

Introduction to Professional Scientific Communication
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Lecture - 17
How to write Introduction and Discussion Sections

So, welcome back to this course week four lecture for the course Introduction to Professional Scientific Communication, in the previous lecture we have seen how do you put together results section we looked at how do you write result section what are the non-textual forms of representing your results, we have looked at bar diagram figures images finally, we had discussion on schematic now we are going to move to the next section of your work.

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The slide is titled "How to write your first research paper." and is attributed to Kalashova ED¹. It includes an abstract and a list of seven steps for writing a research paper. To the right of the list is a diagram of a research paper structure, which is an hourglass shape. The sections are labeled as follows: Title (6), ABSTRACT (5), INTRODUCTION (3), METHODS (1), RESULTS (2), and DISCUSSION (4). A red arrow points from step 6 to the DISCUSSION section in the diagram.

How to write your first research paper.
Kalashova ED¹
Author information

Abstract
Writing a research manuscript is an intimidating process for many novice writers in the sciences. One of the stumbling blocks is the beginning of the process and creating the first draft. This paper presents guidelines on how to initiate the writing process and draft each section of a research manuscript. The paper discusses seven rules that allow the writer to prepare a well-structured and comprehensive manuscript for a publication submission. In addition, the author lists different strategies for successful revision. Each of those strategies represents a step in the revision process and should help the writer improve the quality of the manuscript. The paper could be considered a brief manual for publication.

1. Create regular time blocks for writing as appointments in your calendar and keep these appointments.
2. Create a detailed outline and discuss it with your mentor and peers.
3. Be meticulous and accurate in describing the Materials and Methods.
4. Be clear, concise, and objective in describing your results.
5. Interest your reader in the Introduction section by signalling all its elements and stating the novelty of the work.
6. **Present the principles, relationships, and generalizations in a concise and convincing tone.**
7. Revise your paper through critical reading. Receive feedback and revise again.

<https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3178846/>

That is to write the introduction, so this is the slide that talks about the seven basic steps to write a very good paper. So, what we have said is you start with methods good results then you write what is called as introduction right. So, the introduction section now you know what is your result and now we have to write an introduction which would help the reader to appreciate.

What you have done and why you are done right that is extremely important. So, the introduction it gives you gives the reader the background as to what is known until you are started the work, what was the point that we are missing or what are the gaps in the in

our understanding. And what were your objectives and what you have done and how you have done on what observations you have made..

Now you sort of you know there can the reader can appreciate that you are able to bridge the gap if not completely to some extent right, but for that will happen you should have really help the reader to understand, the background and I appreciate your objective because that appreciation is important then only they can appreciate your you know results right..

So, that is what the you know introduction section is there is to create an interest to the reader, in the introduction section by signalling all its elements in stating the novelty of the work you know you have tell view the background and say why your work is important whatever object that you have stated that that you are addressing.

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Outline – Level 2 Source: Yale J Biol Med. 2011 Sep; 84(3): 181–190.

The next stage is to add context and structure. Here you will group all your ideas into sections: Introduction, Methods, Results, and Discussion/Conclusion

Introduction <ol style="list-style-type: none">1. Why is your research important?2. What is known about the topic?3. What are your hypotheses?4. What are your objectives?	Results <ol style="list-style-type: none">1. What are your most significant results?2. What are your supporting results?
Materials and Methods <ol style="list-style-type: none">1. What materials did you use?2. Who were the subjects of your study?3. What was the design of your research?4. What procedure did you follow?	Discussion and Conclusions <ol style="list-style-type: none">1. What are the studies major findings?2. What is the significance/implication of the results?

<https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3178846/>

So, that is what you going to look at it is not easy, you know it is not easy, and we have seen we have discussed this point before that anywhere you start thinking about a paper then you all do you know create certain bullets and then the bullet should be made into sentences and then you have to rearrange the sentences, and then in a particular order then you are able to get what is called as materials method results and so on..


So, what you are going to see is the introductory section right now that is what shown in the red colour box here. So, introduction section is something that explains the

importance of your work, why your research is important what is known about the topic right to even the reader to appreciate what you are done..

So, you should say that quickly summarize what is known before you started the work, what is known about the topic, what is your hypothesis because you have looked at certain patterns you have observation based on which you say that you know this is not known and this is your hypothesis as to how possibly that possibly happening right. That is hypothesis and then you are going to say the word test hypothesis we asking certain set of questions, which are called as objectives and then you say that you know this is what my work was about right. So, that is the introductory statement and when a reader reaches the introductory statement.

Then he is also curious oh my god is a usual hypothesis let me see what he has is obtained through his work right. So, it should be you know every section should be such that it compels the reader to go to the next section right. So, that is very, very important in your writing, so let us see how do you do that?

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Introduction

The Introduction should provide readers with the background information needed to understand your study, and the reasons why you conducted your experiments. The Introduction should answer the question: what question/problem was studied?

While writing the background, make sure your citations are:

- **Well balanced:** If experiments have found conflicting results on a question, have you cited studies with both kinds of results?
- **Current:** Every field is different, but you should aim to cite references that are not more than 10 years old if possible. Although be sure to cite the first discovery or mention in the literature even if it older than 10 years.
- **Relevant:** This is the most important requirement. The studies you cite should be strongly related to your research question.

<https://www.springer.com/gp/authors-editors/authorandreviewertutorials>

So, again I am you know showing some other you know guidelines given by the publisher from springer the introduction should provide readers with the background information needed to understand your study right. So, you are to be very carefully here, so is it says background information needed to understand your study. So, you should be very focused in the sense that what is that you have done for that what relevant

information that was known before you started your work should be given, as part of the introduction right..

And then tell the reasons why you should you conducted your experiments right, you have to say that these are the bottlenecks these are the black box these are the questions that we have left unanswered therefore, I have conducted experiments then I am also as convinced as you are because, I am the reader and you are the writer, I am also as convinced you are that these are important questions to ask therefore, I would follow your results to see what you have gotten right..

The introduction should answer the question, what question problem was studied you know and that is something that you need to really give. So, even you have written the introduction identified hypothesis as the question, towards end of the introduction you have to say even one line that you are able to address this you know by whatever it is very small brief you know outcome of the results also should be shown. So, while writing the background makes you your citations are you know you pretty much you cover everything one, well balance citation meaning, you should acknowledge the previous literature whatever knowledge that is there in the literature you cannot be ignoring some and picking up some right..

So, it should be well balanced, if the experiences having found conflicting results on a question you have cited studies with both kinds of results. Now you say that these are the questions people ask, one group of you know authors have said this other group said, this and then you know you have to give that kind of an important thing, current you cannot you know you are starting a research a now and you cannot talk about a paper that was published 15 years back and stop there..

So, you have not covered what happened last 15 years; that means, that you have not you are not aware of what that happened right. So, that would be weighed against you so you should be up to date with regard to the information what you are providing in a introduction every field is different, but you should aim to cite ref references that are not more than ten years old unless it is something classic thing right..

Although we should to cite the first discovery I mentioned the literacy even if older than 10 years, if it is something you know for example, you are talking about a function of a gene, now the gene probably was identified 15 years back. But still you have to refer to


the paper because that is the first paper that sort of characterised gene. So, maybe that is required, perhaps which whatever you are to write is something recent its possible for a given gene lot of work has been done..

So, you cannot cover everything, so, you often cite reviews and give a summary of whatever finding right. So, that is the way you can do that and relevant this is the most important requirement, the studies you should use site should be strongly related to your research question. So, you have to be focused you should be focused on the question that you are going to ask..

So, you ought to bring the red edge call it the bird eye view, so if you for example, if you open Google map right. And then if you want to look at the location of for example, Kanpur, now if I zoom in to Kanpur and show some vision of Kanpur city I will not be able to a understand as to where is Kanpur.

In the context of India, when I unzoom and I go to the globe then I can see that India, and then Kanpur is somewhere in the north east region somewhere in the near the heart of India. So, that is how you see there, so when you have that you know you have a birds view and then keep going to the point the objective that you have your take the reader to that particular that is called is being focused in that context you have should not cite that I was not relevant to your work, even if it is a one publication. So, you may have published something in that field just because you want to cite that paper your previous paper. If it is out of context then it may not really convey a good meaning therefore, you should avoid such kind of thing..

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Reproduced from Springer Publisher website 

Introduction

The Introduction should provide readers with the background information needed to understand your study, and the reasons why you conducted your experiments. The Introduction should answer the question: what question/problem was studied?

While writing the background, make sure your citations are:

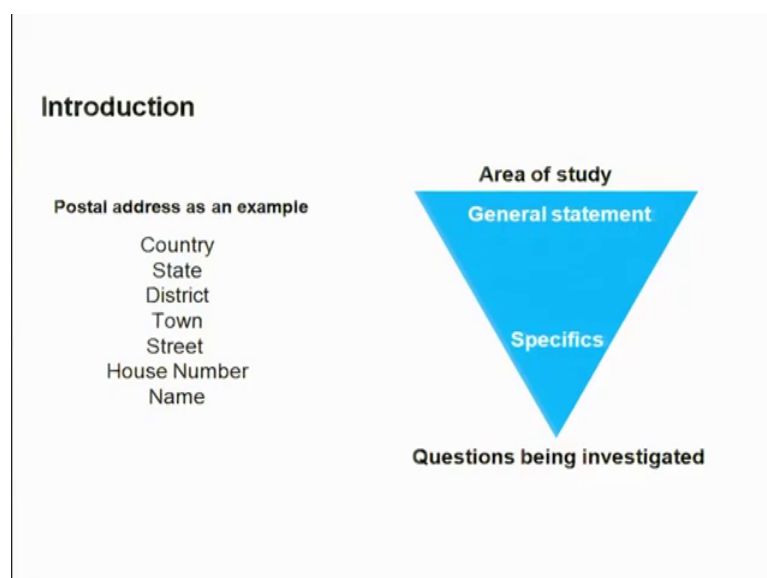
- **Well balanced:** If experiments have found conflicting results on a question, have you cited studies with both kinds of results?
- **Current:** Every field is different, but you should aim to cite references that are not more than 10 years old if possible. Although be sure to cite the first discovery or mention in the literature even if it older than 10 years.
- **Relevant:** This is the most important requirement. The studies you cite should be strongly related to your research question.

Do not write a literature review in your Introduction, but do cite reviews where readers can find more information if they want it.

<https://www.springer.com/gp/authors-editors/authorandreviewertutorials>

So, do not write a literature review in your introduction is important right when you write a thesis. You have a section called literature review because that is important because it is not only what you are done, but whether you have acquired the knowledge as to what is the state of the art, that is required in the thesis, but when you come for a research paper your literature survey or literature review is not in that is not important it should not be there, but you should cite reviews where readers can find more information. So, you alert the reader to the literature and then be focused on the question that you are asking right, so this is what it is.

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So, when you talk about the introduction it is something like an inverted triangle. So, the area of the study then you make a general statement and then you go to the specifics and finally, you arrive at the question is being investigated. So, it should be focused exactly the same way I said you know if you are looking at a Google map, first the country, then the state, then the district, then the town, street, house number name like the postal address..

It is easy for you to locate or put in your map as to where that particular house is if I start the reverse way until I come for example, I still the name somebody in a person is name there will be. So, many millions of them if you say Sharma there are millions of Sharma in the country right and you say how this Sharma lives in house 25, now there could be in every street that will be house number 25 then which 25.

When you say street name, now if we take Mahatma Gandhi road, every major town the country will have Mahatma Gandhi road. Then you say town right there are multiple you know I have that times you have same name you know rajaji nagar for example, he may find it in Lucknow, you find it in Salem, you may find it in Chennai, there are. So, many places district, state, country, know you have to go in the reverse way therefore, the reader can appreciate that exactly as to what questions you are asking..

So, that gives a kind of you know where is stay focused that is what you have to remember always v the inverted triangle, when you talk about the same way as the post letters are the Google map otherwise you will be able to show right.

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General phases associated with writing an introduction:

1. Establish an area to research by:
 - Highlighting the importance of the topic, and/or
 - Making general statements about the topic, and/or
 - Presenting an overview on current research on the subject.
2. Identify a research niche by:
 - Opposing an existing assumption, and/or
 - Revealing a gap in existing research, and/or
 - Formulating a research question or problem, and/or
 - Continuing a disciplinary tradition.
3. Place your research within the research niche by:
 - Stating the intent of your study,
 - Outlining the key characteristics of your study,
 - Describing important results, and
 - Giving a brief overview of the structure of the paper.

<https://library.sacredheart.edu/c.php?g=29803&p=185916>

Generally faces associated with writing an introduction establish an area to research you know by you know you have to narrate something to say that general area. Identify the middle research niche, that could be small zone in that area that you are interested in please do your research within the research niche by asking specific questions, and some of them are being discussed now..

Establishing an area to do research highlighting the importance of the topic, you have to say what is important why it is important to study right. Making general statements about the topic, right you better state with general statement presenting and more your depending what is your object view you know and so on, you have to choose one or more than one of the three statement that I have made yet bullets that are made here identifying research niche..

Now, you can say that opposing an existing assumption people would have said that this is what is existing. So, you may want to say this is what you know literature say these order it is for this is this reason I think that that is not correct possible in opposite you know kind of you know way of looking at it. Revealing a gap you say that all this has been done, but this particular question has not been addressed this is critical information that is missing formulating a research question have a problem you have everything, but you know now you are going to the next level..

So, you say that all these are known, but now I am looking at the next level. So, you know state some new questions problem are continuing in the discussion in tradition. You know you have (Refer Time: 12:04) the gene, now you are expressing a protein you are making a functional characterization, we are identifying partners for the protein this is you know the tradition that continues and so on..

So, you have to narrate one or the other to tell the reader as to which direction you are you know going in the introduction, and place your research within the research niche this is by stating the intent of you study exactly what you wish to do, outlining the key characteristic of a study describing important results you know giving a brief overview of the structure of the paper..

So, you have to tell that that explains when you give a glimpse of what the results are therefore, the readers are you know they are not waiting for the whole end to, you know come to the end, but they know they take home message and then the they keep continuing ruling.

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Yale J Biol Med, 2011 Sep,84(3) 181-90.

How to write your first research paper.

Kallestinova ED¹.

On Introduction section

Many new researchers mistakenly think that all their readers understand the importance of the research question and omit this part. However, this assumption is faulty because the purpose of the section is not to evaluate the importance of the research question in general. The goal is to present the importance of your research contribution and your findings. Therefore, you should be explicit and clear in describing the benefit of the paper.....

The Introduction should not be long. Indeed, for most journals, this is a very brief section of about 250 to 600 words, but it might be the most difficult section due to its importance....

So, it is very, very important, so this is again I am going back to this the paper that you have been discussing. How to write first piece of paper and its written many new researchers mistakenly think that all the readers understand the importance of the research question omit this part right, because you know you have understood that quite well you assume everyone would know..

So, if somebody ask you immediately you know one question is what you know if you are a PhD student somebody asked you, what are you working on? Then you would say often here was a student say that I am working on my micro bacterial tuberculosis you know. This is an answer, but it is not an answer right you are true that you are working on that, but he doesn't really help me to understand what exactly you are working one..

So, you have to tell you know more specific way therefore, introduction section is a one that, that helps you to convey the importance of your study; however, this assumption that the others know is faulty because the purpose of the section is not to evaluate the importance of the research question in general..

Nobody is questioning, but the goal is to present the importance of your research contribution and you are finding nobody is saying that you know micro bacterial to propose this is not a good area to work with, but you have to say what exactly you are asking in that particular area therefore, you should be explicit clear and describing the benefit of the paper you know..

The introduction should not be long you know your remember this most often it is a page you know 600 words, 800 words, it will not go maybe to paragraph or maximum three paragraph they will not allow you to write more than map therefore, you should use that space judiciously as to how we can highlight you know the importance of your work right. This is very brief section in about 250 to 600 words some journals, but it might be the most difficult section duties importance, because you want to really sell the importance of your study right. So, let us see how do you do that, so what you are done is in reserve section. So, you have sort of your in the introduction section.

You how to introduce all the elements of the study and the novelty of the work that is what he should sort of highlight, I have to change the figure later. So, that is what we are discussed in terms of introduction, now we are looking at the other section that has the last section that you write before abstract and title is the discussion the discussion section that you have tone know that is right here let me redo this..

So, that is about the introduction section right. So, we have said that is a brief section that gives you the opportunity to explain the importance of your work as to why your questions and in you justify that its difficult, but that is how you do it now we are going to go to the other section.

What you have seen is introduction and then you look at the earlier results as well, now we are going to go and discuss about the last section that is the discussion section. The discussion section presents the principles relationship and generalization in a concise and convincing tone..

So, basically you interpret your observations, what do they mean in the context of the literature, what do they mean in the context of other results and other you know reports that are then they exist you know in the literature and. So, on and it is important you say that in a concise it cannot be writing 100 pages, it could be 3 pages, 4 pages maximum, but it should be concise and convincing tone that you should you know you know argue and convince the reader as to why that is correct..

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Yale J Biol Med, 2011 Sep,84(3): 181-90.

How to write your first research paper.

Kallestinova ED¹.

On Discussion section

For many scientists, writing a Discussion section is as scary as starting a paper. Most of the fear comes from the variation in the section. Since every paper has its unique results and findings, the Discussion section differs in its length, shape, and structure. However, some general principles of writing this section still exist. Knowing these rules, or "moves," can change your attitude about this section and help you create a comprehensive interpretation of your results.....

So, if you again go back to this paper that talks about your first research paper it says for the discussion section for many scientists writing a discussion section is a scary as starting as a paper. And every section is scary, if you don't understand as to how you write it, most of the fear comes from the variation in the section because the very right results is very different from the way right discussion, most of them we get confused that discussion is nothing, but this is a section because I am going to tell again about may be you know results it is not about the result right..

Since, every paper has its unique results and finding you know the discussion the way you write could be very different as compared to your previous paper if you have written

more than one paper. So, you have to really think as to how I have to structure my discussion section..

So, the discussion section differs in its length, shape and structure; however, some general principles of writing this section still exist you have to think of that that you would apply one, or the other knowing these rules are move is what they call, because you know you will be taking each point and discuss one after the other, you know they can change your attitude about this discussion I help you create a comprehensive interpretation basically your results basically interpreting your results.

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Yale J Biol Med, 2011 Sep,84(3): 181-90.

How to write your first research paper.

Kallestinova ED¹.

On Discussion section

The purpose of the Discussion section is to place your findings in the research context and "to explain the meaning of the findings and why they are important, without appearing arrogant, condescending, or patronizing"

The structure of the first two moves is almost a mirror reflection of the one in the Introduction. In the Introduction, you zoom in from general to specific and from the background to your research question; in the Discussion section, you zoom out from the summary of your findings to the research context

Let us see how are there, the purpose of the discussion section is to place your findings in the research context right. This is what known, this is what I have done, and what different that is my observations make, you have to place it in context and explain that is to explain the meaning of the findings why they are important without appearing arrogant we cannot say that I am the only one who can do this.

This is not this is not the thing whatever I say is correct that's not. So, arrogant statements, but you have to say it in a convincing manner and therefore, others can appreciate in the context you know that is very, very important the structure the first two moves in the discussion section is almost a mirror reflection of the one that that is an introduction..

So, you again you have to orient the reader towards your discussion section you have understand every section at the end of it you want to change the style. So, therefore, you have to reorient the reader to whatever you will going to say immediately after that you know whether it is reserves. So, then I said that they are has to brief introduction about why you are done, what you are done right here also there is something like that right..

So, in the introduction you zoom in from a general to specific and from background to your research question. So, that is what you are done introduction section that we just know this quite, the discussion what you do is you zoom out basically you know you basically you have a specific question you have asked and you have got some specific results of the observations..

Now you want to place it back in the larger map for that you are to zoom out therefore, people can understand it is like you know a piece in a puzzle if I focus to that ps then you cannot really you know understand the context. So, you zoom out I can understand where the piece was. So, it is zoom out from the summary of your findings to research context and place it in the context therefore, people can understand.

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Yale J Biol Med, 2011 Sep;84(3):181-90.

How to write your first research paper.

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Moves in Research Paper Discussions

Move 1. The study's major findings

- State the study's major findings.
- Explain the meaning and importance of your finding.
- Consider alternative explanations of the findings.

Move 2. Research Context

- Compare and contrast your findings with those of other published results.
- Explain any discrepancies and unexpected findings.
- State the limitations, weaknesses, and assumptions of your study.

Move 3. Closing the paper

- Summarize the answers to the research questions.
- Indicate the importance of the work by stating applications, recommendations, and implications.

So, this is a challenging task it is not easy depending on the natural result, the nature of study, and nature of observation that you have you how to write it in a different way. So, one of the major some other moves that discussed here are, this you know the move one is the studies measure finding it take them you know the best significant you know

observation that you have send it first, and then you know place them in the research context and then you close the paper by saying something, like this is still not known and limitations are steady and so on..

So, state that studies may get finding, so you may have five different observation, but you try to put them in a orders I said the most significant one comes first followed by the other right, explain the meaning and importance of your finding consider alternative explanation you may say that this is what happens possibly, but you cannot rule out the other one. You may better say the other one also it is also possible that they are not tested right you are not tested therefore, you cannot say that doesn't exist..

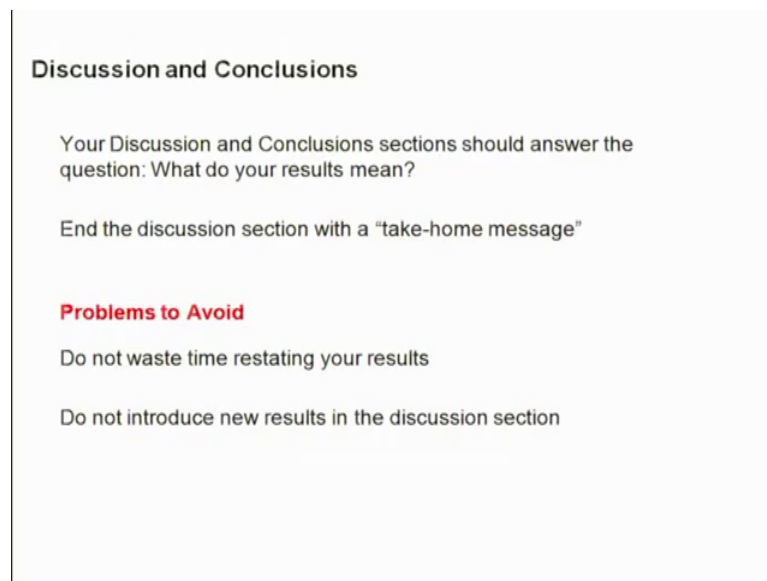
So, you have to say that alternative explanations are required when you interpret your results, when it comes to research context compare and contrast your finding with those of other published results it is important to you know relate your findings to already existing you know discoveries that are there in the literature, and say wither your observations are very similar to others or does it support the other conclusion people are drawn that, or it does it extend or does it question does it change the way you know people would perceive the field after your paper is published. So, these are the things that you need to narrate there.

And then explain any discrepancies and unexpected findings right you know for example, somebody you know their results are very different from what you have you know got it. Now you want to say why possibly my results are different from others you have to give some explanation, right if possible you say at least you at least speculate is important no study is complete..

So, you need to understand that there are limitations in the study. So, therefore, you have to state the limitations and weakness in your study you may not have addressed every question, some are convincingly answered some are to some extent some still not yet answered. So, you ought to say what is the weakness and assumptions of your study you know these are very, very important therefore, you don't want the referee to say, you don't want editor to say, you have don't want somebody else to say that they have published this paper, but this is the weakness of the study you acknowledge that these are weakness that is fine perfectly fine you cannot answer every question right..

But you should know that research to be mentioned and finally, the discussion section should be closed by summarizing the answers of the question you know they are has to a take home message you give a summary indicate, the importance of the work by stating applications recommendations and implications you say that you know conclude as to how possibly your observations of this particular finding can help others in terms of whatever that you are trying to address,.

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Discussion and Conclusions

Your Discussion and Conclusions sections should answer the question: What do your results mean?

End the discussion section with a "take-home message"

Problems to Avoid

- Do not waste time restating your results
- Do not introduce new results in the discussion section

so that is what called as you know discussion and conclusion right, your discussion in conclusion section should answer the question, what your results mean? You know in some journals they have discussion and they will have a small section called conclusion these sort of one small summary 15 words, you sort of summarize as to what you are results mean, in some it is combined they don't tell you to give a separate section for discussion or conclusion, but then you discuss the last few sentence should we think of messages that in discussion section with a take home message..

There are problems you know you have to understand what you should avoid, do not waste time in restating your results this question is for discussion, it is not for results you already mentioned you have discussed again saying narrating again results. Is waste of time for the reader not for you right and nobody is wasted the space that is otherwise given for the discussion too..

So, you should never restate your results verbatim right you assume that (Refer Time: 23:54) read that the results section. If they have not understood something they can go back and read right therefore, don't waste your time in restating the results, do not introduce new results in the discussion section this is another a common mistakes people do. So, they would not have you know discussed all the results in the discussion in the results section to strengthen them something they will say that we also found something without discussing it in the results section, we have bring in some new results here that is unacceptable right.

So, we can only talk about results that either that you have placed in the results section with all the data, or the results that have been published which is already available in the literature only that can be referred to and discussed, you cannot introduce something new there these are very, very important element that you see and that is you know sort of gives you an idea as to how do you write discussion section, often find in a research paper that the discussion section also has another element immediately after that this called as acknowledgment section..

Where there is thesis whether it is the research paper you have this particular section which is very, very important these are not very challenging is easier to write as compared to any other section, but is as important as any other section and this is called as acknowledgement section.

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Thank all of the people who helped with the research but did not qualify for authorship. Those who provided intellectual assistance, technical help, or special equipment or materials; funding body for research grants if applicable

References

You should reference other work to:

- Establish the origin of ideas
- Justify claims
- Provide a context for your work
- Show there is interest your field of research

Never cite a publication based on what you have read in a different publication (such as a review), or based only on the publication's abstract. These may mislead you and readers. Read the publication itself before you cite it, and then check the accuracy of the citation again before submitting your manuscript.

<https://www.springer.com/gp/authors-editors/authorandreviewertutorials>

So, this section is to thank all the people who helped with the research, but did not qualify for authorship you know those who provided intellectual assistance, technical help or especial equipment material and for example, the funding body for uses parents if applicable. So, you may have wanted to do certain experiments you never did this before therefore, you consulted somebody who is an expert in this area and he helped you to come up with methodology help you with the experiments..

So, he really helped with his technical expertise, but he is not an author in the paper, but you must acknowledge his contributions and without him you would not have done that experiments, and he deserves a place here you should say he or she helped me with this set of experiments and you thank think or her for this or somebody would have given you some reagent.

This is not commercially available right somebody given you reagent and the because of the reagent you are able to do the experiments, otherwise you would not have done that that experiment that he deserves a place here you should say he or she helped me with this set of experiments and you thank him or help for this or somebody would have given you some reagent this is not commercially available right somebody given you reagent and because of the reagent you are able to do the experiment otherwise you wouldn't have done that..

So, they ate not an author, but they are able to give the reagent with something that they made in the lab right again you have to acknowledge and you had results you are unable to explain the result. So, you went and discussed with somebody your colleague or your teacher in the department or institute. And he was able to explain possible this is what the results mean, which really opened the door for you did more experiments and you are able to prove that indeed that is the case..

So, now, you may have spent only ten minutes listening to you I am giving you a tip, but this is you know as important as you know conducting an experiment because without which you know you would never looked at that particular angle. So, that is the intellectual input that he has given how she has given. So, that should be acknowledged, somebody would have you know helped you in running and you know hi and the facility for example, confocal microscopy you wanted to do some imaging study or hplc facility,

you want to characterize and protein and there is a operator technical person who did this for you..

And your acknowledge because you know he say time for you she save time for you did everything and somebody allowed he or her facility for your use right. Then you have equipment you acknowledge and then you know most often this is involves lot of grants and money spent on the project.

So, you acknowledge funding body or you are your had fellowship which helped you during those 4 years, 5 years of your stay. So, you have to acknowledge is very, very important right. So, therefore, the acknowledgement section you should never leave out anybody who otherwise helped you in one other way, but in significant way in carrying out this particular project, in research paper it is better to avoid thanking almighty and parents and other things these are not professional help is to write that in your thesis..

Because that is pretty much your book that you are publishing well research paper these are not allowed, this is only those help that are you know the moral support and other words that are not acceptable here it is only those help that help you to carry out the experiment in a direct way right . So, that is what it should be covered the other section that follows immediately after acknowledgement is the reference section, basically you know cite every source of the information the you should reference other work to established origin of the ideas so..

In fact, no statement in your paper except the section where you have results section the introduction methods and some bit of discussion where you are referring to something else should always (Refer Time: 28:52) statement should end with a reference, because that is something you are summarizing from something else somebody else publication somebody else ideas . So, you have to you know cite appropriate work to establish the origin of ideas justify clients you say that we have published sometime back or something like that or this method has been validated several times.

Now, you have to do citations as to which are the papers that use this method and then method reliable. So, you have to justify provide a context of your research, so when you are discussing your results you may say that similar observations are made in a different species, or different context, you want to cite some paper that's again show there is

interest your field of research you know you explain as to how you know that would help..

So, again you how to cite papers say that why you were in discovery immersion could be of in a relevance to somebody else you know that is what it is, never cite a publication based on what you have read in a different publication.

Often people do this mistake that you can an abstract are paper and there is something cited they use the same similar language to cite a paper, which you have not read and you are assuming that other person who did this is accurate, maybe he is not or maybe she is not by doing that you are going to have end up in problem right..

So, you should always go back to the original literature and read and then and based on that you know you should cite and never go by title, never go by abstract, that they have proven something somebody right in there abstract say that you solve this mystery and you read only that and you say that you are writing that they have. so and..

So, has solved the mystery without really looking into the by whether they are the claiming is accurate and then you are you know you are you are saying that you are not that careful, because you are not validated that work you are not gone and looked at the results. And you are citing without really, really seeing whether what they are saying is accurate or not..

So, these are these may mislead you and the readers therefore, you have to be careful when you cite something read the publication itself before you cite it and then check the accuracy of citation again before submitting your manuscript. So, it may be jumble it maybe something is changed then it is going to be end up creating problem. So, take care of all these things before you finalize your manuscript.