

# Writing an Introduction



# Key skills needed when writing an Introduction



- Present enough **background knowledge**. (Say the same thing but **differently** and **intriguingly**)
- Tell your readers how you plan to develop your topic. (Show the reader **a roadmap**)
- Have a deep knowledge about everything that has been previously written on the topic.

# Answer the following questions



- What is the problem?
- Are there any existing solutions (i.e. in the literature)?
- Which solution is the best?
- What is its main limitation? (i.e. What gap am I hoping to fill?)
- What do I hope to achieve?
- Have I achieved what I set out to do?

**Begin with one or more of the four parts listed below**



- 1. definition of the topic plus background**
- 2. accepted state of the art plus problem to be resolved**
- 3. authors' objectives**
- 4. introduction to the literature**

# Begin with one or more of the four parts listed below



An XYZ battery is a battery that ... The electrodes in an XYZ telephone battery are made of a composite of gold and silver, coated with a layer of platinum. The gold and silver provide structural support, while the platinum provides resilience.

The performance of the battery can be strongly affected by the number of times the battery is recharged and the duration of each individual recharge. The battery is subject to three possible failure modes. ...

A research program has recently been started by the authors in collaboration with a major battery manufacturer, with the goal of developing new design models for XYZ batteries. Analytical techniques are needed that can predict ...

Computational techniques have been extensively applied to the study of the lifetime of XYZ batteries, in particular with regard to the number of times a battery is charged. However, little research to date has focused on the length of each individual recharge.

# The rest of the Introduction



5. survey of pertinent literature
6. authors' contribution
7. aim of the present work
8. main results / conclusions
9. future implications
10. outline of structure

# Part 1 definition of the topic + background (1-3)



An XYZ battery is a battery that ... The electrodes in an XYZ telephone battery are made of a composite of gold and silver, coated with a layer of platinum. The gold and silver provide structural support, while the platinum provides resilience.

## **Part 2 accepted state of the art + problem to be resolved (2-4)\***



- The performance of the battery can be strongly affected by the number of times the battery is recharged and the duration of each individual recharge. The battery is subject to three possible failure modes. ...



## Part 3 authors' objectives (1-2)\*



- A research program has recently been started by the authors in collaboration with a major battery manufacturer, with the goal of developing new design models for XYZ batteries. Analytical techniques are needed that can predict ...

# Part 4 introduction to the literature



- Computational techniques have been extensively applied to the study of the lifetime of XYZ batteries, in particular with regard to the number of times a battery is charged. However, little research to date has focused on the length of each individual recharge.
- *It can be a separate part after the Results (in clinical papers), or incorporated into the Discussion.*

# Part 5 survey of pertinent literature



- More recent research has occurred in the field of laptop and jPud batteries. Evans [15] studied the lifetime in 5G jPud batteries. Smith [16] and Jones [18] found that ... However their findings failed to account for ...
- *The length may vary in range from a paragraph to several pages*

## Part 6 authors' contribution (1-2)\*



- To the best of our knowledge there are no results in the literature regarding how the length of each recharge impacts on the silver and gold in the electrodes.

# Part 7 aim of the present work(1-2)\*



- The aim of the present work is to construct a model to perform a comprehensive investigation of the effect of recharging on the electrodes, and to find a new proportion in the amount of metals used. The assumptions of Smith [16] and Jones [18] are used as a starting point. ...
- Statement of the goal should be in a separate paragraph

## Part 8 main results of the present work



- The results of the model are encouraging and show that ...
- Many researchers announce the results here to show how the background situation plus their contribution have led to particular results

# Part 9 future implications of the work



- This new model will be able to ...
- Mentioning the implications here gives readers an instant idea of the possible importance of your work

# Part 10 outline of structure (3–4 very short sentences)



- Section 2 introduces the concept of ...



# How an Introduction differs from an Abstract



While the Abstract immediately tells the readers the specific topic of the paper and then what the author's goal is, the Introduction sets the context in very general terms.

Abstracts tell the readers only what they need to know to decide whether to continue reading....give no references to the literature

The concluding sentence of an Abstract is compact (an eight-word sentence: A simple experiment supporting the claim is presented) but this last sentence is expanded considerably in the Introduction.

# What tenses should I use?



- **present simple:** describe the general background context

S1. The physical process of fragmentation **is** relevant to several areas of science and technology.

S2. Persistence **is** an attribute valued by many.

# What tenses should I use?



- **present perfect** is then used to show how the problem has been approached from the past until the present day

S3. Because different physical phenomena are at work during the fragmentation of a solid body, it ***has mainly been studied*** from a statistical viewpoint [1–5].

S4. Persistence ***has most often been studied*** in terms of cultural differences.

# In sum



- when you present your findings you use the **past simple**
- use the **present simple** for what is already accepted in the literature
- **past simple** for your new contribution (though present simple and future simple may be used for this purpose)

# How should I outline the structure of my paper?



## ORIGINAL VERSION (OV)

The paper is structured as follows: in Section 2 a survey of the works related to X is provided. In Section 3 the method that we propose for the analysis of X is shown. In Section 4 the tool that automatizes this methodology is presented and in Section 5 its components are described. In Section 6 the experience in the application of the tool to industrial case studies is reported and discussed and finally, in Section 7, conclusions are provided and future works described.

## REVISED VERSION (RV)

Section 2 *surveys* the works related to X. Section 3 *outlines* our method for analyzing X. In Section 4 the tool that automatizes this methodology is presented, and in Section 5 its components are described. Section 6 *discusses some industrial case studies* using the tool.

# The End



# Review of the Literature



- The key skill is to provide readers with just the right amount of literature regarding the sequence of events leading up to the current situation by:
  - Systematically elaborating the achievements and limitations of other studies
  - Relating your new facts and data to these studies

# Major complaints



- The author has not made it clear why some references are mentioned
- The authors do not seem to be aware of the state of the art and the literature review is not international enough
- There are papers cited in the bibliography that are not mentioned in the paper, and vice versa



# How should I structure my Review of the Literature?



1. What are the seminal works on my topic? Do I need to mention these?
2. What progress has been made since these seminal works?
3. What are the most relevant recent works? What is the best order to mention these works?
4. What are the achievements and limitations of these recent works?
5. What gap do these limitations reveal?
6. How does my work intend to fill this gap?

# An example of how to begin review of the literature



Persistence has most often been studied in terms of cultural differences. Blinco (1992) found that Japanese elementary school children showed greater task persistence than their American counterparts. School type and gender were not factors in moderating task persistence. This left culture as the remaining variable. (1)

Heine et al. (2001) furthered this idea by testing older American and Japanese subjects on responses after success or failure on task persistence. Japanese subjects were once again found to persist longer (in post-failure conditions), and this was speculated to be because they were more likely to view themselves as the cause of the problem. If they were the cause of the problem, they could also solve the problem themselves; although, this could only be accomplished through work and persistence. Americans were more likely to believe that outside factors were the cause of failure. (2)

These cultural studies hinted that task persistence may be predictable based on attribution style. A later experiment showed that attribution style and perfectionism level can be correlated with final grades in college-level classes (Blankstein & Winkworth, 2004). (3)

# Structure of the example



1. introduction to topic (in present perfect)
2. support from the literature (in simple past)
3. mini summary (in simple past)
4. introduction to next topic. And so on.

# What is the clearest way to refer to other authors?



style 1: Blinco [2015] found that Japanese elementary school children showed ...

style 2: In [5] Blinco found that Japanese elementary school children showed ...

style 3: A study of the level of persistence in school children is presented by Blinco [2015].

style 4: A greater level of persistence has been noticed in Japan [5].

# What tenses should I use?



The present simple (S1) or present perfect (S2) are generally used to introduce the literature review.

S1. In the literature there are several examples of new strategies to perform these tests, which all entail setting new parameters [Peters 1997, Grace 2004, Gatto 2005].

S2. Many different approaches have been proposed to solve this issue.

# What tenses should I use?



**S3.** Since 1998 there **have been** many attempts to establish an index [Mithran 1999, Smithson 2002], but until now no one **has managed** to solve the issue of

....

**S4.** As yet, a solution to Y **has not been found**, although three attempts **have been made**. [Peters 1997, Grace 2004, Gatto 2007].

**S5.** So far researchers **have only found** innovative ways to solve X, but not Y [5, 6, 10].

# You must use **the past simple** when:



- The year of publication is stated within the main sentence (i.e. not just in brackets)
- You mention specific pieces of research (e.g. you talk about initial approaches and methods that have subsequently probably been abandoned)
- You state the exact date when something was written, proved etc.

# Examples



S6. The first approaches *used* a manual registration of cardiac images, using anatomical markers defined by an expert operator along all images in the temporal sequence. Then in 1987, a new method *was introduced* which ...

S7. This problem *was* first *analyzed* in 1994 [Peters].

S8. Various solutions *were found* in the late 1990s [Bernstein 1997, Schmidt 1998].



# In all other cases, the simplest solution is to follow the style below



- S9. Lindley [10] *investigated* the use of the genitive in French and English and his results *agree* with other authors' findings in this area [12, 13, 18]. He *proved* that ...
- S10. Smith and Jones [11, 12] *developed* a new system of comparison. In their system two languages *are / were compared* from the point of view of ... They *found* that ....
- S11. Evans [5] *studied* the differences between Italian and English. He *provides / provided* an index of .. He *highlighted* that ...
- *examine, analyze, verify, propose, design, suggest, outline*

# Use the present simple to refer to established knowledge



S13. The theorem *states* that the highest degree of separation is achieved when ...

S14. The lemma *asserts* that, for any given strategy of Player 1, there is a corresponding ...

# limitations of previous work and the novelty of your work



- *Generally speaking* patients' perceptions are *seldom* considered.
- Results often appear to *conflict* with each other ...
- So far **X** *has never been applied* to **Y**.
- *Moreover*, no attention has been paid to ...
- These studies have *only* dealt with the situation in **X**, *whereas* our study focuses on the situation in **Y**.
  
- *As far as we know*, there are no studies on ...
- *To [the best of] our knowledge*, the literature has not discussed ...
- *We believe that this is the first time* that principal agent theory has been applied to ...

The End



Thanks for Listening