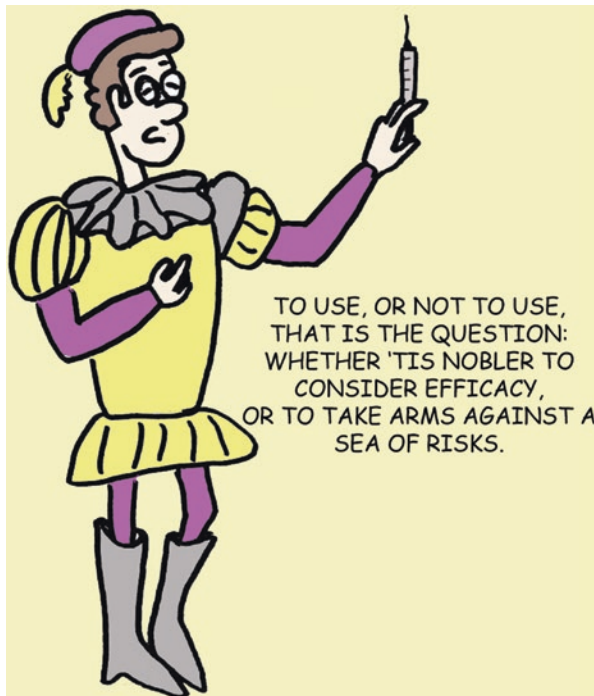


Editing for Language and Avoiding Ambiguity in Data Presentation

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*You might not write well everyday, but you can edit a bad page.
You can't edit a blank page.—Jodi Picoult*



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Key Points

- Performing experiments is only part of the job, accurately interpreting the findings and then presenting them appropriately is just as important, if not, more so.
- The first step to editing is to plan the structure of the text, tables and figures in terms of the flow of the document.
- If the researcher lacks formal writing skills in the language in which the document is prepared, then seeking help from professional editing services is suggested.
- The keys to avoiding ambiguity when dealing with quantitative and qualitative data are to keep an open mind when performing research and interpreting the results, and to subject one's findings to informal peer review before writing them up.
- Courses on how to edit documents are available. Attending these course is recommended.

Introduction

Performing the experiment successfully is just part of the research exercise. Two equally important components of the broad research experience involve interpreting the data from the experiments and presenting the research findings and their implications to the target audience in a way the audience will not just understand, but appreciate, the body of work. In other words, while it is true that 'It takes a wise man to know whether he has *found a rope* or *lost a mule*' (anonymous), it takes an eloquent scientist to present his/her research work in a way in which it will attract the attention it truly deserves.

It is in this light that researchers should consider the importance of editing the textual and visual content of their work (manuscript or thesis) to ensure that the message is expressed accurately and appropriately and the manner of presentation is consistent and without ambiguity.

This chapter will provide the reader with an insight into what is required in terms of editing their manuscripts or thesis from the point of view of language content and avoiding ambiguity thereby improving the overall impact of their research.

What is Editing?

The word 'editing' implies the careful review of the research material prior to its submission for publication (or assessment, in the case of theses) and making changes to correct and improve it. There are essentially three levels of editing, namely, substantive editing, copyediting and proof reading [1].

How Must One Approach Editing of a Document?

To enhance the message of the document and to avoid redundancy in presenting data, the first step involves '*Substantiative or structural editing*'. The aim of this

initial step in the preparation of the document is to clarify meaning, improve flow and smooth language [1]. Essentially this involves an assessment of the textual data as well as the tables and figures to determine the sequence of their representation and then organising them in a manner that best ‘tells the story’ to the reader. A widespread practice in presenting research documents is that the tables and figures are placed at the end of the manuscript/thesis during the preparation of the initial drafts. It is thus not uncommon for the person drafting the manuscript to duplicate information in the text and tables. While this may not be appreciated even after the final revision or at the time of submission, once the proofs of the document are available, the redundancy can get rather annoying to the trained reader. Thus, carrying out a structural edit at the outset (placing tables and figures in between the textual data in the order in which the researcher would like them placed in the final published/printed document) will ensure that none of the data from the tables and figures are duplicated in the text and vice versa. Moreover, for those researchers using reference manager software like Endnote®, this step will ensure that the references are cited in the appropriate order, too. Just prior to submission, the tables and figures can then be copied and pasted wherever they require to be as per the submission guidelines.

The next step involves ensuring consistency, accuracy and completeness of the document, or what is better known as ‘*Copyediting*’ [1]. Copyediting focusses on aspects such as the appropriate use of language in terms of grammar and style (including syntax, spelling, punctuation and clarity of expression), consistency of language (including Structural parallelism, terms used, spelling, capitalisation, hyphenation, abbreviations, numbers and quantitative data and references), consistency of visual content (including typography, heading hierarchy, page layout, figures, tables, and captions), referencing (including accuracy of cross references within text, between text and figures, between list of contents and body of document as well as conformity and completeness of textual references, bibliography and quotations), and acknowledgement of sources [2].

If the researcher is presenting the document in a language that is not his /her native tongue or a language in which the researcher does not possess formal written skills, then it is advisable to seek advice and assistance early in the process of document preparation. Researchers who are not native language speakers can certainly consider enlisting the services of commercial copyediting firms. Most commercial copyediting firms charge a fee for their service. On the other hand, researchers who are not native speakers of the language but are competent with the spoken and written language as a result of their school education, may consider using language editing softwares that are available on the worldwide web. Some of these sites require the document to be uploaded and the output containing the edited document is then made available to the researcher as a downloadable file. Others possess a more formal approach with an interactive service provided. Some examples of copyediting services/software available include Elsevier’s English Language editing service®, Wendy Monaghan Editing Services®, Whitesmoke®, ProWritingAid®. (*The author of this chapter has neither used the services of the aforementioned sites, nor does he endorse them, but has only stated these as examples.*)

Work submitted to a commercial copyediting service generally does not undergo scrutiny for the accuracy of the data. Thus, the onus of presenting accurate and complete information in manuscripts submitted for publication and for theses, as well, rests with the researcher and not the copyediting firms.

It is the responsibility of the researcher to ensure the accuracy and completeness of the data being presented. While some journals and Universities will publish work based on data that is readily accessible for scrutiny, most others rely on the honesty and integrity of the presented data. It is thus paramount that researchers honour and respect the faith entrusted to them and present only data that is true to the best of their capabilities. Raw data must always be stored in a secure place/server in the event that the data is requested for scrutiny at a later date.

The last step in language and content editing is '*Proof reading*' which involves examining the now near final document after completing the layout to correct errors in textual and visual elements [1]. This step essentially draws from the initial structural plan (developed at the time of substantive editing) and involves going through the entire document in great detail to ensure that the content (textual and figures and tables) and the layout conforms to what the researcher set out to do in terms of telling the reader 'a story'.

How to Avoid Ambiguity When Presenting Qualitative and Quantitative Data

Before presenting any data, it is of utmost importance that the researcher appropriately interprets the findings. It is very easy to go overboard when drawing inferences from one's findings often leaning towards a polarised viewpoint. This is often the result of the researcher having set out with a predetermined notion or a theory, instead of a 'hypothesis' and then carrying out the experiments to 'prove' his/her theory rather than keeping an open mind when performing the experiments. It is paramount to let 'science' rather than the 'scientist' do the talking! At the other extreme when drawing inferences is the 'diffident' researcher who either does not understand the meaning of the findings, is unable to interpret them, or simply lacks the confidence to take a stand in the face of the results obtained. Such researchers often land up presenting their results in an ambiguous manner, or adopt the 'middle' path in academic writing referred to as 'hedging'.

When interpreting findings, one should neither be tentative, ambiguous, nor exaggerated nor make unwarranted claims. While errors in interpretation may occur with both, qualitative and quantitative data, the risk of overstating or exaggerating findings is more likely when dealing with qualitative data if one lacks the balance of mind when questioning the basis for the assumptions. The risk of hedging or ambiguity is more likely when dealing with quantitative data, which seek the use of statistics to answer questions.

The solution to avoid ambiguity when presenting data is to firstly 'keep an open mind'. In terms of qualitative analysis this would mean doing a thorough search of literature and evidence and not dismissing evidence that may be

contrary to personal ‘beliefs’. When dealing with quantitative analysis, this would mean selecting the appropriate statistical tests to answer the question being asked and NOT to support the theory in the researcher’s mind. The next step is to ensure the completeness, accuracy and certainty of the analysis. This is followed by a critical analysis of the data with an aim to drawing inferences. These data and inferences should then be subjected to an informal peer review process. In the case of researchers pursuing a masters or Ph.D. degree, presenting these findings in an open forum to members of the laboratory or department, as well as researchers from other departments would be the way to go. Often, a researcher will be so embroiled in their work that it inadvertently spawns the lack of a balanced approach that can be obtained from seeking the advice of another researcher or even researchers. The feedback at such meetings is priceless so long as the researcher presenting the information is open to criticism and suggestion. Taking on board comments, advice, and suggestions from peers and senior colleagues is one of the best ways to avoid ambiguity. The other useful technique employed by the author is to put the results away for a week and do something altogether different and return to the data in a week to 10 days. Approaching the data with a ‘fresh’ mind can infuse a sense of open mindedness that is truly refreshing!

A practical algorithm of the steps for editing language and content and for avoiding ambiguity is shown in Fig. 1.

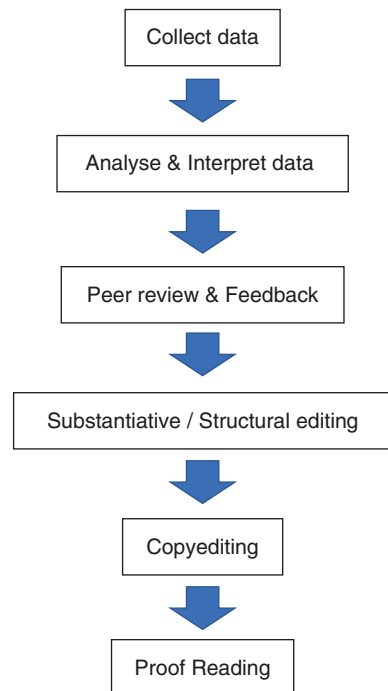


Fig. 1 Algorithm for the steps in language and content editing to avoid ambiguity

Discussion

Sand-Jensen decided to address the problem of poorly written manuscripts by discussing the top 10 things that should necessarily ‘doom’ a scientific paper [3]. These include lack of focus, originality and personality, writing long contributions, removing implications and speculations, leaving out illustrations, omitting necessary steps of reasoning, using many abbreviations and terms, suppressing humour and flowery language, degrading biology to statistics, quoting irrelevant or trivial references. While I would largely support Kaj’s viewpoint, I have a different viewpoint in terms of the use of language. Humour and ‘flowery’ language would certainly not win favour with readers of science as much as they possibly would in English literature. Rather, the use of grammatically correct English following the ‘KISS’ principle (Keep it Simple Stupid) suggested by the United States Navy in 1960 would be the way to go!

It is advisable to attend courses, workshops or tutorials that enhance one’s skills in editing large documents as these training sessions could empower the researcher with the understanding and necessary skills required to present their research in the best possible manner.

Conclusion

Performing experiments is only part of the job, interpreting the findings accurately and then presenting them appropriately is just as important. The first step to editing is to plan the structure of the text, tables and figures in terms of the flow of the document. The keys to avoiding ambiguity when dealing with quantitative and qualitative data are to keep an open mind when performing research and interpreting the results, and to subject one’s findings to informal peer review before writing them up.

Case Scenario

Mohit has completed the experiments for his Master’s degree and he is now ready to write up his thesis. The University guidelines stipulate that the thesis is written in English. It provides ‘in house’ editing support to students who are not native speakers of the language. Mohit has completed most of his education in Hindi but speaks English with his friends and even watches English movies. What should Mohit do?

1. Write the Master’s thesis himself since he believes he is very fluent in English.
2. Seek help from the ‘in house’ editing team at the University for his thesis preparation.
3. Enlist the help of a professional copyediting service he has come across online and provide the receipt for the cost to his supervisor.

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