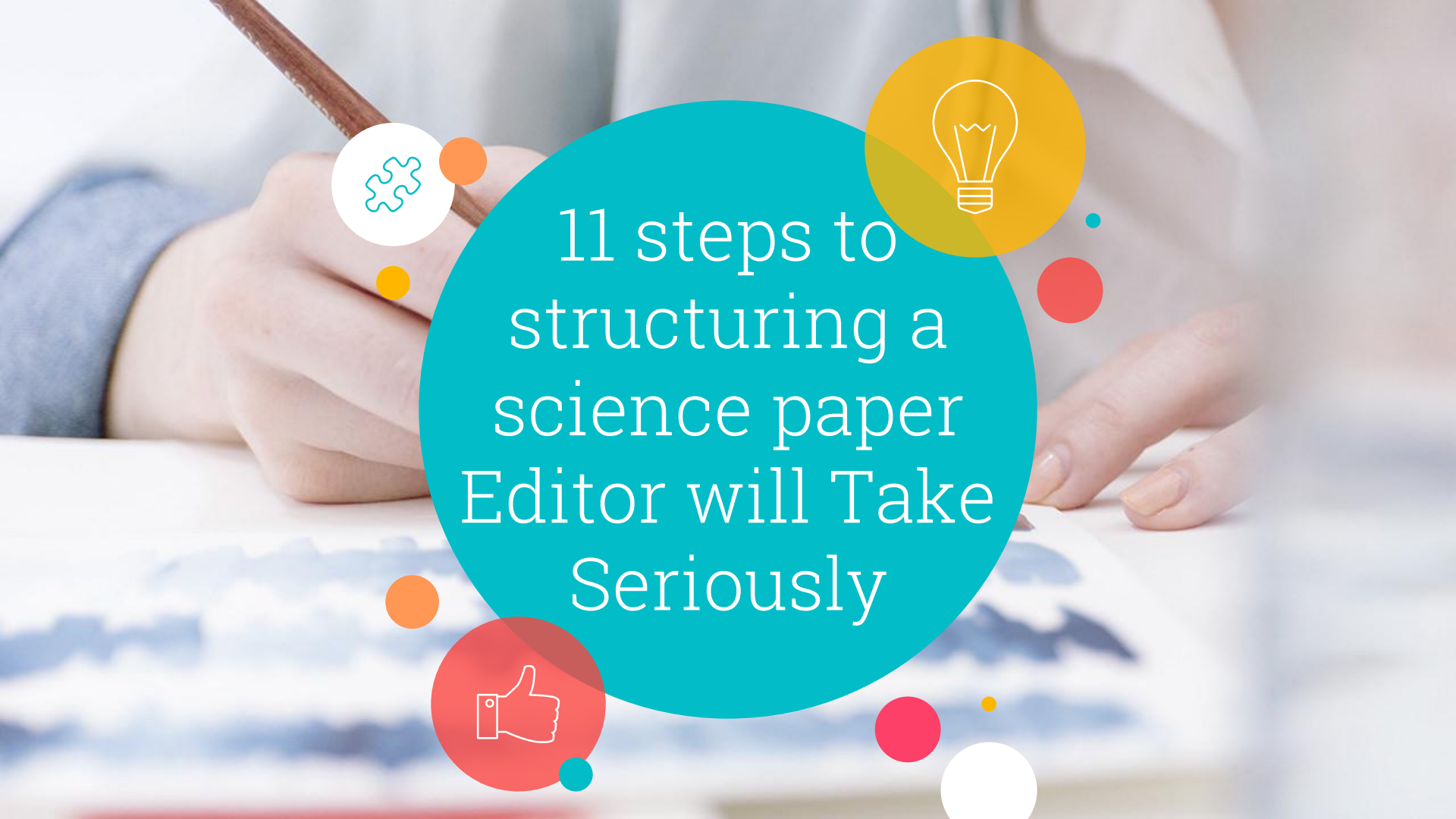

11 steps to structuring a science paper Editor will Take Seriously

Hello!

I am Dr. Suhad …

You can find say@sc.nahrainuniv.edu.iq

Manuscript

IMRAD format

- Introduction: What did you/others do? Why did you do it?
- Methods: How did you do it?
- Results: What did you find?
- And
- Discussion: What does it all mean?

The main text is followed by the Conclusion, Acknowledgements, References and Supporting Materials.

When you organize your manuscript, the first thing to consider is that the order of sections will be very different than the order of items on you checklist.

The Paper
Structure

Step 1
Prepare the figures and tables
“a figure is worth a thousand words”

Prepare the figures and tables

Remember...
"a figure is worth a thousand words." Hence, illustrations, including figures and tables, are the most efficient way to present your results. Your data are the driving force of the paper, so your illustrations are critical!

How do you decide between presenting your data as tables or figures?

Prepare the figures and tables

Generally,

tables give the actual experimental results, while figures are often used for comparisons of experimental results with those of previous works, or with calculated/theoretical values (Figure 1).

Prepare the figures and tables

Should you use a table or chart?

Station	ECOLOGICAL GROUP I	II	III	IV	V
75U	91.3	5.3	3.2	0.2	0.0
75R	89.8	6.1	3.6	0.5	0.0
200R	69.3	14.2	8.6	6.8	1.1
500R	63.0	29.5	3.4	4.2	0.0
1000R	86.7	8.5	4.5	0.2	0.0

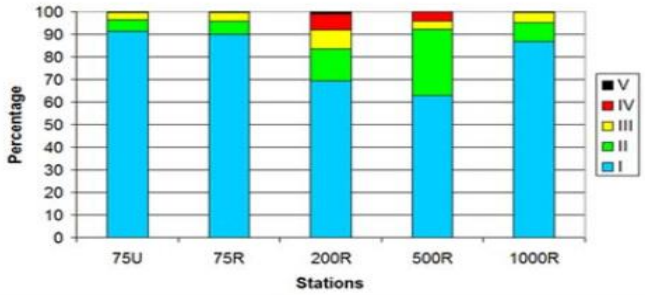


Figure 1. An example of the same data presented as table or as figure. Depending in your objectives, you can show your data either as table (if you wish to stress numbers) or as figure (if you wish to compare gradients). Note: Never include vertical lines in a table.

Prepare the figures and tables

Another important factor

Figure and table legends must be self-explanatory (Figure 2).

Prepare the figures and tables

Figures must be self-explanatory

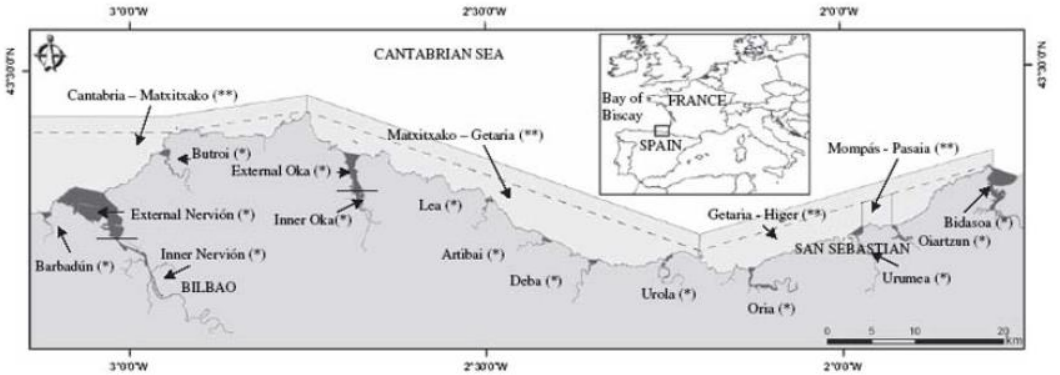


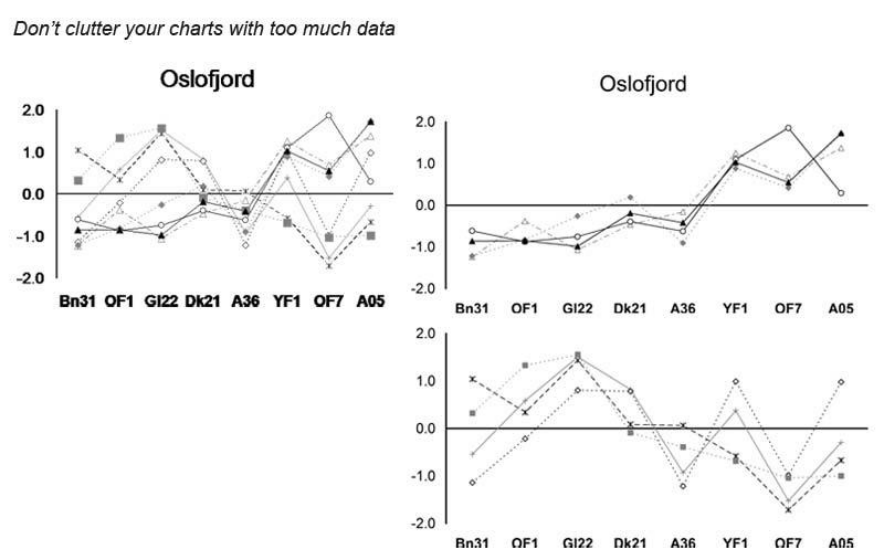
Fig. 1. Location of each of estuarine (*, black colour) and coastal (**, grey colour) water bodies, within the Basque Country. Note: dotted line shows the Basque coastal baseline. Inner and external parts of the Nervión and Oka estuaries are separated by a straight line.

AB Figure 2

When presenting your tables and figures, appearances count! To this end:

Prepare the figures and tables

Avoid crowded plots (Figure 3), using only three or four data sets per figure; use well-selected scales.

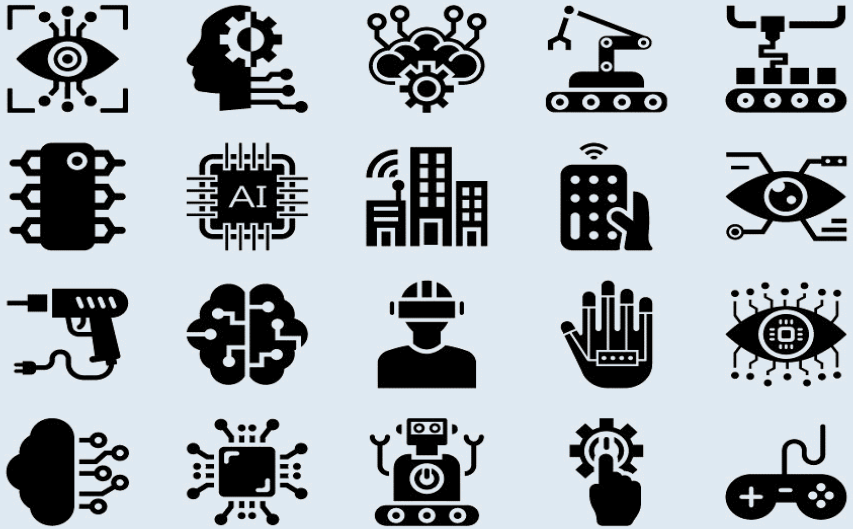


Prepare the figures and tables

Think about appropriate axis label size

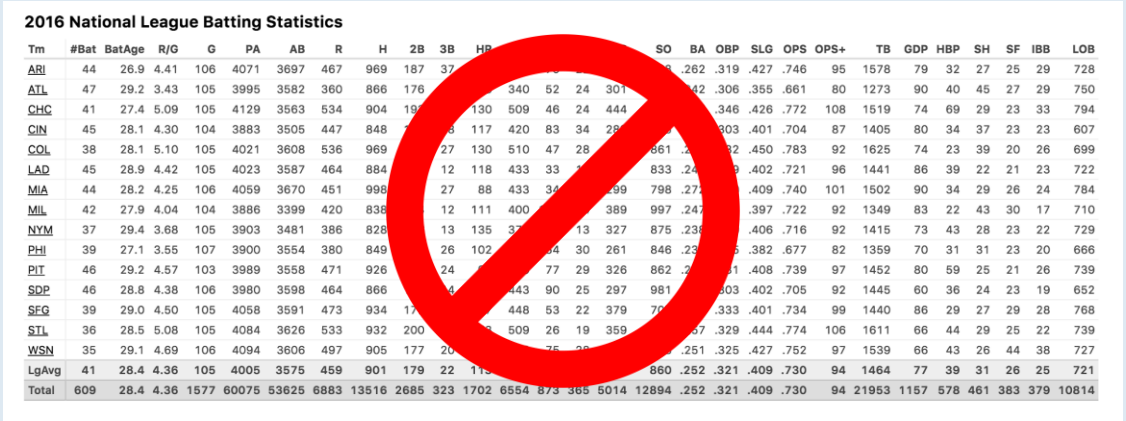
Prepare the figures and tables

Include clear symbols and data sets that are easy to distinguish.



Prepare the figures and tables

Never include long boring tables (e.g., chemical compositions of emulsion systems or lists of species and abundances). You can include them as supplementary material.



2016 National League Batting Statistics

Tm	#Bat	BatAge	R/G	G	PA	AB	R	H	2B	3B	HR				SO	BA	OBP	SLG	OPS	OPS+	TB	GDP	HBP	SH	SF	IBB	LOB
ARI	44	26.9	4.41	106	4071	3697	467	969	187	37						.262	.319	.427	.746	95	1578	79	32	27	25	29	728
ATL	47	29.2	3.43	105	3995	3582	360	866	176			340	52	24	301		.306	.355	.661	80	1273	90	40	45	27	29	750
CHC	41	27.4	5.09	105	4129	3563	534	904	19		130	509	46	24	444		.346	.426	.772	108	1519	74	69	29	23	33	794
CIN	45	28.1	4.30	104	3883	3505	447	848		8	117	420	83	34	28		303	.401	.704	87	1405	80	34	37	23	23	607
COL	38	28.1	5.10	105	4021	3608	536	969		27	130	510	47	28		861	.2	32	.450	.783	92	1625	74	23	39	20	26	699
LAD	45	28.9	4.42	105	4023	3587	464	884		12	118	433	33	1		833	.24	9	.402	.721	96	1441	86	39	22	21	23	722
MIA	44	28.2	4.25	106	4059	3670	451	998		27	88	433	34		99	798	.27		.409	.740	101	1502	90	34	29	26	24	784
MIL	42	27.9	4.04	104	3886	3399	420	838		12	111	400			389	997	.247		.397	.722	92	1349	83	22	43	30	17	710
NYM	37	29.4	3.68	105	3903	3481	386	828		13	135	37		13	327	875	.23		.406	.716	92	1415	73	43	28	23	22	729
PHI	39	27.1	3.55	107	3900	3554	380	849		26	102		54	30	261	846	.23	5	.382	.677	82	1359	70	31	31	23	20	666
PIT	46	29.2	4.57	103	3989	3558	471	926		24			77	29	326	862	.2	1	.408	.739	97	1452	80	59	25	21	26	739
SDP	46	28.8	4.38	106	3980	3598	464	866		4		443	90	25	297	981		303	.402	.705	92	1445	60	36	24	23	19	652
SFG	39	29.0	4.50	105	4058	3591	473	934	17			448	53	22	379	7		.333	.401	.734	99	1440	86	29	27	29	28	768
STL	36	28.5	5.08	105	4084	3626	533	932	200			509	26	19	359		67	.329	.444	.774	106	1611	66	44	29	25	22	739
WSN	35	29.1	4.69	106	4094	3606	497	905	177	20			75				.251	.325	.427	.752	97	1539	66	43	26	44	38	727
LgAvg	41	28.4	4.36	105	4005	3575	459	901	179	22	11					860	.252	.321	.409	.730	94	1464	77	39	31	26	25	721
Total	609	28.4	4.36	1577	60075	53625	6883	13516	2685	323	1702	6554	873	365	5014	12894	.252	.321	.409	.730	94	21953	1157	578	461	383	379	10814

Step 2
Write the Methods

how the problem was studied

Write the Methods

This section responds to the question of how the problem was studied. If your paper is proposing a new method, you need to include detailed information so a knowledgeable reader can reproduce the experiment.

Write the Methods

However, do not repeat the details of established methods; use References and Supporting Materials to indicate the previously published procedures. Broad summaries or key references are sufficient.

it's important

to use standard systems for numbers and nomenclature

Write the Methods

For chemicals

use the conventions of the International Union of Pure and Applied Chemistry and the official recommendations of the IUPAC–IUB Combined Commission on Biochemical Nomenclature.

For species

use accepted taxonomical nomenclature (WoRMS: World Register of Marine Species, ERMS: European Register of Marine Species), and write them always in italics.

For units of measurement

follow the International System of Units (SI).

Present proper control experiments and statistics used, again to make the experiment of investigation repeatable.

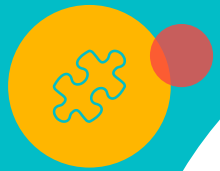
Write the Methods

Description of the site

Description of the surveys or experiments done, giving information on dates, etc.

Description of the laboratory methods
including separation or treatment of samples, analytical methods, following the order of waters, sediments and bio monitors.

Description of the statistical methods used
(including confidence levels, etc.)



Step 3
Write up the Results

What have you found?

Write up the Results

This section

Responds to the question "What have you found?" Hence, only representative results from your research should be presented. The results should be essential for discussion.

Remember!

that most journals offer the possibility of adding Supporting Materials, so use them freely for data of secondary importance. In this way, do not attempt to "hide" data in the hope of saving it for a later paper. You may lose evidence to reinforce your conclusion. If data are too abundant, you can use those supplementary materials.

Write up the Results

Use

Use sub-headings to keep results of the same type together, which is easier to review and read. Number these sub-sections for the convenience of internal cross-referencing, but always taking into account the publisher's Guide for Authors.

For the data

decide on a logical order that tells a clear story and makes it and easy to understand. Generally, this will be in the same order as presented in the methods section..

An important

issue is that you must not include references in this section; you are presenting *your* results, so you cannot refer to others here. If you refer to others, is because you are *discussing your* results, and this must be included in the Discussion section.

Step 4
Write the Discussion

Here you must respond to what the results mean

Probably it is the easiest section to write, but the hardest section to get right.

This is because

it is the most important section of your article. Here you get the chance to sell your data. Take into account that a huge numbers of manuscripts are rejected because the Discussion is weak.

Take into account the following tips:

Avoid statements that go beyond what the results can support.

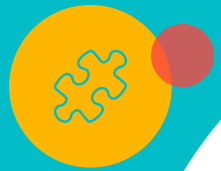
Revision of Results and Discussion is not just paper work

Avoid unspecific expressions

Avoid sudden introduction of new terms or ideas

Speculations on possible interpretations are allowed, but these should be rooted in fact, rather than imagination

Discussion



Step 5
Write a clear Conclusion

how the work advances the field from the present state of knowledge

Write a clear Conclusion

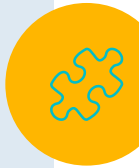
In some journals, it's a **separate section**; in others, it's the **last paragraph of the Discussion section**. Whatever the case, without a clear conclusion section, reviewers and readers will find it difficult to judge your work and whether it merits publication in the journal.

A common error in this section is repeating the abstract, or just listing experimental results. Trivial statements of your results are unacceptable in this section.

Write a clear Conclusion

You **should** provide a clear scientific justification for your work in this section, and indicate uses and extensions if appropriate. **Moreover**, you can suggest future experiments and point out those that are underway.

You **can** propose present global and specific conclusions, in relation to the objectives included in the introduction.



Step 6
Write a compelling Introduction

your opportunity to convince readers that you clearly know why your work is useful

A good introduction should answer the following questions:

Which is the best?

Are there any existing solutions?

What is its main limitation?

What is the problem to be solved?

What do you hope to achieve?

Some additional tips for the introduction:

Write a compelling Introduction

Never

use more words than necessary (be concise and to-the-point). Don't make this section into a history lesson. Long introductions put readers off.

We all know

that you are keen to present your new data. But do not forget that you need to give the whole picture at first.

The introduction must

be organized from the global to the particular point of view, guiding the readers to your objectives when writing this paper.

State the purpose

of the paper and research strategy adopted to answer the question, but do not mix introduction with results, discussion and conclusion.

Hypothesis and objectives

Hypothesis and objectives must be clearly remarked at the end of the introduction.

Expressions such as

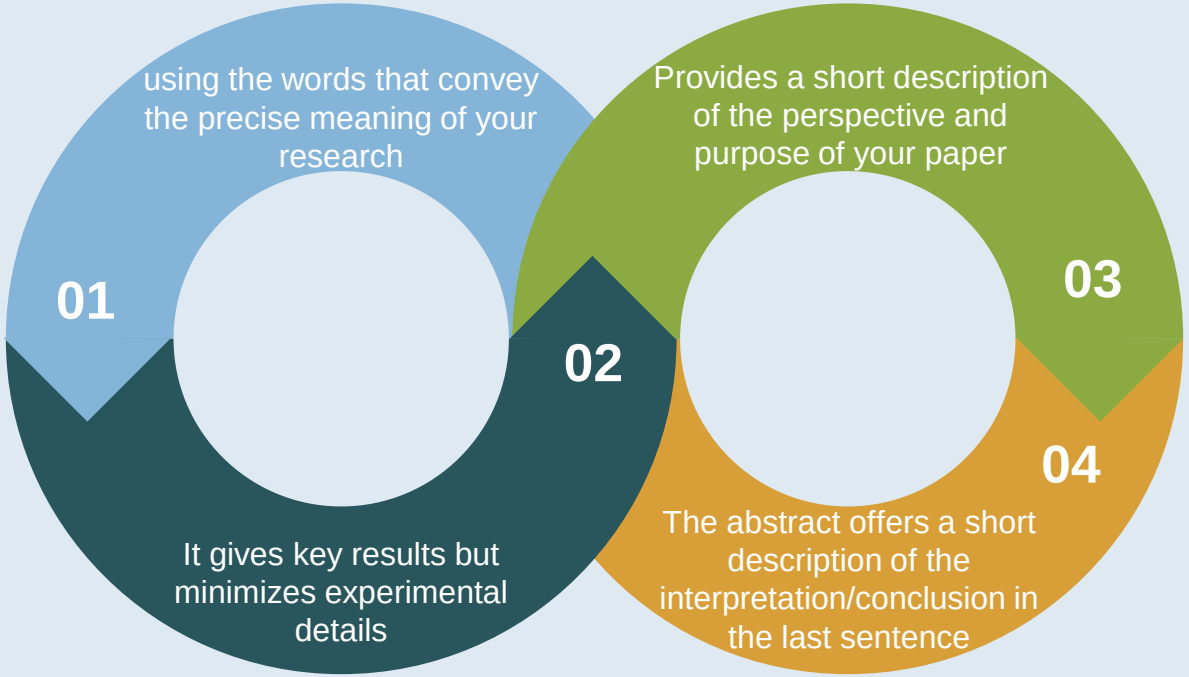
"novel," "first time," "first ever," and "paradigm-changing" are not preferred. Use them sparingly.

Step 7
Write the Abstract

The abstract tells prospective readers what you did and what the important findings in your research were

Together with the title, it's the advertisement of your article. Make it interesting and easily understood without reading the whole article. Avoid using jargon, uncommon abbreviations and references.

You must be accurate


01
using the words that convey the precise meaning of your research
02
It gives key results but minimizes experimental details
03
Provides a short description of the perspective and purpose of your paper
04
The abstract offers a short description of the interpretation/conclusion in the last sentence

A clear abstract will strongly influence whether or not your work is further considered.

Write the Abstract

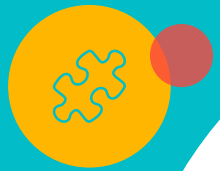
In an abstract, the two **whats** are essential

What has been done?

In recent years, several benthic biotic indices have been proposed to be used as ecological indicators in estuarine and coastal waters. One such indicator, the AMBI (AZTI Marine Biotic Index), was designed to establish the ecological quality of European coasts. The AMBI has been used also for the determination of the ecological quality status within the context of the European Water Framework Directive

What are the main findings?

The results show the response of the benthic communities to different disturbance sources in a simple way. Those communities act as ecological indicators of the 'health' of the system, indicating clearly the gradient associated with the disturbance.



Step 8

Compose a concise and descriptive title

The title must explain what the paper is broadly about

It is your first (and probably only) opportunity to attract the reader's attention. In this way, remember that the first readers are the Editor and the referees. Also, readers are the potential authors who will cite your article, so the first impression is powerful!

We are all flooded by publications, and readers don't have time to read all scientific production. They must be selective, and this selection often comes from the title.

Example 1

- Original title: Preliminary observations on the effect of salinity on benthic community distribution within a estuarine system, in the North Sea

- Revised title: Effect of salinity on benthic distribution within the Scheldt estuary (North Sea)

- Comments: Long title distracts readers. Remove all redundancies such as "studies on," "the nature of," etc. Never use expressions such as "preliminary." Be precise.

Example 2

- Original title: Action of antibiotics on bacteria

- Revised title: Inhibition of growth of Mycobacterium tuberculosis by streptomycin

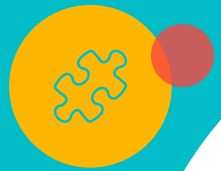
- Comments: Titles should be specific. Think about "how will I search for this piece of information" when you design the title.

Example 3

- Original title: Fabrication of carbon/CdS coaxial nanofibers displaying optical and electrical properties via electrospinning carbon

- Revised title: Electrospinning of carbon/CdS coaxial nanofibers with optical and electrical properties

- Comments: "English needs help. The title is nonsense. All materials have properties of all varieties.



Step 9
Select keywords for indexing

They are the label of your manuscript

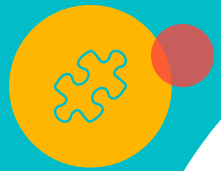
Keywords are used for indexing your paper. They are the label of your manuscript. It is true that now they are less used by journals because you can search the whole text. However, when looking for keywords, avoid words with a broad meaning and words already included in the title.

Some journals require that the keywords are not those from the journal name, because it is implicit that the topic is that.
For example, the journal Soil Biology & Biochemistry requires that the word "soil" not be selected as a keyword.

Step 10
Write the Acknowledgements

Thank people who have contributed to the manuscript

Here, you can thank people who have contributed to the manuscript but not to the extent where that would justify authorship. For example, here you can include technical help and assistance with writing and proofreading. Probably, the most important thing is to thank your funding agency or the agency giving you a grant or fellowship.



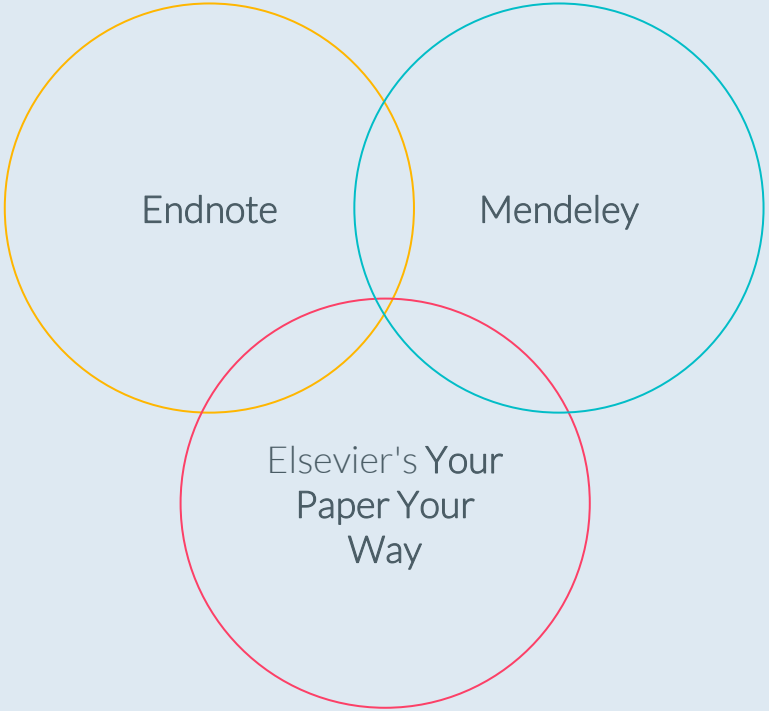
Step 11
Write up the References

It is one of the most annoying problems

Typically, there are more mistakes in the references than in any other part of the manuscript

You can use any software, such as:

Write up the References



Thanks!

Any questions?

You can find me at @username & user@mail.me