THE CHALLENGES OF WRITING PAPERS[1]

Ramona PĂUN

Writing is easy. All you do is stare at a blank sheet of paper until drops of blood form on your forehead.
Gene Fowler

Abstract

In this paper, I present a brief overview of the available information on how to write a paper, in order to use these good practices in my future work and to better understand the way papers are being evaluated. My interest in this was in particular raised by trying to explain why one of my own assignments, which I considered to be quite well written, did not receive the consideration I thought it would. As it turns out, writing papers is not an easy task, but following some simple rules and learning from experience may smooth the way towards successful writing.

Keywords: writing papers, first draft, body of the paper, self- reflection case study

[1] This article is based on Ramona Păun's MA dissertation *The Challenges of Writing Papers* presented within the framework of the Interdisciplinary Master Programme "English Language Education and Research Communication for Business and Economics", ASE Bucharest, 2008, having Dr. Cristina Neesham, Associate Prof. Dr. Mirela Bardi and Prof. Dr. Laura Mureşan as academic supervisors.

Introduction

Last decades had seen an explosion in the number of papers that people are producing in different fields, covering a huge range of topics. Writing papers seems to be, for very many, quite an easy task to accomplish, but for others, there are some barriers that need to be crossed. In this paper, I make a short presentation of the things we should consider when deciding to write a paper and how we should do it, and then exemplify it with one of the assignments I have produced.

When deciding on this topic, I thought that it would be convenient for me to have in one place all the information I need whenever I have to write a paper, especially because I did not seem to do such a good job so far. A second reason was to better understand the way papers are being evaluated and particularly why one of my own assignments, which I considered to be quite good written did not receive the consideration I thought it would. Finally, this would be a good material I could use with my students, when they are asking about how to write their papers.

First part gives some guidelines about how a paper should be written and what are the steps that we should consider when embarking on such a task. There are general ideas, most of them widely known, but also some hints that I found while searching on the Internet that might prove useful at times.

The second part is a self reflection case study based on one of my assignments, the feedback I received from my professors and the self critique I did after I realized my errors. All these helped me identify several changes I should make in order to improve both the paper under study and my way of proceeding from now on when having to write one. So, is it important to know in detail how to write a paper properly?? Yes, it is...it definitely is if we want our papers to receive full appreciation!

1. How to write a paper

As many authors agree, research papers usually involve several steps. The first one that must be taken is doing some research, that is, investigate our **topic** by reading about it in many different sources, including books, magazines, newspapers, and the Internet, or even conduct interviews. The information gathered this way will then be used to support the claims we make in our paper. Then it is important to identify the **readers'** community. What is the purpose of the document? Who will read it? How will the reader use it? The answers to these questions will help us decide the length, the level of detail and the style of the paper. Next step is to create the **concept,** which is in fact a detailed plan for our paper. What is it that we want to put in the paper? We start writing a first **draft,** having in mind the paper's

clarity, balance, readability, or in one word the **style** of the paper. The paper gets the final touch: a good layout, clear headings, well designed figures, and we finally have the product**- our paper.**

These steps are detailed in figure 1:

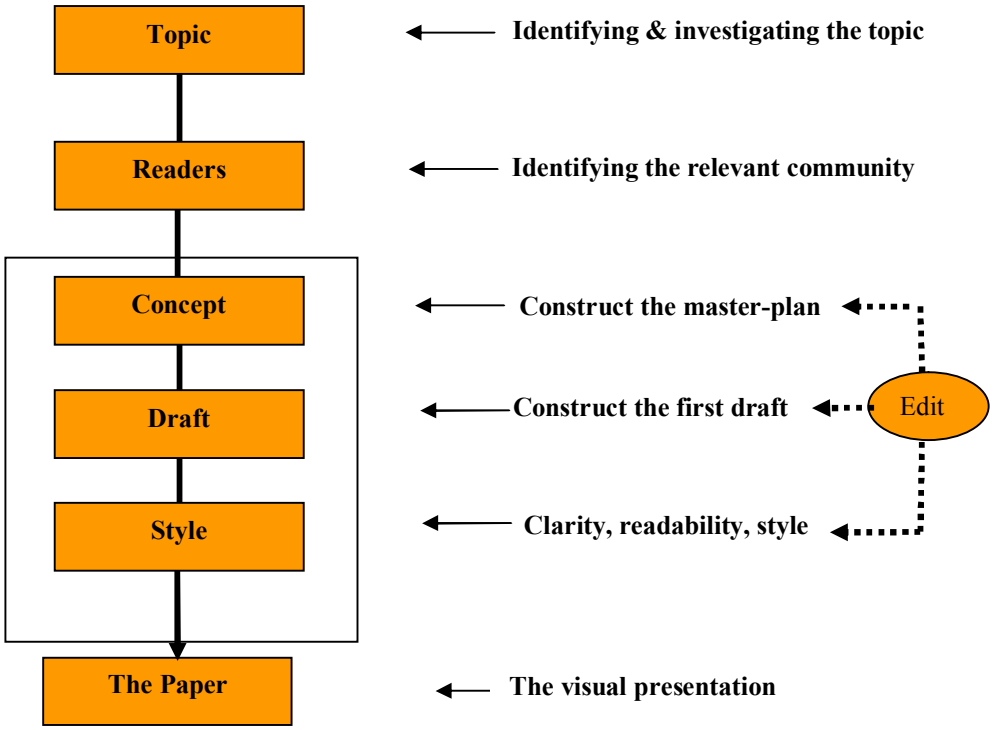


Figure 1 The Process for Designing a Paper -adapted from Ashby (2005).

1.1 The topic

The first thing to do before starting to write a paper is to ask ourselves what is the idea that the paper is intended to communicate. An idea can be a new model used to describe a certain situation or phenomenon, an improved technique, or interesting results that might confirm or infirm previous knowledge in the field.

The topic we chose must be interesting and challenging to us because it is the attitude towards the topic that will determine the amount of effort and enthusiasm we will put into our research.

1.2 The readers

The purpose of writing scientific papers is to communicate a certain idea to people who have the ability to either carry the idea even further or make other good use of it. Our paper is like a product that needs to be sold and the buyers are our readers.

Having identified the key ideas in our work, we must concentrate on providing the best possible presentation of these ideas to the relevant community. Identifying the relevant community is the second major step to be taken before starting to write.

In his paper, Mike Ashby (2005) makes an interesting classification of the market for different types of readers. The readers of our *thesis* are in fact our examiners that expect details of all relevant parts of your research: why we wrote it, how we thought about it, what we did, what are our conclusions and where do we see it going from here. A *paper* is read by one or more skilled referees, and, if accepted, by a scientifically-informed audience. A *research proposal* usually addresses two markets: one is the funding agency that is interested in identifying a match between their priorities and ours and the other is the referees that the funding agency will use; they are charged with judging quality, promise and relevance. Finally, a *popular article* is written to address an audience who is intelligent but who may know nothing of the subject. Here style, always important, must be fine-tuned to meet their needs.

All these types are reflected in figure 2:

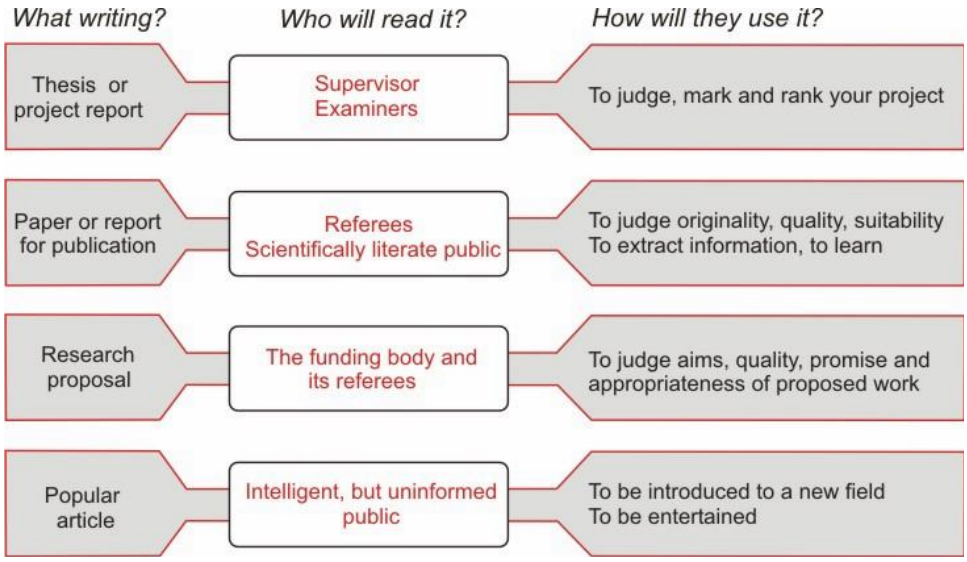


Figure 2 Markets for technical writing
Source: Mike Ashby (2005)

1.3 The concept

This stage refers to the structuring of our thinking. We do some critical thinking and write down our thesis statement in one sentence. This statement is like a declaration of our belief and a main part of our paper will consist of arguments to support and defend this belief. At this point, we think about a title for the paper and possible section headings, as well as subsection headings, tables, figures, ideas, and all other things that might be relevant for a section.

The purpose of an outline is to help us think through our topic carefully and organize it logically before we start writing. A good outline is the most important step in writing a good paper. There are several things that we should consider at this step:

- checking the outline to make sure that the points covered flow logically from one to another;
- organizing all the information we have gathered according to our outline;
- critically analyzing our research data (using the best available sources, checking for accuracy and verifying that the information is factual, up-to-date, and correct).

This is the most important stage in writing a research paper because here we will analyze, synthesize, sort, and digest the information we have gathered and hopefully learn something about our topic, which is the real purpose of doing a research paper in the first place.

This stage allows us to think the entire paper and see what resources we need and how different pieces come together. As the work progresses, sections can be added, adapted or replaced.

1.4 The first draft

At this point, we start writing scientific facts, technical details; we formulate ideas, draw graphs and figures, etc. The main parts of the draft are: the abstract, the introduction, the body of the paper, the conclusion, the acknowledgement and references.

1.4.1 The abstract

The first thing that appears in our paper right after the title and the authors' names is the **abstract,** which should contain 3 or 4 sentences referring to:

- the purpose of the study- hypothesis, overall question, objective;
- method or model used and a brief description of the experiment;
- key results including specific data;
- important conclusions.

The purpose of the abstract is to attract the potential reader to really go through the paper. It is best to write the abstract last, when all the results are clear.

Abstract style:

- Single paragraph and concise;
- As a summary of work done, it is always written in past tense;
- An abstract should stand on its own, and not refer to any other part of the paper such as a figure or table;
- Focus is on summarizing results – we limit background information to a sentence or two, if absolutely necessary;
- What we report in an abstract must be consistent with what we reported in the paper;
- Correct spelling, clarity of sentences and phrases.

1.4.2 The introduction

The **introduction** comes next and its purpose is to outline the problem and survey the whole paper. Here we state our thesis and the purpose of our research paper clearly. What is the chief reason we are writing the paper? How do we plan to approach the topic? We briefly explain the major points we plan to cover in our paper and why readers should be interested in this topic.

It is also important at this stage to state our contribution while briefly review the literature and summarize the status of the topic when we started the research.

Introduction style:

- The introduction should not exceed two pages;
- We organize our ideas, making one major point with each paragraph for each of the points presented above;
- We present background information only as needed in order support a position. The reader does not want to read everything we know about a subject;

- We state the hypothesis/objective precisely – there is no need to oversimplify;
- We pay attention to spelling, clarity and appropriateness of sentences and phrases.

1.4.3 The body of the paper

The **body of the paper** is where we present our arguments to support our thesis statement. One thing we could find useful here is the rule of 3: find 3 supporting arguments for each position we take. Begin with a strong argument, then use a stronger one, and end with the strongest argument for our final point.

The arguments we use to support our thesis statement depends on the type of paper we are writing. If it is an experimental paper, we will use different equipments, materials and methods; if it is a modeling paper we will make certain assumptions, use mathematical tools and methods; if it is a computational paper we have some inputs, use certain computational tools and specific methods.

1.4.3.1 The methods

Here we explain what is especially different about our method, giving sufficient detail so that the reader can reproduce what we did. In the introduction, we made certain claims and here we have to provide evidence to support each claim. Evidence can be: analysis and comparison, theorems, measurements, case studies, etc.

The method style:

- When writing up the methods, most authors use third person passive voice;
- We use normal prose in this and in every other section of the paper – informal lists should be avoided;
- The explanatory information and background should be omitted here.

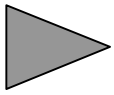
1.4.3.2 The results

In this section we present the output of the experiments, model or computation. At this stage we simply report the results, without interpreting them. We define symbols and units and present data in a form other people can use.

This section usually contains a summary of our findings as well as figures and tables, and a description of each of our results, pointing the reader to observations that are most relevant.

The Results' Style

- We use past tense when we refer to our results, and put everything in a logical order;
- In text, we refer to each figure or table as "figure 1," "table 1" etc.;
- We can place figures and tables, properly numbered and in order at the end of the report or, if we prefer, we may place our figures and tables appropriately within the text of our results section.



1.4.3.3 The discussion

The objective here is to provide an interpretation of our results and support for all of our conclusions, using evidence from our experiment and generally accepted knowledge, if appropriate. The significance of findings should be clearly described.

When we explain a phenomenon, we must describe mechanisms that may account for the observation. If our results differ from our expectations, we must explain why that may have happened. If our results agree, then we should describe the theory that the evidence supported. It is never appropriate to simply state that the data agreed with expectations, and let it drop at that.

In the discussion section we:

- Extract principles, relationships, generalizations from the results;
- Present analysis, model or theory;
- Show relationship between the results and analysis, model or theory;
- Decide if each hypothesis is supported, rejected, or if we cannot make a decision with confidence ;
- Bring out the most significant conclusions first and develop subsidiary conclusions after that;
- May suggest future directions, such as how the experiment might be modified to accomplish another objective;
- Try to offer alternative explanations if reasonable alternatives exist;

The discussion style:

- When we refer to information, distinguish data generated by our own studies from published information;
- Refer to work done by specific individuals (including yourself) in past tense;
- Refer to generally accepted facts and principles in present tense.

1.4.4 Conclusion

At this stage, we restate our thesis statement, draw together the most important results and their consequences that are in fact our arguments supporting the main claim, and explain why we have come to this particular conclusion. We can also enlist any reservations or limitations.

The reader scanning our paper will read the Abstract and the Conclusions, so the two of them should not be the same. As mentioned above, the abstract is an overview of the entire paper, while the conclusion is a summing up of the advances in knowledge that have emerged from our paper.

1.4.5 Acknowledgements

In this section we thank people who have helped us with ideas, technical assistance, materials or finance. Giving credit to others does not diminish the credit we get from our paper. However, if we are failing to give credit to others, thus implying that an idea is ours and the referee knows it is not, then it will not make a good impression.

1.4.6 References

References tell the reader where an idea, prior results and data have come from. It is important that we reference all such sources. It is a conventional courtesy to reference the originators of key ideas or theories or models, even if we modify them. Therefore we cite significant previous work, sources of theories, data, or anything else we have taken from elsewhere.

There are very many formats for references, and the most frequently used are **Vancouver system** and **Harvard system**.

In the Vancouver system, references are numbered consecutively in order of appearance in the paper. The references are identified in text by Arabic numbers in brackets or superscripts.

Ex.: – In text: "Sachs[2] has argued that...";
– In reference list, they are ordered as they appear in text: "[2] Sachs, J.A. and Warner, A.M. *Economic reform and the process of global integration*, Brooking Papers on Economic Activity, 1995, pp. 1-118;

The Harvard system uses in text the name of the first author and the date of the paper and the references are ordered alphabetically.

Ex.: – In text: "Sachs(1995) has argued that..". If there are two names then "Sachs & Warner (1995)". If there are more than two, then "Sachs et al (1995)";

– In reference list, ordered alphabetically: "Sachs, J.A. and Warner, A.M. (1995*) Economic reform and the process of global integration*, Brooking Papers on Economic Activity, pp. 1-118;

For papers: *Name, initials, year, title, journal, volume, start page-end page*.
For books: *Name, initials, year, title, publisher, city and country of publisher, chapter number, start page-end page* (if relevant).

When using articles available on the Internet we must cite the exact location on the server, and sometimes even the date when the information was downloaded.

2. Case study

2.1 The framework

Last year I had the opportunity of taking two courses on Macroeconomics and two on Econometrics at PhD level at Goteborg University, in Sweden. One of the requirements was to write a short paper (5 pages + tables & references; 11/2 spacing; font size 12) on economic growth that represented a joint assignment for both Macroeconomics I and Econometrics I courses. The idea was to write a paper that would concentrate in very few pages both econometrical estimation of parameters in an economic growth regression, and economic interpretation of the results.

To this purpose, we were offered a dataset based on Weil's book ‚Economic growth' that included variables such as: GDP, investments, human capital, infrastructure, population size & density, health, trade & openness, government spending, institutions/governance, cultural characteristics, social structure (ELF, GINI), industry/agriculture and some regional dummies.

We were asked to focus on some particular issue, investigate its importance for the growth record, relate our findings to previous research and discuss possible econometric problems, such as the ones discussed in Temple (1999). We were allowed to work in pairs, but I decided to do it alone.

I have also used this paper for the Improving Communication skills course we took with prof. Neesham, where we were required to write an article for publication that should be accompanied by a short presentation (500- 1500 words) of the progress achieved, as well as by an argument map. Fragments from the paper I produced are presented in next section.

2.2 The paper

The article *The Effects of Openness to Trade on Economic Growth: Evidence from selected countries* was aimed at a PhD level of understanding in Economics, therefore some of the terms and methods used there were not being explained.

The abstract of the paper as well as the conclusion and remarks section are presented below

'The Effects of Openness to Trade on Economic Growth: Evidence from Selected Countries'

Abstract: The purpose of this study is to investigate the relationship between some measures of openness to trade and economic growth and to assess whether they are robustly correlated with economic growth; we are also interested in empirically identifying other determinants which might have a strong impact on growth and to see if we find evidence for conditional convergence. Using data covering 179 countries, we find that only investment is robustly correlated with economic growth under all specifications, while none of the measures employed for openness to trade remain statistically significant with the inclusion of some explanatory variables. We also find evidence in support of the conditional convergence.

Conclusions and remarks

Empirical literature of economic growth suggests that the growth equation should include some measures of initial GDP per capita, measures of initial human capital and measures of physical capital. So far, initial GDP per capita, investment rate and some measures of initial years of education have been found to be statistically significant and robust in many of the regressions on economic growth. Also population growth is one of the variables often included in such regression. All the studies focus on some variables of interest, which are included in the model along with those mentioned above. However, studies made by Levine and Renelt (1992) pointed out that only investment is robustly correlated with growth rate and enters significantly in all regressions, no matter what other explanatory variables are included.

In our study, we find support in favor of conditional convergence and also find that investment is robustly positive correlated, while population is fragile and negatively correlated with economic growth, these results being consistent with recent empirical literature. However, based on economic theory, we expected the coefficient of education to be significantly positive correlated to economic growth, but our result is insignificant and that may be attributed to the low literacy rates in our chosen economies.

It may be argued that trade and income are both endogenous and that measuring openness as the ratio of Trade/GDP is a function of the growth rate of the economy, since both the numerator and the denominator are linked to GDP growth. Therefore, econometric identification of the impact of trade requires exogenous instruments that are correlated with trade but uncorrelated with growth. One appealing instrument may be geography, proxied by latitude. However, testing for its validity- since latitude is suspected of having a direct, independent effect on growth- points out that latitude is a weak instrument (the F-test value was 0.05, much less than 10, as required in order to asses this as a valid instrument).

Moreover, the data is suspected to suffer from heteroscedasticity. Running both White's test and Breuch-Pagan test for heteroscedasticity, we get confusing results: while White's test clearly fails to reject the null hypothesis of homoscedasticity, under Breuch-Pagan test we reject the null in favor of the alternative hypothesis of heteroscedasticity.

Last but not least, using either trade/GDP or imports/GDP we get very similar results and very close estimates, thus allowing us to conclude that we can substitute trade/GDP with imports/GDP. That confirms Levine and Renelt (1992) finding, with the only difference that they substituted imports/GDP or total trade/GDP with exports/GDP.

2.3 Feedback received

Here is the feedback I received from my Macroeconomics professor in Sweden and Dr. C. Neesham:

Macroeconomics professor

The comments were referring to:

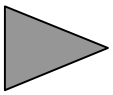
- *Exceeding the number of pages (7 instead of 5);*
- *Not making it very clear how these results can be used;*
- *Trying to find a better instrument to avoid endogeneity;*
- *Eliminate heteroscedasticity.*

The assignment received 6 points out of 10.

Dr. C. Neesham - Improving Communication skills

Dear Ramona,

This is a commendable effort, which shows good potential. I believe this first draft of the article will be extended to more analysis of each premise outlined in the argument map, before the final conclusions are drawn. It is also a good idea that final conclusions be followed by some reflection on the implications of the research findings for solving some more general socio-economic problems, so that the benefits of this research for the community become clear (even to non-specialists). I am very pleased with the level of English and organization of ideas in the text. Please make sure you adopt a well-known referencing style (e.g. Harvard), and use it accurately and consistently. Good luck with your future writing, I think you are on the right track.



2.4 Self criticising my paper and ways of improvement

Going through the paper again, now that I have also reviewed how I should have written it properly and also having the two feedbacks I have received from both professors coming from different fields, I realize that there is a lot of room for improvement.

First, as prof. Neesham suggested, I should have made it clear how the findings could be used and what was the actual benefit of doing such a research. A funding agency, for instance, will put much value on showing the usefulness of such results and will only provide the money when it will be clear how these results can be employed.

Second, the results that I have obtained and the conclusions I draw upon are not very well sustained by the arguments I brought, mainly because the econometric models employed might suffer from endogeneity, in which case the parameters' estimations are being biased and their magnitude, which shows their influences on economic growth might be misleading. Finding a good instrument is not an easy task to do for any econometrician and also it is very time consuming, requiring prior testing of tens of variables before saying you might have found one. However, the limited time I had for this assignment (1 week) made it impossible to produce a good instrument, especially because none of the other variables in the dataset, except from latitude- which proved to be a weak instrument- did not seem to be appealing.
Also, the data might have suffered from heteroscedasticity, which means that although estimated values of the parameters might be unbiased, the t-tests showing

their significance might be altered. Since one of the two tests employed showed that data suffers from it, I should have proceeded with transforming the data so that it becomes homoscedastic, re-estimate the parameters of the models and interpret them accordingly.

Last, but not least, the fact that I was provided with the dataset, which at that time I considered to be a blessing, turned out to be very limiting in my work because I did not try to search for other data that might have served me better.

Conclusions

Writing papers is not easy, but knowing how to do it might really prove useful. Reviewing the available materials I have found on the Internet, I understood much better the way it is supposed to be done and how a paper should be designed so as to succeed in reaching its objective – bringing good arguments to sustain the main claim, but also be appealing and interesting to its readers.

I think the main outcome of this consists in helping me organize my ideas and the way of presenting them so that any of the intended readers should understand what I am trying to communicate (my claim) and how I support it empirically.

I found the argument map to be extremely useful in organizing the ideas and specifying the pro and against arguments- something that I usually did when writing articles in my head, but had never tried on paper before. Putting the information this way made me realize how far I got with my article, what I succeeded in proving and what I should continue with. - When doing the map I realized that my paper has a loose end regarding the instrumental variable – I couldn't find a valid instrument to conduct my 2SLS (2^{nd} **S**tage **L**east **S**quares) estimation of coefficients – something that I should improve on.

I must admit that even if the information I found was not unknown to me, it helped me understand the way I should design an article or, more correctly, the argumentation in support of my claim and some of the rules I should obey, so that my final piece of work looks like other articles in the economics field.

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