."

"There are a ton of opportunities, but not everyone is going to be a good fit. For you or for the company. A recruiter may think you are perfect, but that doesn't mean their client will. Don't get hung up on hearing back from them. If you assume from the get-go that nothing will come of it, you won't be disappointed, and then when you do hear back it is a pleasant surprise.

2. A portfolio is absolutely crucial.

It doesn't need to be deep, but it needs to show a) your process, b) work items that show you really do work. Don't worry about expressing too much (or too little) personality, and don't overthink it. For me, talking out loud to myself about what I'd want someone to know about my work on a few projects got me much further along in drafting the portfolio than hours of tinkering with words and graphic in an HTML editor. If you have even 4 projects that show your work, that is enough (you can always add more later). If your work was proprietary or super secretive, recreate similar artifacts that are nonsense or on a different topic, and note that you are doing so in a footnote. Get a good template for your portfolio at http://www.w3schools.com/w3css/w3css_templates.asp to make your life easier. A bad portfolio is worse than no portfolio, though. If you put together a portfolio as a UX person, but all you show on it is graphic design, you are shooting yourself in the foot. Make sure you are showing the right type of work samples for the type of jobs you are applying to.

Oh, I forgot to add one other thing. As a person on the hiring side, I will immediately throw you(r resume) in the trash if you call yourself a "Unicorn" or "UXicorn". If your opinion of yourself is that inflated, I don't even want to imagine what an entitled headache you'd be on my team. Plus the term is both trite and tired."

Colin Guedj writes,

- **"Networking" is a scary term for some people.** I was going for my first full-time job, so in my job search, I thought of meeting with people as "informational interviewing." This mindset took the focus away from trying to land a job in my interviewers' department and helped me investigate more broadly the UX vacancies.
- **The majority of jobs that are found through your social network are found through weak ties.** I had the privilege of meeting with a career coach (my grandfather) once a week. He really pushed me to focus my job search on informational interviews. He would disagree with your statement "The closer the connection, the better, but a close connection is not necessary." I think I've found a good summary of the strength of weak ties as it applies to networking here: <https://www.forbes.com/sites/nextavenue/2016/08/17/to-get-a-job-use-your-weak-ties/#6e9493d16b87>. If you're interested, I've linked the original sociological article here: https://sociology.stanford.edu/sites/default/files/publications/the_strength_of_weak_ties_and_exch_w-gans.pdf.
- **I found my job at xx through a weak tie, a 4th degree connection.** I asked my father if he knew anyone in UX, and he sent a message to a UX professional, A----, he met once at BU ten years ago. A---- agreed to meet with me, and I asked him who else I might talk to in the UX field. A---- introduced me to B----, Research Director at xx. B---- and I met in November 2016, and during my meeting with B---- I briefly met his colleague C----, Interaction Director at xx. In April, C---- remembered meeting me and asked me to interview for an Interaction designer role.
- **A small update, question, or request for help can go a long way in keeping you on people's radar.** Anecdotally, my job took 6 months from first introduction to first interview.
- **The UX field is exceptionally generous.** Almost everyone I reached out to agreed to share their ideas, and led me to a meeting with one or more other people.

Demetrios comments: I've updated this document emphasizing the importance of weak ties. I've replaced names and companies above with letters and "x"s. I've emphasized informational interviews since the original draft of this document, and I'm glad that Colin's career coach confirms this emphasis. Weak ties are important, and you may be more likely to find a job via weak ties, but that is because you will make so many more contacts via the weak ties. Given a comparison between two contacts, one via a strong tie and one via a weak tie, the strong tie is much more likely to lead to a job.

Caroline Jarrett

Caroline Jarrett provides some useful advice on how not to get a job and how to get one:

<http://www.effortmark.co.uk/not-get-job-get-one/>.

To summarize two of her main points: Don't be lazy! Do some research before contacting someone or applying for a job. And second, "Create a master CV then edit it."

Ken Becker writes,

"I think it's worth calling out, in the Resume and Portfolio section, that your resume should be designed in a similar way that you do your UX work. That is, use research on your target audiences and how they use resume information (the "filtering process") to inform your design.

Also recognize that there are 2-3 audiences: the recruiter who is scanning hundreds of resumes, the hiring manager who is looking at probably 15+ (while doing another full-time job) and then the

team (including the hiring manager) who wants to dive deeper before an interview. There is also likely an "automated" audience (a hiring system) that scans your resume looking for keywords and qualifications.

The process was described this way, for an agency, at uxmovement.com: 1. Quick scan of the resume to see if they make the "maybe" list; 2. Look at the resume, again, in more detail to see if it's worth an interview; 3. Look at the resume a third time in more depth and compare against other candidates.

A colleague and I were talking about the design challenge to create a resume that is concise and scannable, yet provides all the keywords, qualifications and the detail that the 2nd and 3rd look require. It's ironic that one of our strong suits is often supposed to be being detail-oriented! A resume is also supposed to be compelling and visually appealing (especially if you do any kind of visual design), but work well for digestion by automated systems. If a company is using an automated system, and it doesn't find the required information, your resume won't even make it to the hiring manager. Do you see this an opportunity to apply a design pattern of providing basic information for the initial "visit" and revealing more in-depth information for the use case of the "advanced" user on repeat visits?

For those of you that have been in the UX hiring manager role, would you advise UX people to create more of a scannable resume? Or a detailed resume? Or one that somehow accomplishes both?"

Demetrios comments: Good points and questions. My comment is that this points out how much better it is to get your resume directly into the hands of a group manager or someone with whom you will be working if you are hired. If you have an "in" via your networking, a personal recommendation, or an interesting cover letter, then perhaps people in the group you're interested in will read your resume first and then pass it on to HR or a hiring manager. In this case, you don't have to worry about your resume being one of hundreds that are scanned briefly.

Samantha Bailey writes,

"I have been experimenting with this a great deal and where I've landed is that I have a "beautiful" PDF resume that I send people via email/Linked In and a plain text file that I use when applying online. I used to use a microsoft word doc that was minimally formatted for my online applications but when I saw the markup that was being added when I'd copy paste from that version into the (universally awful) online application forms I moved to a true plain text file.

I'm to the point where just seeing the noun "Taleo" makes me get an eye twitch.

I also found the Jobscan website extremely useful for revising my resume to better compete against the ATS machines (applicant tracking system). It let's you do a side-by-side comparison of the job description and your resume and gives you feedback on where your resume may "fail" in the "eyes" of the ATS."

From their site:

The Jobscan tool aims to better equip job seekers by analyzing job descriptions and helping applicants easily identify what skills and keywords are most important to a given employer. By ranking the most important and most frequently-occurring keywords per job description, this tool can help give applicants a competitive edge in their job search efforts.

<http://www.jobscan.co/>

Appendix 3: Rules for Good and Bad Studying

The rules below follow directly from the research I explained and summarized in the section above on How to Optimize Learning. Some of the rules below are described almost exactly as explained in the research articles, while others are phrased slightly differently. It helps to read the same material from different sources and in different formats, and it is for this reason I list Barbara Oakley's rules here. These come from the Coursera course, "Learning How to Learn" (which, she claims, is the most popular MOOC in the world, with over two million students so far).

10 Rules of Studying

These rules form a synthesis of some of the main ideas of the course—they are excerpted from the book *A Mind for Numbers: How to Excel in Math and Science (Even if You Flunked Algebra)*, by Barbara Oakley, Penguin, July, 2014. Feel free to copy these rules and redistribute them, as long as you keep the original wording and this citation.

10 Rules of Good Studying

1. **Use recall.** After you read a page, look away and recall the main ideas. Highlight very little, and never highlight anything you haven't put in your mind first by recalling. Try recalling main ideas when you are walking to class or in a different room from where you originally learned it. An ability to recall—to generate the ideas from inside yourself—is one of the key indicators of good learning.
2. **Test yourself.** On everything. All the time. Flash cards are your friend.
3. **Chunk your problems.** Chunking is understanding and practicing with a problem solution so that it can all come to mind in a flash. After you solve a problem, rehearse it. Make sure you can solve it cold—every step. Pretend it's a song and learn to play it over and over again in your mind, so the information combines into one smooth chunk you can pull up whenever you want.
4. **Space your repetition.** Spread out your learning in any subject a little every day, just like an athlete. Your brain is like a muscle—it can handle only a limited amount of exercise on one subject at a time.
5. **Alternate different problem-solving techniques during your practice.** Never practice too long at any one session using only one problem-solving technique—after a while, you are just mimicking what you did on the previous problem. Mix it up and work on different types of problems. This teaches you both how and when to use a technique. (Books generally are not set up this way, so you'll need to do this on your own.) After every assignment and test, go over your errors, make sure you understand why you made them, and then rework your solutions. To study most effectively, handwrite (don't type) a problem on one side of a flash card and the solution on the other. (Handwriting builds stronger neural structures in memory than typing.) You might also photograph the card if you want to load it into a study app on your smartphone. Quiz yourself randomly on different types of problems. Another way to do this is to randomly flip through your book, pick out a problem, and see whether you can solve it cold.

6. **Take breaks.** It is common to be unable to solve problems or figure out concepts in math or science the first time you encounter them. This is why a little study every day is much better than a lot of studying all at once. When you get frustrated with a math or science problem, take a break so that another part of your mind can take over and work in the background.
7. **Use explanatory questioning and simple analogies.** Whenever you are struggling with a concept, think to yourself, How can I explain this so that a ten-year-old could understand it? Using an analogy really helps, like saying that the flow of electricity is like the flow of water. Don't just think your explanation—say it out loud or put it in writing. The additional effort of speaking and writing allows you to more deeply encode (that is, convert into neural memory structures) what you are learning.
8. **Focus.** Turn off all interrupting beeps and alarms on your phone and computer, and then turn on a timer for twenty-five minutes. Focus intently for those twenty-five minutes and try to work as diligently as you can. After the timer goes off, give yourself a small, fun reward. A few of these sessions in a day can really move your studies forward. Try to set up times and places where studying—not glancing at your computer or phone—is just something you naturally do.
9. **Eat your frogs first.** Do the hardest thing earliest in the day, when you are fresh.
10. **Make a mental contrast.** Imagine where you've come from and contrast that with the dream of where your studies will take you. Post a picture or words in your workspace to remind you of your dream. Look at that when you find your motivation lagging. This work will pay off both for you and those you love!

10 Rules of Bad Studying

Excerpted from *A Mind for Numbers: How to Excel in Math and Science (Even if You Flunked Algebra)*, by Barbara Oakley, Penguin, July, 2014

Avoid these techniques—they can waste your time even while they fool you into thinking you're learning!

1. **Passive rereading**—sitting passively and running your eyes back over a page. Unless you can prove that the material is moving into your brain by recalling the main ideas without looking at the page, rereading is a waste of time.
2. **Letting highlights overwhelm you.** Highlighting your text can fool your mind into thinking you are putting something in your brain, when all you're really doing is moving your hand. A little highlighting here and there is okay—sometimes it can be helpful in flagging important points. But if you are using highlighting as a memory tool, make sure that what you mark is also going into your brain.
3. **Merely glancing at a problem's solution and thinking you know how to do it.** This is one of the worst errors students make while studying. You need to be able to solve a problem step-by-step, without looking at the solution.
4. **Waiting until the last minute to study.** Would you cram at the last minute if you were practicing for a track meet? Your brain is like a muscle—it can handle only a limited amount of exercise on one subject at a time.

5. **Repeatedly solving problems of the same type that you already know how to solve.** If you just sit around solving similar problems during your practice, you're not actually preparing for a test—it's like preparing for a big basketball game by just practicing your dribbling.
6. **Letting study sessions with friends turn into chat sessions.** Checking your problem solving with friends, and quizzing one another on what you know, can make learning more enjoyable, expose flaws in your thinking, and deepen your learning. But if your joint study sessions turn to fun before the work is done, you're wasting your time and should find another study group.
7. **Neglecting to read the textbook before you start working problems.** Would you dive into a pool before you knew how to swim? The textbook is your swimming instructor—it guides you toward the answers. You will flounder and waste your time if you don't bother to read it. Before you begin to read, however, take a quick glance over the chapter or section to get a sense of what it's about.
8. **Not checking with your instructors or classmates to clear up points of confusion.** Professors are used to lost students coming in for guidance—it's our job to help you. The students we worry about are the ones who don't come in. Don't be one of those students.
9. **Thinking you can learn deeply when you are being constantly distracted.** Every tiny pull toward an instant message or conversation means you have less brain power to devote to learning. Every tug of interrupted attention pulls out tiny neural roots before they can grow.
10. **Not getting enough sleep.** Your brain pieces together problem-solving techniques when you sleep, and it also practices and repeats whatever you put in mind before you go to sleep. Prolonged fatigue allows toxins to build up in the brain that disrupt the neural connections you need to think quickly and well. If you don't get a good sleep before a test, NOTHING ELSE YOU HAVE DONE WILL MATTER.

Appendix 4: Additional References

Here are some additional references that you may find useful. I'll continue to add to this section.

Vault

<http://www.vault.com/>

I refer to several articles from Vault in the body of this document. The site contains articles and guides (some extensive) that you can read online or download.

- **"Career articles, blogs, and videos** Find career advice to help guide you through your job search, stay ahead of the competition and land the job you want.
- **Resume & Interview Tips** Get sample resume and cover letter templates, sample interview questions and expert career advice.
- **Industry, Career & Employer Guides** More than 100 titles of award-winning career guides, including interview strategies, job-search tips, and full-length profiles of leading companies."

Appendix 5: Demetrios' Biography

Demetrios Karis has been researching, designing, and evaluating consumer products and services for over 30 years at Verizon, GTE, Grumman Aircraft Systems, and the University of Illinois. He helped design GTE Airfone and several speech-based systems, and then for ten years led the SuperPages.com user interface group at GTE Labs, where he established a program for developing a comprehensive understanding of the user experience.

Demetrios also worked on the Verizon broadband customer experience, from DSL installation to the use of value-added services such as gaming and online backup and sharing. Demetrios established and led the User Experience team at the Verizon Wireless LTE Innovation Center, and also worked on smartphone user experience, femtocells, and mobile phone accessibility.

Demetrios holds multiple patents and has published widely in diverse areas, including usability evaluation methodologies, CSCW (Computer Supported Cooperative Work), automation using speech recognition, autobiographical memory, and cognitive psychophysiology.

Demetrios received a B.A. in Psychology from Swarthmore College, a Ph.D. in experimental psychology from Cornell University, and an NIMH postdoctoral fellowship at the University of Illinois. He is now an independent consultant and has worked as a contractor at Google, Fidelity, as well as several small consulting firms. He is also an adjunct faculty member and teaches courses in the Bentley University's User Experience Certificate program. In the past, he taught in the graduate program in Human Factors in Information Design. He is currently doing research in the Trial Court of Massachusetts on how to improve the user experience of self-represented litigants interacting with the legal system.

Why is this an excellent document?

Hundreds of people could have written this document, and although the document may be excellent, it is not a reflection of my extraordinary abilities or experience. If it is indeed excellent, then it is because I followed the process described above in the section on Present and Publish:

- I started with my own experience as a UX researcher and as a team leader involved in the hiring process
- I learned more by reading books, articles, and taking online courses
- Perhaps most important, I received feedback from over 20 people who read earlier versions of this document. The feedback from a few people was quite extensive, and very helpful
- Based on the feedback I received, and my continued learning, I updated this document repeatedly
- This process has taken over five years, and it continues

I provide this document as a service to the UX community, and to all young people getting started in their careers. Send me your feedback and I'll continue to improve it.

Thank you!
Demetrios Karis
demetrios.karis@gmail.com