

Advice for Design Professionals at the Beginning of Their Careers

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ABSTRACT: At the beginning of their careers, design engineers and those serving in similar capacities are filled with an eagerness to learn, and the energy to fulfill that enthusiasm. A good mentor is able to take that enthusiasm and combine it with their own experience in a way that will give newer professionals a step up in the industry. As our team of experienced engineers reflect on things they wish they had known when they started their careers, they have put together this short presentation of what bolstered or would have bolstered their careers most when they were starting out. The discussions, perhaps not surprisingly, focused less on technical learning and more on general life abilities: Relationships, Communications and Life Lessons.

1. INTRODUCTION

Ralph Peck delivered a talk to members of the 1977 graduating class of West Point. Specifically, the speech was given to individuals who were about to be commissioned into the Army Corps of Engineers. His advice came from his decades-long career, and much of his advice still stands the test of time. In a nutshell, Peck advised his audience to develop engineering judgment, which he said could be gained by:

1. Making every assignment count, large or small – there is always something that can be learned.
2. Carrying a notebook, and filling it with notes, thereby improving one's observational skills.
3. Getting a feeling for the size of things. This is especially valuable in today's computer-driven workforce. If your car tires have an inflation pressure of 220 kilo Pascals (kPa) [32 pounds per square inch (psi)], does it make sense that your foundation has an allowable bearing capacity of 70 kPa [10 psi]?
4. Reading technical literature to continue your education (Peck, 1977).

While that advice is very insightful and helpful, it is also helpful to step back and appraise matters from a fresh perspective. In order to accomplish this goal, a team of people were solicited to become authors of this paper. While business journals produce a steady flow of information and instructions on how baby boomers can appreciate and get the most out of millennials, the idea of the process presented herein is to reverse the question, and ask how millennials can excel in the workplace. The obvious topic of work-life balance was discussed. Especially with regard to the company's expectations of them and how they should comprehend those expectations before starting out on a new job or assignment.

The authors of this paper represent people at a broad range of experience in their careers, anywhere from less than one year of professional employment to a few decades. The intent of gathering this diverse group was to capture people at various stages in their career and to ask them what advice they wish they had received early in their employment. The first activity of the authors was to brainstorm through a list of topics that would form the basis of the advice.

2. ADVICE FOR DESIGN PROFESSIONALS AT THE BEGINNING OF THEIR CAREERS

The topics of advice gleaned from the brainstorming session broadly fit into one of the following three categories:

- Relationships,
- Communications, and
- Life lessons.

These topics are discussed below.

3. RELATIONSHIPS

Both professional and personal relationships are very important to everyone. All-in-all, we may spend more time with our coworkers than with our family or friends. Getting to know and understand the people in the workplace, co-workers and clients, therefore can be very important to our job satisfaction. It can also be important to your long-term successful career itself.

Many millennials jump from job to job to satisfy, among other things, their need for change. It takes time to get to know the people you work with. If you change jobs every couple of years you will shortchange yourself from building relationships with people. Early in the life of a relationship, people often make hasty judgments of one another, but this is not the best practice because if you dismiss people without getting to know them you may miss out on some aspect of those people that you would really admire. Remember, as Peck (1977) said, you can always find some good in people, no matter what. Different people will have different perspectives. It doesn't make one right and one wrong. You can learn from other people's perspectives, even if it seems painful to do so.

It is important to develop inter-personal skills. Once you do, you may find new respect for others. In fact, one good way to accomplish this is to find out the job skills of your co-workers. Don't rely on the opinions of others. Find out for yourself. This may enable you to work with as many different people as possible, because if you do, you may be able to do your job in ways you otherwise couldn't. All of this will help you to be able to do your job more enjoyably—after all, it is the people in our lives that make a difference.

Also, building relationships extends beyond the office walls. The old saying that 'friends do business with friends' not only applies within the work place, but between the consultants and their client. Would you not want to associate with somebody you are comfortable with and trust, rather than a complete stranger? Good communication, one of the topics discussed herein, is essential to building client satisfaction and ultimately a long-term business relationship. Clients give out the vast majority of their work based on established relationships that have been built on trust over a long period of time.

Personnel relationships take time to develop, and as you build relationships you build that sense of community and belonging. Don't you want to have the feeling of belonging in your workplace? Of knowing that your co-workers and clients want to be associated with you?

4. COMMUNICATION

The two very fundamental forms of communication are speaking and writing. Both are very important to professionals and are skills that one needs to begin developing early in their career.

Firstly, speak up when it is appropriate, but you don't have to talk just to talk. Speak up when you don't understand. Speak up when you think things aren't right, no matter who is involved. Debate is okay and is often needed and necessary. It is healthy and can help you to grow professionally.

Remember that communication requires a receptor and people may not be listening. Since a person can think faster than they can talk, the listener's mind rapidly travels to somewhere else. They miss parts of the information even though they think they are listening carefully. The information you provide should be meaningful to the individual who is receiving it. If not, they will not pay attention.

However, perhaps more important than speaking is listening, not partially, but fully-engaged effective listening. Effective listening is an art, and like any other skill takes real practice. Are you not really listening? Pretending to listen? Hearing only selective parts? Paying attention but not focusing? Or are you listening with empathy? Listening is the act of gathering information, not simply waiting your turn to speak!

Ask questions. There is no shame in not knowing all the answers. People will still respect you for your honesty. That is what early career development is for. If you do not have all of the answers, it is perfectly acceptable to let the person know that you will write down a note and get back to them with the answers. Even inexperienced people can be reliable and valuable if they are willing to acknowledge and effectively communicate places in their work where they were unsure. This means that the senior staff will feel comfortable giving you more responsibility because they know if you are ever in over your head, that you will find a way to get the help you need. Don't bury your mistakes, acknowledge them and use them as a chance to learn.

Learn to write. It is usually the end product of our efforts and the thing that lasts beyond our involvement with a project. It deserves to be done well. It doesn't matter how smart you are if you can't communicate your ideas effectively. Possibly even more importantly, make a conscious effort to understand what others are communicating to you. Taking good notes throughout a project can go a long way in being able to write a complete report. When you ask a question of someone with more experience, figure out how you are going to make sure that what they say sticks with you. Reading can be just as important as writing and talking to design professionals. Not just to grow technically, but there will be occasions when it will be necessary to teach yourself a new skill. Sometimes being self-taught can be an important growth opportunity.

An important aid to help develop writing skills is to read documents produced in your field, perhaps by your co-workers. You will quickly detect good writing from poor, learn how to structure your writing so that the message is clearly communicated, and develop key phrases you may carry with you for the rest of your career. Read, read then read some more.

Another important part of communication is the art of review. Reviewing is an essential part of communication to assure that before the messages reaches its intended receptor (usually your client) that it is clear and concise. A key to being a good reviewer is to assume it is wrong, no matter who was the author. Even world-noted engineers have published papers with obvious errors, yet the reviewers glossed over these assuming that the information presented was correct. If you assume the communication is correct you may slightly disengage, but you if know it's wrong you will focus on finding the errors (and there always is at least one!). After you have made your edits (whether authoring or reviewing) now it is time to pull out the trusty red pen, and read and markup a hard copy!

One of our young design engineers mentioned that when he asked a question that he knew would have a complicated or drawn out answer he would carry a pen and record everything that was said. Afterwards, he would review his notes, and ask follow-up questions until he understood the answer. He was practicing the art of writing, reviewing, listening and speaking to get the information needed!

Communication needs practice. It requires you to be comfortable with what you are communicating, and like a musician, practice is essential. However, remember to also be aware of your non-verbal communication, what did that have to say to the speaker or your receptor? When writing remember there are no non-verbal clues for the receptor to use to interpret your intent, be clear in your communication.

Some rules to aid in improving communication are:

- To communicate there must be an exchange of information.
- All information exchanged should be as clear and complete as possible, but no longer than necessary.
- The information should be meaningful to the individual who is receiving it.
- Always get confirmation that the message you are communicating has been understood and the listener agrees.
- The same message should be given in many ways.

5. LIFE LESSONS

Life is basically a series of lessons. You can either repeat the lessons or you can choose to learn from them and grow. The importance of learning from your mistakes can be very significant; it determines what kind of person you are. Be positive. Try different and things. Keep an open mind about new experiences; you never know how something will go until you actually try it.

Everything is a learning experience whether big or small. Especially to a young professional. It can be almost nauseating to have to be completely mentally involved in everything you do during the first few years of a career. Everything is a challenge and you aren't sure enough of anything to present anything proudly. But don't get caught in the trap of doing the easy thing and avoiding more responsibilities. Advance as quickly as you can and stop being the new guy as quickly as you can.

One of our young engineers noted that when they first started working, the mining sector was in a slump. The first goal they set for themselves was to become indispensable as soon as possible. They knew they had to be a contributing part of the team right out of the gates, couldn't be deadweight. When things were slow, they would seek out their shortcomings, or challenges of their own making, and find ways to improve. They would take assignments people had already done and try to repeat their process. Being indispensable is about finding somewhere in the team where you can excel and become the go to person. As they said 'If you're not sure what that thing is, say yes until you have to start choosing between those things.'

The importance of your professional conduct was also discussed. For example, gaining one's professional license. It may not be obvious to people starting out in their career that they should pursue licensure as soon as they are able, but it is an important advancement of their professional development. And as one advances, they should become more and more aware of the implications of their design on the actual construction of that work. Only by observing construction can one learn valuable lessons on the implementation of designs, and how such designs can be improved through attending construction sites.

Last, but not least, and following the previous point, safety is of the utmost importance on construction sites. There is indeed a heightened sense of the value of job safety at construction sites, but in large part, safety is up to the individuals attending the site. When first arriving at a construction job, become aware of the hazards and let your presence be known to those around you.

6. CLOSING

While it is critical to develop and hone your technical skills your ability to develop relationships and communicate to co-workers, clients and people in general is key to success. We all know that change is inevitable, but slow.

Do not be afraid to fail, ask questions or seek help; been there, done that, draw on the experiences of others to help yourself grow and flourish. Be willing to share your experiences, viewpoints and thoughts in a respectful manner that will be well received. When it is your time to pass along your experiences be willing and able, remember when you were in their shoes!

Work hard and be diligent, and you can develop the skills to provide yourself with a long and happy consulting career.

7. REFERENCES

- Peck, R, *Advice to a Young Engineer. Military Eng.*, 69:450, July-Aug. 1977, pp. 232- 234. (Reprinted, Journ. Inst. *Military Eng.*, India (1978), Vol. 30, No.2, pp. 39-42.)