Thrivecast Episode 33: Essentials of Grant Writing

Trish Kritek: [00:00:00] Welcome to another episode of the University of Washington's Thrivecast, a podcast designed to help School of Medicine faculty thrive. I'm Trish Kritek, and today we're joined by two guests, professors Rachel Wong and David Sherman. Rachel is a professor and the chair of the Department of Biological Structure, and David is also a professor and chair in the Department of Microbiology.

I've invited them here today to talk with us about grant writing. They are both experts at writing grants and reviewing grants, and so I thought it would be a great topic of conversation that would be relevant to many, many of our faculty. So I'll begin by just saying thank you to Rachel and David for joining us today.

David Sherman: It's a pleasure to be here, Trish, thanks so much for the opportunity.

Rachel Wong: Likewise.

Trish Kritek: So I have so many questions that I'm going to just jump in and, and I think I'm going to start by asking, Rachel, I'll start with you. When someone is like going to jump into this idea of I'm going to write a [00:01:00] new grant submission, often it's like overwhelming to figure out where to start.

So when someone's starting with that kind of new process, what's your advice for kind of where to start when you begin putting together a grant submission?

Rachel Wong: I think the first thing is to figure out if you have a major theme you want to follow in the grant, and you don't work out the details of each experiment or the aims yet.

And that might be a good time to float some ideas through people in your lab or colleagues, and then, find that central theme so that it's, you know, a really, really, really tight application at the end.

Trish Kritek: So starting with that theme, and what I also heard was test it out. Test it out with people in your space, in your lab, other colleagues, people you trust.

So that it's really tight before you dig into other parts. David, do you want to add to that?

David Sherman: I think that that's really good advice. It's an excellent time to get input from others, is when you're crafting, what is this [00:02:00] really truly about? I mean, we've all got stuff that we're interested in doing, that's why we're here.

But figuring out how to carve a piece of that and put it together to turn into a grant takes. Real thinking and input, and that's where it's great to get some advice from people. The one

other time you might do things a little bit differently is every now and then a grant submission comes up and you think, oh my, that's actually perfect.

They're looking for these things that I've been thinking about. Most of the time we're not quite so lucky and you shouldn't wait for that.

Trish Kritek: I appreciate that a lot. Like celebrate those moments if they happen, but don't be waiting for it to be like they wrote a request for exactly what I want to do.

Exactly right. Okay. Well, I, I just kind of building on those thoughts, which I really appreciate this kind of distilling down what it is. What is that theme? What is that thing you really want to investigate? Takes time and getting input takes time. So, [00:03:00] I'll start with you this time, David, in general, and obviously there's different size grants and different types of grants that people write, but what's the time that you a lot to kind of start to finish in terms of this, because I seem to always run into faculty when they're trying to get finished as a deadline approaches, and I'm always like, maybe there was a way to start sooner. So what are your thoughts on the timing and all of this?

David Sherman: Well, my advice would always be, start sooner.

That's certainly been true in my experience. There's a lot of work that goes in before I'm even conscious of the fact that I'm thinking about an idea in terms of a grant. So I'll be mulling things over and then realize, oh, actually this is something that should come together in such a way that I need to do that kind of hard thinking because grant writing is a hard thing to figure out which parts should go in and which parts need to stay out. I don't have [00:04:00] a set amount of time where I'd say, oh, you've got to have six weeks to be able to get this done. It's very common for people in our school that you're doing two of these at once or you're doing two of these at once while you've got this other critical deadline and we have to figure out how to juggle those things.

So, I think that however much time you try to allot, you're going to find in the end that it wasn't quite enough and you should just be prepared for it. It's going to be a crunch at the end.

Trish Kritek: I appreciate that. That's actually just a great reality check. Is that how it feels to you always, Rachel, as well? Or are you more of a planner?

Rachel Wong: Well, I'm a bit of a planner only because I often don't have a very clear thought or central question when I start. The reason that aim one already done thing for me, usually we have to figure out exactly what we're trying to, you know, answer here. And you know what? Surprisingly halfway through, you suddenly realize that this isn't going anywhere.[00:05:00]

And so you need time to redevelop, recheck. And, the other thing is you might need more preliminary data than you have. So I do- unfortunately, my lab will be always on high alert

mode. She needs another piece to put into the ground up by next week. So the sooner you you get going, the better. And the other thing is that you do want to have a good draft that you are even comfortable with to give to others to read, at least, I would say a month before it's due.

If you give to everybody to read and get comments back a week beforehand, it's not going to work. They'll just tell you, go ahead and send it anyways. And that's usually not very good.

Trish Kritek: I, I think I want to hold onto that pearl. So if you can get it to people at least a month in advance, you're going to get better feedback and better input than if you give it to 'em the last minute.

And I think. Having read things that people want feedback on really quickly, I can affirm that my feedback is better when I have time to think it through and give more [00:06:00] incisive thought. Because sometimes as someone giving input, you have to kind of mull it over a little bit more too. So I think that that's a good aspirational goal and will also hold what David said, which is, and it always feels like a crunch at the end, and I think that just normalizes that feeling.

But we don't want to set ourselves up for a crunch at the end if we don't have to. So,

David Sherman: Absolutely. And relative to input from others, I think, Rachel is spot on there a week ahead of time. The kind of advice that you can get is, boy, that's a run on sentence, and you need to change that. You could do that on your own if you're going to change direction on things.

And in the course of putting together a grant, I always changed direction from where I thought things would go when I started always. So you need time to take those people's thoughts in and let them percolate a little bit. If you don't have a month, then that's just not going to happen. So you should give yourself enough of a [00:07:00] draft a month in advance that you can get feedback from other people.

That's very helpful.

Trish Kritek: I think also embedded in that in terms of setting a timeline is this thing where it's normal and good to have what you started off thinking you were going to do change. And what you want to hear from people is people questioning whether or not you have it exactly right so that it can be better because of their input.

And that might mean shifting maybe dramatically sometimes, but shifting and maybe doing some more experiments, but also just shifting what your questions are perhaps.

Rachel Wong: I've had that once when a friend of mine read a grant and essentially was three weeks before it was due, and one aim of the three had to be thrown out.

And so you have to come up with another aim and do I have to preliminary data for this new thing and what's it going to be? So yes, there's always some scramble and the less panic there is the better. Because you can't think if you panic anyways. So you, you just, if you really want good [00:08:00] feedback, you, you got to have that lead time. There's no question about that.

Trish Kritek: I appreciate that. I appreciate your willingness to share that. You've had a grant where you just threw out one of the specific aims, like late in the process. I think that's the place where I think most people spend a lot of their time and probably one of the most challenging parts is writing the specific aims.

So I'm going to ask each of you about your guidance to folks earlier in their career when they're starting to think about writing specific aims. So Rachel, what is, what guidance would you give folks when they think about that process of writing their specific aims?

Rachel Wong: So first of all, people always ask, do you write the specific aims page first or last?

There really isn't a one is better than the other. I write mine at the end because by that time I would really have understood what I'm trying to say. And so then I can make it concise. If I make it concise in the beginning and I write the grant itself, I might suddenly realize that, you know, like that third aim, I got to [00:09:00] throw it out.

Right. So, but it varies. It just depends. Um, but in the specific aims page itself, if someone just reads only that and not your grant, they already have to have enough. Understanding from it of the background, the reason why you're proposing to test particular hypothesis, which have to be really clear how the aims are linked together, how they build on and together answer a central question.

And at the end of the that page, they should know that you know what the significance is and innovation of the grant that those questions will be. It's all in a nutshell. Um, but you, you don't want it to be too much. You also don't want it to like gloss over important background information as well.

Trish Kritek: Yeah.

Finding that sweet spot is I think one of the biggest challenges of like enough detail and granularity, but also, you know, it's focus. So David, do you have an approach? Let me start with, are you a right at the beginning or right at the end person? [00:10:00] Let's start with that and then what other thoughts you have.

David Sherman: Well, I started off thinking, oh, here's a difference. I'm a write the specific aims at the beginning person, but in fact, the truth is it's always the last thing that I finish. So I start, I actually start with an outline of, okay, here are things that I want to do, and that

outline very quickly becomes a rough specific aims page that I don't go back to for a long time.

Then write the whole rest of the thing. And then at the very end, I really work on the specific aims page. I think, as Rachel was saying, it's got to all be there on that page. I think that that's where grants are funded. Is in the specific aims page. They get lost sometimes later on in the details, but you don't, if you didn't have the reviewer, by the time they finish the specific aims page, you're not going to suddenly capture them on your side because you put in great [00:11:00] background and significance.

It's not really going to work that way. You've got to have captured them from the beginning. So it's, it's got to all be there and show up both why this is cool and why they should fund you.

Trish Kritek: I really appreciate that. So I think each of you ends by looking there, whether you fully write it at the end or you come back to it, it's really essential in terms of capturing your reviewers.

I sometimes think of it similar to like, People who write their abstract of their paper after they've written their whole paper, and you're trying to condense things down into your abstract. It's not exactly the same. But there's some similarities. And I would say that another similarity is I can always tell when someone didn't spend any time writing their abstract because it's not good.

So I think the investment here is very, very important.

Rachel Wong: Don't make the reviewer work and try and figure out what is this about? It should, you should read like a page of a story in the beginning and you want to read more, not less. [00:12:00]

Trish Kritek: I like that a lot. Yeah. We never want a specific aim that makes people want to read less.

I appreciate that. I'm going to ask about one other section of a grant before I ask kind of a couple more broad questions, and that is, do you have any particular dos and don'ts from people who are creating their budget? Because I think that's a place that maybe people don't have experience in just doing writing.

They might have done some writing, but, but creating a budget for a grant might not be so familiar, so thoughts on that?

Rachel Wong: I think first of all, if someone tells you, "inflate the budget, they're going to cut it anyways," don't do that because study sections, they understand that and they'll know when something's inflated and they're not going to appreciate it.

I think if you justify every single thing, including the personnel, the percentage of effort, and you know what you need, supplies, animals, everything like that. A good budget's one where I think they look at the work that's proposed, they see that it needs to be done by X number of personnel [00:13:00] and certain amount of support.

And if it matches, then they just say budget's fine. No issues there.

Trish Kritek: So maybe you catch people's eye because you're inflating stuff in a way that doesn't seem realistic and that's going to be more of a problem than a benefit long term.

David Sherman: Yeah, we have a bit of an issue with that here cause costs, salaries can eat up an awful lot of people's budgets.

And that's, you know, if you've got a reviewer from the University of Kansas, they may think salaries are inflated and things like that already. So, all I think you can do is put down what you think things are really truly going to cost. I think there are some mistakes that people can make, and as Rachel was saying, if it looks like you haven't put any thought into your budget or that those numbers are just simply not justifiable. No one's going to spend that much time on it, and if they can pick that up in not that much time, [00:14:00] you're in trouble. So you want to make sure that those, you could justify those numbers if someone came and asked you about it.

And as long as that's the case that you can, you'll be fine.

Trish Kritek: Yeah, I think embedded in there is like, it's hard and I'm going to actually have you put your hats on as reviewers of grants, for us for a second. It's hard to have all these great applications and submissions and so if there's something that catches your eye as like, this is not good, it's easier to say not good.

And so you don't want to have something that is going to draw people's attention to being a flaw with your grant is kind of embedded in what I think you're both saying. So keep that hat on. And maybe you could reflect for us a little bit about what are the things that reviewers really like in grant applications and maybe also what is not so great and maybe they are not excited about.

So you've given some, like I already heard, you know, specific aims that don't tell the story or don't kind of engage me or don't have enough of [00:15:00] the details are going to be things that aren't great. But are there other things that you think of that you're like, as a reviewer, these are the things that get me excited and these are the things that I'm like, hmm, not so great.

So, David, why don't you start on this one and then I'll ping up to Rachel.

David Sherman: I think that it's important for people, particularly people who haven't been on review panels themselves yet, to realize what it's like to be a reviewer. That person's got

a day job and yet they now have six, eight, maybe even nine or 10 grants that they've got to review.

It's probably late at night, they've probably got a pile left to go. And the last thing you want to do is slow them down with things that just, you know, font that is really too small or things that are crammed all the way out to the edges. Those kinds of things are bothersome [00:16:00] to reviewers, but I think a better way to put it might be, there are a lot of people we, everybody who's at the University of Washington School of Medicine, you're all really smart people.

You've got great ideas, and there's a tendency, I think, for people to put every single one of their ideas into those grants and cram it full. And that is often to the detriment of narrative. So I think you, as Rachel said before, you want to tell a story. You want to get people excited for what you are going to do with this work, and that's not the same thing as giving them every single idea you've ever had.

So that's one of those things that can make a real difference to the reviewer, I think.

Trish Kritek: I really appreciate that. I feel like that's true for teaching too sometimes. We have so many smart people here and they want to share every piece of wisdom they have, and really being focused and telling a story is so much more important.

So I like that that parallel so much. And [00:17:00] I just want everyone to hear, if you're using eight point font, that's too small. I can't read it. I don't think anyone can read it. So get into a real normal size. Rachel, thoughts on that? Anything else that bubbles up in when you're wearing your reviewer hat?

Rachel Wong: Yeah, I guess a few things. Um, 8.5. Definitely not. I think I once read a grant, it was even like 10 point, and we were congratulated at the study section for having got through reading the whole grant. It was very difficult and as David said, and I think I mentioned before, don't make the reviewer work extra hard to understand what is it that you're trying to, you know, answer and why is it important?

And also not have to work out how you're going to actually test these hypothesis. An important thing I think to remember is that reviewers are not necessarily directly in your field. They could be in a study section [00:18:00] where, you know, for example, I work on the retina and they're discussing channels. For example, this actually was a study section or so, and so you have to be able to reach across to others who are not in your field, that they truly very quickly understand what the significance of your work is going to be and why they who are not in your field should be excited about it.

They also have be convinced that you've covered all possible, you know, problems, caveats, and you've thought about it. So the best thing is, it's almost like writing a paper, is that essentially you can almost guess what the reviewer might question you about and you say, don't worry, we covered this.

We understand this could be a problem, but we are going to do this, this, this. And so in the end, they don't really have anything too much to bring you on. And I think that's the key. And you don't want to have any weaknesses in essentially any of the areas. [00:19:00] And as a reviewer, they will be looking for those.

If you don't find it in say significance, you might want to find it somewhere else. So I think for, for us reviewers, if the grant is really easy to read from the first page to the 12th page, 13 page, I guess the aims, then that reviewer is going to be a lot happier and give you even the benefit of doubts in some areas.

Trish Kritek: I really like, you know, also that kind of telling a narrative and anticipating questions and answering them before they're asked. I think that's great and I really appreciate that lens of this person isn't as steeped in exactly what you do as you are. So make it approachable so they understand the importance and the significance of what you're proposing.

So all of those are really great pieces of advice.

Rachel Wong: Because in the rest of the study section, there might only be two others who are anywhere, you know, near your field. And so if you have two of the reviews who kind of understand what you do, a third doesn't and [00:20:00] most of the others don't, then you are not in a good place.

You got to get all three reviewers, not just two of the three on your side.

Trish Kritek: Appreciate that.

David Sherman: One point you just raised, Rachel, that I'd love to just emphasize, I tend for each aim to have an expected outcomes and alternatives section at the very end. That can be short, but it's a great opportunity to basically anticipate what criticisms there might be to your work and say, in a positive way, not, well, I know there's a huge hole here, but to say it's clear that what I've proposed is very likely to give us interesting information, but should we run into a problem there's X, Y, and Z that can be done and not only has to be a sentence, you don't have to go into great detail as to exactly how you do those alternatives.

You've just made the reviewer aware that you are aware of this [00:21:00] and that you are capable of pivoting. And that's very helpful, I think.

Trish Kritek: Yep. That's great. Yeah, go ahead Rachel.

Rachel Wong: And don't make the reviewer try and interpret the data that you might get. Often it's that the description of the experiments are in such detail and then you are exhausted at the end of it.

And then you don't say anything after that. The reviewer is like, okay, now if this person sees this, does it, it's going to be this or that. So you spell it out because the only X number of possibilities and what each one might mean, and like David said, you know if it's this, if it's not going to support your hypothesis, is it going to be horrible?

And the best experiments are those that no matter what the result it's going to be, you learn something really important for the field. So that's what I think reviewers will like. It's like, oh, this is a dead end, so what if it's a dead end? We are not going to pay for that.

Trish Kritek: Tell a story where you never have any dead ends.

And I appreciate that. And very clearly you both said, [00:22:00] make it easy on the reviewer, because I do have this very clear, vivid image of both of you at midnight with a stack - I'm old school, I'm thinking paper - in the old days of paper reading submissions. So I think kind of coming back to make it easy, don't make it so challenging to digest. I think that'll help advantage people.

Okay. One last question before I ask for your final pearls, and that is, are there places where you think people usually get stuck or have challenges when they're first starting out writing grants? So we've talked about a lot of things that could be good or bad as they kind of tread through these waters, but is there, you know, in your experience in working with lots of mentees, is there a space or a place where people most often have challenges?

What do you think, Rachel? Is there a place that people most often have challenges?

Rachel Wong: I think it's the grantsmanship that's the key. Often the ideas are good, good to brilliant, but it just doesn't come across in a way that people [00:23:00] understand. So there's a lot of stuff that's still hidden in the head.

It's still stuck in the person's mind. It's not on paper, it's not explained. There is enough background to understand why this is important. Or there's sometimes a tendency to just give so much detail that you've, you know, basically are lost in the detail rather than trying to get the concepts across.

And you only have to say something once. You don't have to repeat it five or six times, especially when it's not important. So I think it's really grantsmanship and it's a learning process and it's a process that I think you only get better at it when you get feedback and you actually do revisions that will make the next one or even the next solution better.

The one other thing I might mention is don't put in grants, tons of grants at the same time, just hoping one of them might get funded. Because sometimes people say, just write 10 and you're going to get at least two or three, [00:24:00] or you have to be in the queue, put it in, and eventually you're going to get it.

No, each grant should be, you should think of it as maybe your last or your very best. Each one has to really, it just has to be as if this is the only one and you put all your effort into it.

Trish Kritek: Thank you. Yeah, I appreciate that very much and I think that whole concept of grantsmanship is something that we're starting to kind of take a little bit of the cover off of, but it takes time and practice and feedback to really start to understand it.

David, how about you? Do you see places in addition to what Rachel shared or is it similar?

David Sherman: Well, I really agree with the pieces that Rachel brought up. There's one thing I can think of that we haven't really touched on at this point, and that is, the sweet spot in terms of what kinds of ideas become fundable?

There really is such a thing as being ahead of your time. It happens all the time that someone's got a great [00:25:00] idea, but you can't convince the reviewers that it's really, truly credible. They just don't quite believe that this is going to work necessarily. Particularly if you don't have much of a reputation, because you're just starting out.

So there is an art to being - if you're not ahead of the curve, then you're not exciting. So people don't really want to fund that. But you can't be too far ahead of the curve. And of course, that's not a question of who you are as a person, it's what you've put on the paper.

So, that becomes part of the grantsmanship, to craft the ideas such that you convinced the reviewer that wow, this is a really good idea and I understand this idea and I want to see how these experiments are going to come out. People very rarely go back and actually see how did that grant that I reviewed act, like, what are those papers? But if you get them thinking about that while they're [00:26:00] reading, you've won.

Trish Kritek: That's a lovely piece of advice and I think that is that challenging space where, again, guidance for mentors and wise folks that you work with is helpful of like what's pushing the boundary enough, but not so far out there that it's going to seem implausible to folks. I feel like you've given a ton of wisdom to folks who are listening.

I've learned as I listened, and I've so enjoyed it. I'm going to ask you both if you have one last kind of word of wisdom or advice for our faculty who are listening, what that would be. So, Rachel, do you have a final word of wisdom for folks?

Rachel Wong: I think always seek help and input all along the process. Even for full professors, maybe I've been doing this for a while. It's when you are kind of engrossed in this, you know, world of writing that particular grant, you sometimes don't see things as clearly as you might hope. So it's no shame to ask for help and for [00:27:00] advice and to take it.

Trish Kritek: I think that's a great piece of wisdom for life. So I completely agree with you. Thank you very much.

David, how about you, your, your last word of wisdom for the listeners?

David Sherman: One thing that might seem slightly contrary, but make sure that when you're done writing that grant that it's something you truly want to do. There are people who write grants cause that grant is fundable and that's okay, but that's not the way to build your science and to build your career.

Make sure that you align what is fundable to things that you really, truly want to do. You'd be surprised how often people wind up. With grant money to do something that actually wasn't the thing that excited them. So try to line that up as much as possible.

Trish Kritek: I think that's also great wisdom for life, because if you're not doing something that is your passion and brings you joy, then [00:28:00] you're not going to do it as well and you're not going to succeed.

So I think that you just both gave pearls for life, both of you in in the guise of grant writing, which I appreciate very much. And I just want to say a heartfelt thank you to both of you for kind of jumping into this space with me. I know there's so much more to talk about here, but I think this is a great starting point for everyone who's listening.

David Sherman: Thanks so much for the opportunity to talk to you. It's been really fun.

Rachel Wong: Thanks for putting this together.

Trish Kritek: I know everyone will learn a lot, and I'll say, if you want to listen to more episodes of Thrivecast, you can find them at Apple Podcast, Spotify, or wherever you find your podcast. You can also find them at the UW School of Medicine faculty website@faculty.uwmedicine.org.

Thanks for listening and have a great day.