Natural and Tools of the Research

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Abstract

Research a specific topic is a long process that sometimes could be tedious but must be well planned. To make the most of the time in the research work, we should firstly have a good understanding of what the research really is, and start to pick up the tools useful for the research process. Different people have different understanding of this topic, and these must be different for the reason of different target and different fields. In this paper, we would discuss the natural facts of the research in Computer Science field, and some useful tools will also be introduced later on. This would be of help in the very beginning of the research, and would contribute to building a good start.

1. Facts and Understanding of the Research

1.1 Difference between Research and Information Gathering and Transferring

When doing research, the first thing for most people would be gathering information to have a good basic understanding. However, we must be clear that the research is not just about collecting information and joining them together. Spending time in the library to glean a few facts is one step in the research process, called reference. We need to generate our own idea based on the information collected, which is indeed the first step of the whole process of research.

On the other side, the research could not only be equal to information transferring. We might be able to see others' ideas on the topic we are working on, but these could only be references. Instead of just understanding these ideas, we must form an original way of thinking about the topic. If we just do fact organization, fact collection or fact summarization, it would not be of any help in solving the problem we are concerning about.

1.2 Difference between Research and Commercial Activities

We are living in a world of commercials. When we are watching TV, we are watching ads. When we are driving on the high way, the ads stand by the sides of the way. The skills in commercial advertisements have put great impressions to our style of talking and writing. However, the research process is a lot different from commercial activities. We must have a more scientific attitude towards the topic we are working.

It is not just a tactic of getting attention when doing research. We need to get a convincing result and solid foundation before getting others' attentions. This is important especially in the field of computer science. When we have the 'result of the research', it is easy to understand how we would be eager to get attractions. However, make the foundations solid first. Exaggeration does not count.

1.3 Understanding Research in a Proper Point

Based on the misunderstanding of the research issued above, we can see that the good start of the research needs to know what research process really is. For example, if we would like to research a specific problem, how should we start and how to work like a researcher?

Assume that we have this problem to work on: how to find the best accommodation for a dinner party?

If we are doing only information gathering, we might search on Google, just like 'OK, Google, tell me a good accommodation for a dinner party.' Google would then lead us to a web page introducing a combination for those type of

parties. However, that could not be a process of research.

If we consider another way, putting a poster in front of the window saying, 'SUUUPER SPECIAL DINNER PARTY TONIGHT' with exaggerated colors and fancy fonts. Of course, this may attract more friends around to come to your party, but what about the next step? We do not have a good plan for the next, and the friends coming to the house with high expectation would soon become upset with the fact that the party was poorly planned. This is certainly because of a poor research before the party.

What should we do for this research? First, we should come up with a question. Then we should divide the question into small sub-questions and thus getting a clear list of steps to the target. After that, we should make a specific plan. In each step, we should be aware of what the target really is in this step. The processes are guided by different goals. We need to make assumptions in certain steps to move forward. At the end of the research work, we should have a very detailed record of what we have done.

2. Tools Useful for Doing Research

We could not cook without food, but we could not cook without cookers and fire, either. If we compare the basic understanding and preparation as the food for a meal, then the tools would be the cookers, the powerful mind would be the fire for cooking the delicious meal. In this chapter we would discuss something about the tools for the research process.

There are six general tools for research: the library, the software, measurement techniques, statistic tools, languages, and the human mind. Besides these, we still have some suggestions for the research. These could also be of help for the research.

2.1 Get Online

Over the past years, computer software packages and websites has been developing into the friend of the researchers, for they are now very user-friendly and easy to learn. When doing background research, it would be very good to search and read as many previous papers as possible. In this situation, the Internet can be a very powerful tool to do this.

However, when doing research, we must use the Internet wisely. We could not just let the machine think for us. It is only a tool, not an assistant or even a guider.

2.2 Keep a Good Record

It is very important for the researcher to watch every step in the whole process, and make detailed records. When you take a look at your previous records, you may have a better understanding of where you are in the research, and find if there is any problem in previous steps, or something is misunderstood in previous steps.

Keeping a good record is also be of help for publishing papers. Detailed records with time stamps can mark what has finished at what time.

3. What Does the Professional Say?

When studying for this topic, I have taken a look at some interviews and tips for suggestion. From these reports I have found some interesting facts.

Among those tips, I found that most of these (almost 100%) have the advice for making a good plan. This could be of so important because the detailed plan leads to good management of the research time. If we manage the time very well, then we will have a good overview of the whole process.

Another tip that is mostly issued is to make the most of previous research papers, but not just make a summary. In the most cases, the researchers should make supplements to previous results, and create own ideas based on them. This is important in the field of computer science. We could not take research without the help from other papers, but we should not lie on these results.

Some facts and suggestions are quite fun. For example, Dr. Matthew Miller suggested that we should always get motivated. He said that it would be very attractive when the presentation is animated. In the paper of How to Be a Good Graduate Student, the writer Dr. desJardins said that trying to find financial support is also quite important.

4. Conclusion

In this paper we had discussed the points for the graduate students to work on a research. Doing research is basically a way of developing new ideas and move forward in the field. To work on this way, we need to be aware of what the research really is, and use some tools to help with the forward movement. In addition, there should be other helpful hints by the professionals, which we should also take to help in our process of research.

5. References

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