

How to proceed with a Ph D thesis writing? – Part II

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One of the scientists Dr S T Rajan from CSMCRI has raised the following questions and suggestions on our first write up on How to proceed to write a Ph D thesis. The following text has been prepared as some kind of response to these suggestions and this will be the part II of the write up on How to proceed to write a Ph D thesis?

The questions are

- 1. Plagiarism. The scholars may be advised how to avoid accusations of plagiarism, and how much to produce verbatim and what and how much to re-write in one's own words.**
- 2. How to establish claims to originality, novelty or innovations in the subject of thesis**
- 3. How to take advantage of developments based on original ideas available in patents, how to access patents and cite them (mostly from open sources)**
- 4. How to take advantage of open source research literature in e-journals and how to access them**
- 5. Some universities insist on submission of e-copies of thesis and hence guidelines on their formats.**
- 6. Reference to some model theses on different topics in chemistry, physics, electrochemistry etc (preferably available from open sources such foreign university sites)**

On Plagiarism:

This is one of the traps normally not noticed by the person who is writing the thesis but definitely noticed by others. This can lead to reputation loss not only for the person who is writing the thesis but also to the group to which he or she belongs.

In these days so much material is available on the net and simply downloading them and cut and paste may be an easy job but this is not at all acceptable.

First of all it spoils the flow of the language with which one writes his thesis. A Ph D thesis is ones own and has to be in that state for life. It should not that of another person or another site.

Secondly the author can place the same idea in his or her language rather than simply reproducing what is contained in the net or other sources.

As pointed out elsewhere in this document, it is necessary to properly give the references where from the idea or concept is taken from. Even a figure or a set of data may have to be referenced. It may be trivial for the person who formulates his or her thesis but imagine how it would hurt one if his material were to be used by others without mentioning the source from which it is taken. Nothing is trivial in the case of a thesis.

Nowadays there is enough talk on Plagiarism and reproduction of material from various sources. This is definitely a negative aspect for the original thesis one wants to write. The dangers of this act are reflected in various documents elsewhere and many have lost their reputation because of this. One can quote many examples but it is not the intention here to bring individual cases to demonstrate the after effects of this act. Imagine if the thesis contains plagiarized material from that of the thesis examiner himself, it is surely not only be noticed but will have severe aftereffects. This risk is not worth taking. Instead of threatening one, it is better if one can list out how to overcome these accusations of Plagiarism.

- 1. One tends to copy the material which he or she does not comprehend. This is not necessary since the thesis is only on the material which has been comprehended by the candidate. Totally avoid reproducing material which can not be comprehended by the candidate writing the thesis.**
- 2. It is easier to cut and paste a passage or material. But as outline, it will reflect on the flow of the language and presentation. It can never be possible to completely hide the cut and paste work done. It will be reflected in many ways, language, font, usage of words and more so the continuity one maintains in his or her thesis.**
- 3. If one were to reproduce it should be within quotes and in science the material within quotes can be avoided in the text except for the beginning lines and in other areas the quotation may be necessary and if that is so it should be properly referenced and also the reproduction of the actual material has to be total and complete. One cannot afford to introduce his or her slips of passage in between. This is called insertions. These insertions in our older literature have been causing enough damage and whole of insertions have been identified and filtered. This should not happen or the thesis under preparation.**

4. If you cannot avoid quoting then restrict the quotation (this is for science subjects) for a few lines only. If you can convey the same idea in one's own language and give a reference to the original author that is preferred. Imagine a reader who could not comprehend a passage and the representation of the same in one's thesis may help to understand the concept.
5. In general, a thesis is one's own original and hence it should be remembered that avoiding anything verbatim from other sources must be or at least mostly avoided.
- 6.

The scholars may be advised how to avoid accusations of plagiarism, and how much to produce verbatim and what and how much to re-write in one's own words.

The second point on which comments may be necessary is: How to establish claims to originality, novelty or innovations in the subject of thesis.

This is another aspect on which no clear guidelines are available. Mostly, modesty makes the claims to be understated. If one cannot own one's own creation who will own them. Therefore the word modesty has no great significance in reporting in a thesis. If the idea is original, even if one were to find that the same has been stated by others, but the one has evolved in his own way it is necessary to state how he or she independently evolved the idea and how it is also been stated in the literature. But be careful you can not claim originality for most obvious things since they might have been in your mind ever since you have been learning on them.

It is sure that one can identify original but novel is a tricky term. It is generally believed that nothing is novel and one is only researching them. Hence it is better to avoid any claims of novelty, but innovation can be claimed. It is most often one does not recognize innovation unless otherwise stated. This is not good. One must be able to distill the information available in literature and find out if there is an innovation involved or not. May be an example will make this point clear.

It is known that Ruthenium based materials are good super capacitors. Any material related to it if they behave as super capacitors it is not innovation. Since these materials are expected to show super capacitor behaviour. On the other hand if one were to take another material totally unrelated to Ruthenium based compounds and find super capacitance value equal to that of ruthenium based materials then it is an innovation. For example only when metallic systems were thought to be super conductors, the discovery of Yttrium Barium copper oxide ($\text{YBa}_2\text{Cu}_3\text{O}_7$) as a super conducting is an innovation since it has opened a new avenue for the search for super conductors. Innovation is one that leads to a new direction, new class, new formulation, and new framework for the development of science.

3. How to take advantage of developments based on original ideas available in patents, how to access patents and cite them (mostly from open sources)

4. How to take advantage of open source research literature in e-journals and how to access them.

Open Access (OA) is a movement these days. There are open access journals which can be easily searched and down-loaded at will. In fact, the number of open access journals is increasing day by day and it will be practically impossible to list them in any time frame, as it would have changed by the time the list is compiled. In addition, there are today more than 500 repositories, which are mostly institution based. These repositories can be searched in a variety of ways, by author, by year or any other conventional web based search tools. Normally the institutional repositories only list the publications of the faculty or scientists of that institution or organization. However area based repositories (for example publications in the field of Catalysis by Indian Scientists maintained by the Catalysis society of India) is also available. Many of the South American countries and others are experimenting alternate models for open access system. They are evolving and many new developments are possible for accessing information from these sources. We shall come out with some detailed analysis of these open access system and listing of some of the web based repositories in a separate document.

It is in general believed that open access system provided opportunities for free availability of knowledge and information and also increasing the visibility of the publications. These are only the apparent advantages claimed for these sources. But the implications can be deep than this, like knowledge is no ones property for making profit. This aspect does not form part of this write up and hence will be taken up subsequently.

It is usually believed that the ‘impact factor (IP)’ is an indicator of the quality of the results reported, it can be with respect to the author, journal institution or any other sub-classification one can visualize. It is not desirable to over-emphasize the value of ‘impact factor’, though it certainly provides a means of judging some ‘quality’. As the era of open access extends, the responsibility of persons accessing the information also increases and it is necessary that one should learn to respect and report the sources wherefrom the knowledge and information have been assembled.

Open access system can be extended to other forms of literature. One can have an e-book, e-lectures, e-notings, e-discussions and many more and all these imply that there will be endless list of sources for information and knowledge in the future. It is necessary that a researcher needs to learn all these trades and it will not be easy to get to reliable and authentic information from the plethora of information sources.

Any amount of explanation of open access system in its various manifestations and also the web based information sources will be inadequate and hence it is

recommended that the reader visits one of the open access sites and experience for oneself the depth to which one can die into. Though it is possible to give reference to a variety of open access sources, it is tempting for us to refer to the reader some of the open access systems created and maintained by the author.

One of them is the open access literature in the filed of catalysis called the catalysis Data base at

<http://www.eprints.iitm.ac.in>

A typical e-journal can be visited in the Bulletin of the Catalysis soceity of India at

<http://catalysis.chem.iitm.ac.in>

A glimpse on an example of an e-book can be seen at the site

<http://www.nccr.iitm.ac.in>

and examples of lively and scientific discussions can be seen at

<http://forums.delphiforums.com/catalysisindia/>

It is hoed at a later stage we shall try to bring out a more detailed account of these aspects so that readers may be benefited from the same.

5. Some universities insist on submission of e-copies of thesis and hence guidelines on their formats.

Not only universities and even funding agencies like CSIR insist for a soft copy and it even pays Rs. 3000 (extra) to any scholar who submits his thesis in soft copy form. Now, there are also many award nominations which require e form of the thesis. Producing an e-version of the thesis is not an easy job even though one brings out a printed version from the soft copy. The formatting of the e version can be achieved in many ways and in various formats. There are different views existing whether the e format should be html or pdf or any other format. These questions will be more debated before a final solution is arrived at. At this stage, it is preferred that one keeps a watch of the various tools available and adopt what is easily assimilated and adopted by the reader. It would not proper to pass judgments on an evolving process and it is better one watches the developments and goes along with it for the time being. The article that is referred in our original document deals with on line composing of the thesis directly and gives various suggestions. This may be a time saving process, however, the present author has always found that a draft in written form brings clarity of thought and expression and hence a well written draft must be converted into a soft copy form rather than attempting directly to produce a soft copy.

6. Reference to some model theses on different topics in chemistry, physics, electrochemistry etc (preferably available from open sources such foreign university sites)

The readers are requested to visit the website at

<http://www.eprints.iitm.ac.in>

Where in a few theses of IIT Madras is reproduced as such. We shall try to get some more references soon.