A Workshop on Writing Scientific Abstracts in English

Presented at

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What makes a good abstract?

- An abstract should enable:

- editors to make a quick decision on your paper
- a reader to identify quickly what the paper is about
- information managers (e.g. librarians) to put it in their indexes

Types of abstracts

- unstructured abstracts
- structured abstracts
- extended abstracts
- conference abstracts

unstructured abstract

- A single paragraph of between 100–250 words containing a very brief summary of each of the main sections of your paper.

structured abstract

- The same as (1) but divided into several short sections

extended abstract

- A mini paper organized in the same way as a full paper (e.g. Introduction, Methods, Discussion …), but substantially shorter (two to four pages). Depending on the journal, conference or competition, the extended abstract may or may not include an abstract – for example, it may begin directly with an introduction

conference abstract

- Normally a standalone abstract (sometimes up to 500 words), designed to help conference organizers to decide whether they would like you to make an oral presentation at their conference. It may be of any of the three forms above.

When should I write the Abstract?

- Write a rough draft of the abstract before you start writing the paper itself. This may help you to decide what to include in the paper and how to structure it.

- Experienced writers always write the Abstract (and often the Introduction too) last, i.e. when they have finished the rest of the paper.

How should I structure my Abstract?

- Why did I carry out this project? Why am I writing this paper?

- What did I do, and how?

- What were my results? What was new compared to previous research?

- What are the implications of my findings? What are my conclusions and/or recommendations?
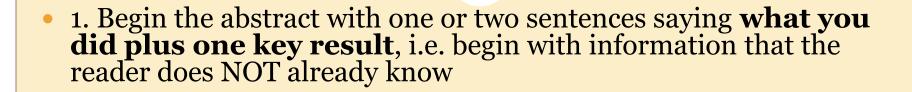
Formal, natural and applied sciences

(1) The lifetime of a 4G cellular phone battery may be subject to the number of times the battery is recharged and how long it is charged for. To date, there has not been an adequate analytical model to predict this lifetime. (2) In this work an analytical model is developed which describes the relationship between the number of times a battery is recharged, the length of time of each individual recharge, and the duration of the battery. (3) This model has been validated by comparison with both experimental measurements and finite element analyses, and shows strong agreement for all three parameters. (4) The results for the proposed model are more accurate than results for previous analytical models reported in the literature for 4G cell phones. (5) The new model can be used to design longer lasting batteries.

Formal, natural and applied sciences

- 1. The problem, gap?
- 2. New solution, contribution, achievement, or difference?
- 3. Validity of the model
- 4. Results.
- 5. Implications

Social and behavioral sciences

(1) Three red flags were identified that indicate that the time to leave him has come. These red flags are: five burps per day, two sitting-zapping sessions per day, and fives games on the Playstation with friends per week. (2) A large number of women have doubts about the right moment for leaving their partner. Often women wait in hope for a change in their partner's habits. (3) One hundred couples were analyzed, recording their daily life for six months. Women were provided with a form to mark the moments of annoyance recorded during the day. Burps, sitting-zapping sessions and games on the Playstation with friends produced the highest index of annoyance. (4) The probability of eliminating these habits was found to be significantly low when the three red flags had been operative for more than three months. (5) Thus, these numbers provide a good indication of when the time to leave him has come. With these red flags, women will no longer have to waste their time waiting for the right moment.

- 1. Begin the abstract with one or two sentences saying **what you did plus one key result**, i.e. begin with information that the reader does NOT already know

- 2. Introduce the **background** by connecting in some way to what you said in your introductory sentence. The concept of leaving him is introduced in (1) and then referred to again in (2)

- 3. Use the background information (which the reader may or not already know) to **justify what you did**, and **outline** your **methodology** (and materials where appropriate)

- 4. Provide some more information on your **results**

- 5. Tell the reader the **implications** of your results

How should I structure the abstract of a review paper?

- tell audience what your primary objective is

- explain your reasons for selecting certain papers

- Your 'results' are your findings drawn from analyzing the literature

- State your conclusions and what implications they have for further research in your field.

How should I begin my Abstract?

- Never start your abstract with phrases like:

- *This paper deals with ...*
- *The aim of this paper ...*
- *This article explores ...*
- *We report ...*

ORIGINAL VERSIONS (OV)	REVISED VERSIONS (RV)
1 In this paper we present the design and development of a *highly innovative* software application //, Transpeach, which allows *mobile phone users* to use their own native language when speaking to someone of another native language. The prototype version enables a Japanese mobile phone user …	To extend automatic translation from written to oral communication we developed Transpeach. This software allows, for instance, a *Japanese mobile phone* user to talk to a Greek counterpart in Greek, likewise the Greek's words are automatically translated into Japanese.

personal or impersonal?

- style 1 I found that x =y. → humanistic fields

- style 2 We found that x=y. → all fields

- style 3 It was found that x=y. → all fields

- style 4 The authors found that x = y. → less common

What tenses should I use?

- PRESENT SIMPLE:
  - talk about a well-known situation (*people tend to hold overly favorable views*)
  - explain their opinion on this well-known situation (*the authors suggest that ...*)

- PAST SIMPLE
  - describe what they did (*the authors found that ..*)

- PRESENT PERFECT
  - give the context / background (In the last few years there *has been* considerable interest in...)
  - describe what they achieved during their research (We *have found / devised / developed* a new approach to X)

How do I write a structured abstract?

- helps them to write clearer abstracts.
- force the author to answer all the questions
- are much more readable
- longer (up to 400 words) and is often written as a series of points, though full sentences with verbs are always used in the Results and Conclusions.

structured abstract of various medical journals

- Background / Context / Purpose - Methods - Results / Findings – Conclusions

- Context - Aim / Objective - Design - Setting - Patients (or Participants) - Interventions / Treatment - Main Outcome Measure(s) - Results - Conclusions

- Context - Objective - Data Sources - Study Selection - Data Extraction – Results - Conclusions

How do I write an abstract for a conference?

- Look at abstracts from the previous editions to see their style and tone.

- The rules for writing the abstract itself are the same as for a journal, though your style may be slightly more informal.

Abstract for a work in progress to be presented at a conference

With its focus on the research cycle, scientific methodology has devoted a great deal of attention to the phase of problem solving. However, the issue of problem choice has been relatively neglected, notwithstanding its relevant epistemological implications. What are the criteria used by PhD students to set their research agenda? To what extent is the research agenda driven by pure curiosity about social phenomena? How much is it a matter of bargaining with various resource limitations? A survey was carried out among PhD students of European universities to examine the criteria used in the choice of their dissertation topics. The analysis sheds light on the way scientific knowledge is crafted, and about the challenges and limitations researchers face during this process.

Abstract for a work in progress
to be presented at a conference

We are *currently* carrying out a survey of 500 PhD students of European universities to examine the criteria employed in the choice of their dissertation topics. Analysis of the data *will explore* the relationship between factors such as the duration of the PhD programme, the availability of a scholarship or background experience in the field and PhD students' criteria for choosing the specific issue that they wish to study. Initial results from the first 20 surveys *seem to indicate* the importance of the availability of funding and the potential job prospects rather than preferences driven by pure interest for its own sake. We *hope* to shed light on the way scientific knowledge is crafted and about challenges and limitations young researchers face during this process.

How should I select my key words? How often should I repeat them?

- words in your paper really are important
- words that readers are looking for
- do not repeat the key words more than three times in the abstract.

- Some journals require you to have a list of four or five key words directly under your abstract.

- The same journals may also require that the keywords in this list should not appear in the text of the abstract.

Should I mention any limitations in my research?

- Given that an Abstract is designed to 'sell' your research, you might decide not to mention the limitations until the Discussion.

What should I __NOT__ mention in my Abstract?

- background information that is too generalist for your readers
- claims that are not supported in the paper
- terms that are too technical or too generic - this will depend on your audience
- definitions of key terms
- mathematical equations

What should I <u>NOT</u> mention in my Abstract?

- generic quantifications (e.g. *many, several, few, a wide variety*) and the overuse or unjustified use of subjective adjectives (e.g. *innovative, interesting, fundamental*).

- unnecessary details that would be better located in your Introduction

- references to other papers.

How can I ensure that my Abstract has maximum impact?

- Put the information in the best possible order.

- Highlight the importance of what you are saying.

- Be as concise as possible.

What are some of the typical characteristics of poor abstracts?

The English language is characterized by a high level of irregularity in spelling and pronunciation. A computer analysis of 17,000 English words showed that 84% were spelt in accordance with a regular pattern, and only 3% were completely unpredictable [Hanna et al., 1966]. An example of unpredictability can be found in English numbers, for example, *one, two* and *eight*. Interestingly, English spelling a thousand years ago was much more regular and almost phonetic. Words that today have a similar spelling but radically different pronunciation, such as *enough, though, cough, bough* and *thorough*, once had different spellings and much more phonetic pronunciations. In this paper, a pioneering method, developed by the English For Academics Institute in Pisa (Italy), of teaching non-native speakers how to quickly learn English pronunciation is presented and discussed.

What are some of the typical characteristics of poor abstracts?

- it is not self sufficient.
- it looks like the beginning of an Introduction not an Abstract.
- it contains a reference to another authors work
- it mentions irrelevant details.
- the pioneering method is not described, nor do we have any idea about why it is 'pioneering'
- the reader has no idea of what results were obtained

Revised

We have developed a didactic method for addressing the high level of irregularity in spelling and pronunciation. We combine new words, or words that non-native speakers regularly have difficult in pronouncing, with words that they are familiar with. For example, most adult learns have few problems in pronouncing *go, two, off* and *stuff* but may have difficulties with *though, cough* and *rough*. Through associations - *go / though, two / through, off / cough, stuff / tough* - learners can understand that familiar and unfamiliar words may have a similar pronunciation and can thus practice pronouncing them without the aid of a teacher. Tests were conducted on 2041 adults selected at random from higher education institutes in 22 countries and incorporating five different language families. The results revealed that as many as 85% of subjects managed to unlearn their erroneous pronunciation, with only 5% making no progress at all. We believe our findings could have a profound impact on the way English pronunciation is taught around the world.

Good points

- readers are immediately told what the author did.
- the methodology is explained and a concrete example is given
- the selection process of the subjects (*adults*) is described
- the results are given
- numbers are qualified (*as many as* 85%, *only* 5%) to help readers understand whether the numbers reflect normal expectations, or are particularly high or low
- the implications are stated
- the word 'pioneering' is avoided

Thanks for Listening