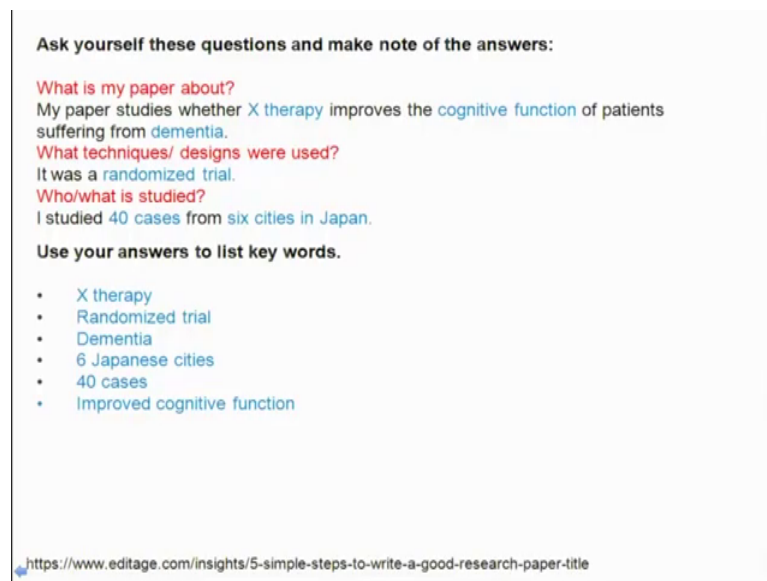**Introduction to Professional Scientific Communication**
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Lecture – 10
Title and Keywords

So, welcome back to this course Professional Scientific Communication week 3 lectures. We are discussing about how do you arrive it very good you know an effective title for your research articles. So, in the previous you know lecture we looked into some other guidelines that are given by you know journals and what are the elements that you have to look at in a title to make it more effective therefore, the readers will be able to or they will be interested or you create interest in the readers to read well article and so on.

So, today we are going to expand that you are going to continue with that discussion and see that how we can make titles better. So, this is what is shown here in this slide.

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That you before you, you know arrive at this point that is what should be the title for your manuscript your manuscript should have been ready, that is, that is the point that we stressed upon.

So, you have your manuscripts ready. Then you are planning to cope with and attractive an informative title for your article, then you need to first answer in questions put brief

answers for these questions and use these answers as you know key points to come up with a very good you know title these are some other guidelines. First is what is my paper about. So, you need to really you know write one liner on the outcome or exactly what that you are asking you know in your paper. Say my paper study is whether x therapy, we are not sayings what therapy it is it could be radio or chemo or drug whatever it is let us say a given therapy and you are showing that it improves the cognitive function of patients suffering from dementia, right.

So, dementia is a memory you know disorder you lose your memory. And this is the condition, and we are talking about here therapy you know aim with patients that suffer from this dementia, and the these patients are given this particular therapy and then looked at the outcome of that therapy and say that it improves the cognitive function they are able to recollect and remember better than otherwise. Let us say that is what the work was about.

What techniques design you know study design were used in your study? So, that is the second question for which we need to put certain you know answers. That is it was a normalized trial meaning, in clinical trials you have in a large number of patients and then you sort of you know, you know a group of patients to for your study and these are randomized meaning, you randomly pick up you do not constrain and I think you are certain basic criteria for including a patient for the study and from there you randomly you know select individuals for a given therapy right for the clinical trial. So, that is what called as randomized trial.

So, there is random therefore, you can have 3 different such sets, you know one group randomly chosen again from this you know the population that you have recruiters you can choose another group and so on therefore, it takes care of any bias. Who what was study? There is the third element that is I studied say for example, 40 cases from 6 cities in Japan. So, that is what it is about.

Now, these are the answers one liners for the question, 3 important quality questions that is; what is my paper about? What technique design or method I used? And what I studied? And of course, what was outcome is also sort of covered in the very first question that is what is my paper about.

Now you have to generate keywords right and these are the keywords that are identified for example, x therapy, x meaning a given drug or some other form of therapy. And then the cognitive functions of patients that is again important element because if you only keep patient as a keyword and it could be anything and everything. So, you have to say cognitive aspect and the disorder is dementia, and then the method that you are used with randomized trial and you have 40 cases and then the population is 6 cities in Japan and things like that. 40 cases also if your study really is large in involving large number of samples, you want to say that because that makes it much more powerful therefore, at times you even in medical case reports are medical reports they even talk about the study population as to how big it is. And the outcome also it improves cognitive functions. So, that is again you know a keyword that is coming out of your responses.

Now, what do you do is you take these keywords that are listed here and then try to make it as a sentence, that is what shown here.

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This study you can use this keyword to come up with the sentence this study is a randomized trial that investigates whether x therapy improved cognitive function in 40 dementia patients from 6 cities in Japan, it reports improved function I mean cognitive function. Again it is an abstract, but that is what you arrived at after having all these important you know key words right.

Now, its long you know 28 words it is too long and this in this would certainly not be a good title for any research paper. So, what you should do next? You should remove all unnecessary repetitive words. Even if you remove then you see the rest of them if I put together does it convey right and that is what you are look at. For example, this study is a the redundant thing any scientific article in a journal is a study right is a research study therefore need not be told, simply say randomized trial that you know is a technical word people in your field suppose you know you are a clinician or you are working on some clinical research projects then anybody in that field would know what is randomized trial.

So, you do not need to explain, so randomized trial is good enough and you are talking about a given therapy improved cognitive function that is important. And then in 40 dementia patients from 66 cities in Japan again is an outcome that is that is there and then you remove all unnecessary words from the you know line then you have this particular title that is randomized trial of x therapy for improving cognitive function in 40 dementia patients from 6 cities of Japan.

So, this now from 28 words you are able to bring down to 18 words now still it can be worked right. Now, we can again delete non-essential information and reword the title. For example, randomized trial of x therapy for improving that is very important it should be their cognitive function in 40 dementia patients. Now, you can remove for example, maybe if it is not that critical you know it does not matter whether it is from Japan or any other place as long as you are convinced that a given therapy would improve the cognitive function in you know patients that are suffering with dementia. It is good enough anybody work on that dementia would look into your article. So, you can say now reword your title as randomized trial of x therapy for improving cognitive function 40 dementia patients right, 13 words.

Now, you can also do some kind of reorientation of that you know title to make it more attractive this is an alternate way of putting it x therapy improves cognitive function in 40 dementia patients and then colon you make a subtitle that is a randomized trial. So, this makes it you know approach comes at the end, but you say the outcome first. So, it makes much more you know, it has carry much more impact. So, these are some of the suggestions that are you know given and from the link that are you know given a slide as well. Now, you may want to go back and then look into these links and read more and

then try to you know work around the bullet us that you made and then come up with better title.

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So, I am continuing again going back to these publishers you know again reproduced from the Springer website which says the importance of the titles again I am going to use some of those examples few more examples.

So, now this is one title they say that is not good. Does vaccinating children and adolescents with inactivated influenza virus inhibit the spread of influenza in Unimmunized Residents of Rural Communities? You know if one it is you know it has too many unnecessary words because it does not convey anything.

Now, it is like a question because I do not know the outcome and I your title does not convey as to what was the outcome you know you are asking a question, whether you are done this whether you are saying that this is a good question or have you address this question what is the outcome nothing is obvious from this particular title. So, one can you know reword it, for example, influenza vaccination of children and colon you make a subtitle a randomized trial right. So, this is you know again I am taking it from the Springer website to say that why even general say that you should come up with good titles because it is their own interest, unless your title of your manuscript is attractive.

Now, you know the readership for the journal is going to go down because if all the articles that are accepted in a given journal are not attractive the readership is going to go down. So, you know they are in the business the business is readership they are going to get more business if there are more readers therefore, they emphasize that your title of your manuscript that that are submitted to the journal or good quality, otherwise they will reject right. Is their own interest and it is your own interest as well because you want to really publish you are finding in a better journal therefore, you have a better readership therefore, you need to know how to really have a what good and effective title you know.

So, this is example to show again an ineffective way of title. So, the you can see here that there are examples that given I will come back to what is what could possibly the best title. Now, you are having two different titles one is influenza vaccination of children randomized trial and this is it does not give enough of information about you know it does not make sense as to what is outcome again. Then you have another title effect of child influenza vaccination on infection rates in rural communities a randomized trial. This is you know an effective title it is short easy to understand conveys important aspect of the research.

Now, you know that you by comparing different titles and how you are able to arrive at something that is you know more effective than the other right. So, this is exactly one of the important aspects right you cannot arrive it a best title in one go. So, you have to write down a few possible titles and then select the best to refine further. So, you have to really show it to somebody not exactly part of your team who work with you and wrote the paper together because they know everything about the paper therefore, when you write you always believe that you have conveyed everything that you had in your mind.

But when you give it to the third person who was not involved then he or she reads and the last question right it does not mean this, do you mean this, does it you know your work reflect these aspects like ask your colleagues for their opinion, spending the time needed to do this will result in a better title. So, it is important that you write in you know 2 or 3 4 alternative titles discuss arrive at a better title. So, that is extremely important.

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That is about the title and I really want to re emphasize is that you are able to introduce your work to your readers through the title and often these are through the table of contents when the new issue of the journal is published many of the researchers go and read these and then try to understand what has come you know new in this particular field.

But is it the only way by which you are your manuscript or your article can get a readership.

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Now, what about the past you know issues? I am talking about a issue that is going to say appear in the month of December in 2017. But what about you know the journal has been publishing papers since a 1950. So, you have almost like you know 60 years, 70 years of you know papers. So, how am I going to look at any paper that talks about the kind of research I do. So, you go to your library then it is a snapshot of a library, that it has racks it has full of books journals. Now, how do you know which one of these 1000s of you know issues of journal carry you know a article that of studies of relevant to your particular topic. So, how do you really go and find; right? This is where you know the challenge comes.
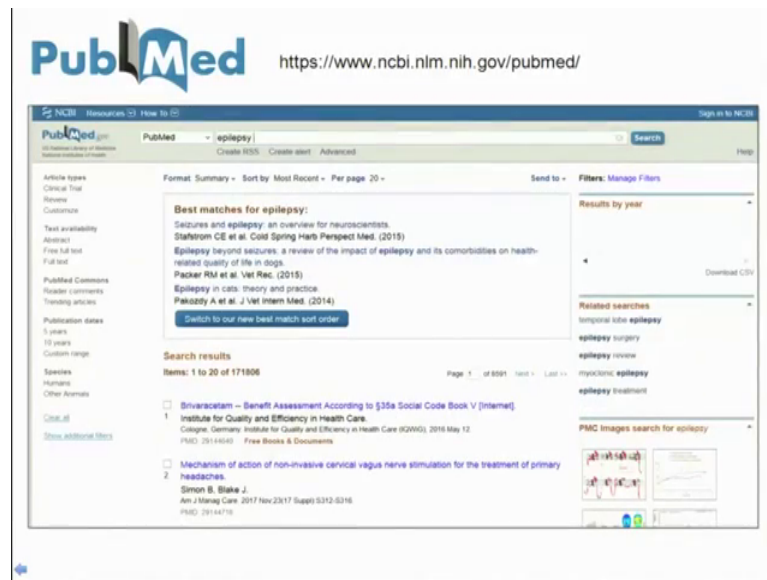
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It is again a cartoon to show that if you really want to pull out each issue of the journal and then read and which are you know articles talks about you probably you would complete 5 years before you arrive it number of papers to you and do a literature survey. So, that is not the way. So, how do you really arrive at?

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In fact, your title helps because when you write a research article the title has all these keywords and there are powerful such engines nowadays which you know pulls out papers based on the query that that you generate. For example, what I am showing you is one of the very good search engine for biomedical research you know field it is called the PubMed its given on the top and often most of the paper that I discuss or all from this you know a search engine I give some query words and get the paper and read and go.

So, what I have done is I have just entered the query called epilepsy and then it lists a large number of papers, you can see that in the in the middle is says such results items 1 to 20 of 171,806. Meaning there are as many you know publications articles that are related to the query word epilepsy right. So, this is the way you go and look at the articles that are interest to you, but this is when you want it to look at any article that talks about this particular query word.

But for this to happen say suppose you worked on a particular research project that is related to epilepsy and it may not be exactly epilepsy something related to epilepsy then anybody whose searching the word epilepsy if they have to you know find your article then your article often carries what is called as keywords right. When you submit a manuscript in addition to the title abstract methods, introduction, reserves and discretion you also provide a few keywords to the publisher therefore, when it is accepted your article is tagged mapped to certain keywords.

So, as and when somebody puts that as a query then it pulls out your article therefore, this is your duty in addition to making a very good title you also have to think of giving very good keywords therefore, it can improve the readership that is exactly what I am going to talk about. So, this is a manuscript that is that has come out of our group recently which pretty obvious if you look into the title then you can see what it really it is.

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It is a separation of leptin signaling reduces polyglucose and inclusions and seizure susceptibility in a mouse model for lafora disease it is says exactly what the work was about. It talks about a disease, the disease name and that we worked on a mouse model and that model you know has a particular phenotype or symptoms the epilepsy that is what you call in technical word cheezers in addition they have certain abnormal inclusion call polyglucose and inclusion and by suppressing a particular you know signaling pathway you can get rid of these right. So, that is the convey that message it conveys.

Now, there are words that are there in the title, but there are words that are not in the title, but they are as important to reach to this article when somebody is working on very similar area. So, that is what called as keywords. The keywords are important words or concepts found in your research paper or thesis right in the entire text, but not in the title. And easy with used to choose the most important nouns all other words are relevant

when you talk about separation of leptin signaling reduces polyglucose and the nouns are like polyglucose and leptin, signaling, you know these are the nouns. Suppression, reduces is meaningless because these going to be there in most of the other topics you know that does not really matter here.

So, you have to use that as keyword which is anyway there in the title. So, those that are already there in the title is anyway we link to your article, but what your expected to give is that you are supposed to give few words that are not already presenting the title yet they are very very relevant to your work and can be used as a keyword something that you need to keep in mind. So, the keywords are used to such by the search engines like even Google search, Yahoo whatever it is you know all these search engines uses keywords because for example, I am from IIT, Kanpur. So, the website of Indian Institute Technology, Kanpur would have all these keywords that is will have a you know it is a university it will be linking, it linked to Kanpur and so on.

Now, anyone uses these one or a combination of the keyword will end up you know the search engine will give you the hit for this particular site exactly the same way the PubMed for example, also does. So, there are a number of different databases uses these keywords these are GeoRef, ERIC, Thesaurus, Psycinfo, ChemWeb, Biosis search guide, MeSH Thesaurus you know so on.

And these are the keywords you know you how to generate do when you submit an article for publication. They call as keyword because it is like a key with a single small metallic you know piece you are able to open a door with which you can enter a huge you know how or hall or whatever it is. So, exactly the same way you are you know work could have been discussed in 40 pages, but you are able to arrive at that work someone else is able to arrive at the work using a few words therefore, the keywords are as important as the key for you to enter your room or house or wherever you go. So, you have remember that. So, you have to arrive at a good you know.

So, as I told you to the some of the keywords that already exist in the title or the following for example, leptin, polyglucosan, seizure, Lafora all these are nouns right. So, these are already there on the title. So, you do not need to give additional you know as a keyword the same you know words because it becomes redundant, in nonetheless you know to increase the visibility of your paper you know every journal will ask you to give some 4 5 keywords will say at least minimum 3. So, you want to choose words that are not already there in your title, but they are extremely important for the kind of work that you are done in the and detailed in the paper and which can bring in more visibility. So, that is what I said.

These are good keywords, but already exist in the title. So, you want to bring in something beyond you know what is covered in the title which could be relevant to this paper. So, I am saying epilepsy right, this is the word that is not that. So, if you have used a word epilepsy you know then if it is restricted only to the title then my search will not end up you know getting this particular paper because this paper is about a one form of epilepsy the alternate you know more technical name for that is seizure. So, if you have simply gone with the query then it will not list that. So, you want to give that.

The polyglucose and what they call you know it is an inclusion it is because of some defect in glycogen metabolism right. So, you want to give that glycogen metabolism as a keyword which is not reflected in the title when you go with purely the query based such

and also this particular model that I that the paper discusses is about a defect in a gene that codes for a protein phosphatase. So, you know a defect in a protein phosphatase results in the disease therefore, you know I can have that has link as a keyword therefore, anybody who search as also can end up reading this.

So, these are some of the hints as to how you arrive at good keywords and they are extremely important for you to you know help the reader to arrive at your articles and read them. So, that is where the keywords are.

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Manuscript title:
Region-specific neuronal degeneration after okadaic acid administration

Poor keywords:
neuron, brain, OA (an abbreviation), regional-specific neuronal degeneration, signaling

Better keywords:
neurodegenerative diseases; CA1 region, hippocampal; okadaic acid; neurotoxins; MAP kinase signaling system; cell death

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

And then you know you have to again work on the keywords think about it put down on paper and see which one you know is combinations are the best for your article; like again I am reproducing from the Springer website. Manuscript title is region specific neuronal degeneration after okadaic acid administration which clearly says if you administer a drug okadaic acid then there are regions in the brain the neurons that they die. So, that is the title.

So, what are the good keywords what are not so good or poor keywords. Let us see what are the poor keywords neurons brain you know it is redundant because already there OA right. You are talking about something is an abbreviation or something else by giving that OA you know it does not really help you know you cannot give you should not give abbreviations. Regional specific neural degeneration again this is already exist in your

title therefore, it is you know it is not at all required again. Signaling again it is you know it is redundant in here or it does not really help.

So, better keywords are neurodegenerative disease because you know there are neuron region specific neurodegeneration is one of the important you know kind of events in neurodegenerative disorder therefore, it can link there. Then you are talking about ca one region this is talking about a particular region of the hippocampus because that is the reason that possibly affected here. So, you can give the region because it says region specific, but region say which region is and which region is can be explained in the keyword. Then you call hippocampal because this is a region in the brain and neurotoxin and signaling system because these are all you know what is called as the phosphorylation dependent signaling that happens in the neuron, okadaic acid is you know a kind of an inhibitor that can inhibit some of these signaling events and cell that and so on.

So, you how to think as to what should be the best keyword that can link you know your paper to the reader if they use certain keywords to you know such for literature in that field and that pretty much you know sort of completes the importance of titles the importance keywords for readers to arrive at your publications once that is there.