

00:10 **Hello. Hi, this is <redacted> at <redacted>. How are you?**
 Good. How are you?
I'm pretty good.
 Yeah, well, yeah.
Well, thanks so much for agreeing to do this. I really appreciate your time harassing me.
 Yeah.

00:30 **Yeah. So she has been through so well and they are good friends, right.**
 Yeah.
Yeah, yeah.
 OK. Yeah. Like are you doing this for me or not.
Right. Right.
 I mean I'm doing it. Yeah. Well it's part of it, it's, it is a small portion of the <redacted> project, OK.
 Right. So she's been she's been helping me a lot and getting participants for this book so. Yeah.

00:57 **OK, so I'm going to start off with some kind of getting to know you questions and then move into questions about collaboration. And then at the end, I'm going to ask you about current use of technology.**
 OK, ok.
OK, so just to just to start off with what kind of research do you do?
 I do research basically on infection control and preventive medicine and occupational health and safety, so I do a lot with salmonella in our system and crypto.

01:26 OK, so your epidemiologists, I am going to be an allergist and I boarded in large animal internal medicine as well as veterinary preventive medicine.
OK, and so some of my questions are going to be just like a tiny bit redundant or might be something like obvious or imply it. But I need to hear it from you because that's like the data is from you talking. OK? OK, so what is the goal of your work?
 And that's the goal of my work.

01:57 **It's basically like you need a very succinct statement or you're just going to go back and listen to this later. Like it's it can be it can be sustained. This is just to put the rest of your responses in context.**
 OK, so the goal in my research really is to establish evidence upon which we can base sort of those prevention strategies in a veterinary hospitals that would include being able to impact health care, associate infections of animals, as well as a lot of infections in people.

02:34 Mm hmm. And so that's sort of true, the bulk of it.
OK, so how many collaborators or research researchers or people are you working on in your current research project?
 So we just pick one project.
Yeah, just pick one. It is just any of them.
 OK, so I've got one right now, but aside from that, I'm almost in a while so it's a different one. I've got one that's unacceptable.

03:01 And let me say, I think there are five we look at as collaborators question. So it's me and the one, two, three, four, five other researchers, but they would all be here at <redacted> for this particular grant.
OK, so what is your role on this project?
 I am working on this project.
OK, so what are you what are you doing then?

- 03:29 So the project is working towards characterization of the prevention practices and occupational exposure with the ordinary personnel to cryptosporidium.
- OK, so in general, what is the average number of researchers on the projects that you worked on the average number?**
- So let's talk about giving you a time frame.
- 03:56 When I was doing my PhD type work, it would only have been maybe three to four. But now most of what I do is collaborative. I have multiple researchers and so it's probably averaging about four, five, maybe even six. And then new assistant faculty here, and so it helps me, right, if I've got multiple collaborators that are higher up right. To help me to support what I'm doing. So I'm probably averaging six right now.
- 04:25 **OK, um, and then just kind of in general, what is the what is your role in these research projects?**
- So the ones that I got here at <redacted>, I am looking on about four projects right now and then I'm a cold up here and about five other ones.
- OK and just to kind of go back a little bit, I can't remember if I asked you, what is your what is the largest project you've ever been on?**
- Probably the world's project.
- 04:56 **OK, and can you estimate how much of this so far the number of researchers have researchers cost?**
- It's got to be like 20 of us.
- OK.**
- And then the smallest, smallest would be two.
- OK, and so are there any disadvantages or challenges associated with working on projects where there are a smaller number of collaborators?**
- 05:25 Yeah, OK, well, we'll elaborate with a smaller number of people with disabilities or both advantages and disadvantages.
- Well, I'm just about to after you talk about the disadvantages, I'm going to ask you about the advantages.**
- So, OK, so the disadvantages are that basically it's just the two of you that are responsible for getting everything done for you have to try to bring in potentially you have to try to bring in other people to help.
- 05:55 And they may not be listed as a <redacted> investigator on the project. So then you're left with sort of trying to get them to help you. Some will do it just because they're collaborators of yours and they'll help out no matter what. And others want something in return. They want to be on the paper or get some recognition of that kind. And so that that can be a bit awkward.
- OK.**
- 06:19 **OK, and then and then on the flip side, what about the larger projects, what are the advantages and disadvantages for larger projects?**
- It's nice because you can draw on a lot of different expertise. So it's nice because none of us are an expert at everything. And so that I find hugely beneficial. I think it's a bit more difficult to manage a larger group, harder to find meeting times, sometimes harder to come to a consensus on how you should do things.
- 06:52 But I think with a larger group, you end up needing to make sure that you've got particular people assigned a particular task and not let it get too cloudy. Otherwise you'll never come to a consensus and people will get hurt feelings and all of that. And then the other challenge, of course, is figuring out who goes on which manuscript in what order.
- OK, how do you decide that?**

Historically, I mean, you know, if you've got somebody that's the highest, you know, whoever's the pie on there, I think probably has the final say on what happens.

07:25 But I think you need to hold on to the idea that people need to be a major contributor, whether that's with design of the study, with analyzing the data, with interpreting the data. They need to be a major contributor to make it onto that list. And then I think it's not a bad practice to decide order of authors based on number one, you know, how much they're contributing. But also, you know, once you get higher up the ladder and publications don't become as important, you may be willing to say, you know what purpose?

07:59 You know, new science, no higher up on the list.

Right.

So they get more credit for it because it will benefit them more. And so I think that's one way to sort of pay it forward where you all are getting credit that it might benefit somebody else to be a bit closer to the head of the group, so to speak, and get sort of throw out there back. Nobody really knows that you're on that anymore. Right?

OK. Right. Right. So kind of a slightly different track about what percent of your projects have involved at least one collaborator at another institution.

08:33 Probably would like 90 percent of them at this point, it will involve a collaborator at the issue.

OK, and what percentage have involved collaborators like collaborators that were at multiple different?

We had multiple, multiple different and three different institutions, not just different cultures within the institution. You're talking like different.

OK, what percentage?

09:00 Probably 20 percent.

OK, so in those instances where you're working with collaborators or at other institutions, why did you choose to work with them? What times?

As far as the different institutions, I mean the different people. Yeah, but a lot of times it's you know, it might be a colleague of a colleague.

09:27 It's like this is a good person for you to work with and introduces you as though you've got some avenue and or you've been introduced as an expert in an area that they need some help. So a lot of times it will be that especially when your new faculty, you sort of come at some of these things and then as you get going, you start developing those yourself. So it's really me going and looking or them going to looking for somebody that could be a benefit and somebody direct some sort of your way.

OK. OK, so.

09:57 **What kind of roles are your collaborators at other institutions playing in your research?**

Some of them are providing oversight to some of the grants that I'm on our four new faculty. And so they have a training component with them. And so they'll be sort of oversight. Sometimes it'll be folks that have expertise on the data analysis side or particular detection methods that you want to use.

10:25 And so you bring them in to help with that. OK, so you're in an instance where you've needed expertise. You had you had to go somewhere else to find it with a collaborator, somebody that you had never worked with before, or that, you know, nobody that you had worked with had worked before for you to go. So, yeah, I mean, so there's I guess to answer to that one is certainly when you go into a situation like Welcome to my world at <redacted>, where it's like I'm introduced to these people, I know I don't know them at all, that I'm expected to develop project with them.

11:00 And so that happens just because of the nature of the beast. Other times where I haven't necessarily. Well, yeah, actually, I did reach out. I submitted a grant to look at the veterinary microbiome, the international environmental microbiome. And I reached out to an expert here on the <redacted>

campus. But I don't know that works with the <redacted> institute for guidance on sampling and that kind of thing. But it was somebody at my parent institution.

11:30 But there, you know, on a different, different unit of the university.

OK, and so are there any disadvantages or challenges to working on projects where your collaborators are distributed?

I think it's I think it's always good to bring people in from all over because they all have different experiences and bring to bring something different to the table. And I think different universities sometimes have different equipment available and different skill sets available.

12:01 So I think that can be important. I think the negatives are that you're all at different institutions. It's a lot harder to meet face to face. You're doing a lot of meetings and that kind of thing in those days. And those can be a challenge both because sometimes it's hard to you know, there's a lot of communication that happens when you're talking face to face that you don't necessarily get when you're like on a conference call and you'll get some of that on Skype. But sometimes you can't see people at the time. The time zone difference for me right now, that's going to be the biggest challenge.

12:32 On Eastern Time and I've got some collaborators that are, you know, over on the West Coast. And so it's a three hour time difference. And that could be a pretty big challenge to try to find a time that works for everybody. OK, do either of these challenges.

Oh, I just asked you about challenges to ask you about benefits as well.

Sorry about benefits. I didn't have very many.

OK do these challenges or benefits change when you have like people at more than one, different institutions like the multiple?

13:06 I think so. Like if I thought if I just have, you know, if I have multiple fires, the girl, the issue really is a little bit easier for them to all sort of show up in one room and then you just have that one, you know, interface that you have to create so you can talk to people. But I've got people here at work and people are the issue. And people at I collaborate with the contractors in <redacted>. Well, we're all in three different locations. We're all really busy. And it can be really difficult to get everybody at the same time to talk about a project.

13:36 OK, but I think the more institutions you have, the bigger that network gets for one project, the more difficulties you can have on making sure that everybody's on the same page.

OK, are there any disadvantages or challenges associated with working on projects where all of your research, all of your all the researchers are looked at the same location as you?

I think that they're all here and it's a little bit easier to go talk to one on one and to make sure that you're all working together.

14:07 These are his students on the project because you can keep tabs on them and all of that. The negative is I think sometimes they can do it outside of the institution. You don't ever get sort of new information and new ideas. And so I think I think that's pretty valuable to have. And so I think that can be a negative from just sticking with folks at your institution.

OK, so I kind of want to, again, add a little bit of a different track about what percentage of your projects involve collaborators who are in different research fields.

14:45 And what do you mean by a research field to my problem, I guess, with the questions that you epidemiology, but I, I dabble in a lot of things between disinfecting comparisons to diagnostic tests, evaluation to look at risk factors for survival and <redacted> of courses. I mean, I've got this very broad focus, right?

15:07 Well, I mean, it's a little difficult for me to discern since I am not a I have I don't have a biology background, so I don't know, say, working with people who are in bioinformatics or doing statistics. Yeah. So and what was the question again?

Sorry, what percentage of your projects involve collaborators in different fields?

I would say probably 60 percent of them, because I'll say that because that's why they're that's why they're collaborating, right.

15:36 Because they bring something different to the table for me. And so I think the majority of probably 50 percent.

OK, are there any I can keep using questions, disadvantages or challenges associated with working on projects where some of your collaborators are in different fields?

Yes, so we've already sort of intimated, I guess, that they're bringing a different point of view, they're bringing their own set of expertise to the table. And so that that's definitely advantage. The disadvantages.

16:05 You're typically speaking a different language. And so that can be a challenge where it's like you're all trying to, you know, the common goal that you're you can't you don't connect. So I think you're doing that. You have to really take some time to establish sort of what, you know, provide some definitions. Right. And not dumbed down so the people are insulted. But just make sure that we all are talking about the same thing. And that can be really difficult to experience that with the big project in the world where it's just like all over the place and people of all different backgrounds.

16:35 So I think I think that just making sure you're speaking that same language.

Yeah, I've definitely experienced that as well.

Well, you're a <redacted> writer, so you're probably going to rely on people like what are you talking about?

Right. Right. And I don't even know informatics. So I have absolutely no biology background that I know some people who do bioinformatics dealers association and getting. I'm getting there. So what about working on projects when all of your collaborators are in the same field?

17:11 It's nice in the sense the advantage is that you've got people that understand what you're trying to do, understand the language, the negative is sometimes a very opinionated and if they're a strong personality, that can be a challenge to manage.

OK. No, no. Can you elaborate on that and how that's an issue specific to working with people who are in the same field?

17:37 The strong personalities. Yeah, well, if they so we think about. The analysis or even a study design, some people might be very opinionated on the best way to do something and might not be willing to hear that there perhaps is maybe not a better way, but a different way, or that there's sort of new technology out there that might be beneficial. It might not want to play nicely about that.

18:05 And so I think as a I think if you are a full professor and you've got a little bit of weight to throw around, that's what the issues are. You're an assistant professor like I am. It can be a bit awkward when that person is someone that is a full professor.

Right.

Makes a little bit harder, even though it's your project to navigate that.

OK. And you were mentioning some additional disadvantages to working with people in the same field.

What was I thinking?

I don't know, because I cut you off. I'm so sorry.

18:37 That's the big one that I only one I can think of at the moment. That's the big one is just this is that strong personality that. I think I think I do have another one, I think also it can be tough sometimes because, you know, you come through graduate work and then you go into that field. And I think sometimes you sort of establish yourself. People might still consider you a graduate student in that field, whereas if you're dealing with people outside of the field, you're just a Ph.D.

19:06 and they respect that.

Right.

And so I think that could be a challenge, too. But it's one that I think when you're early on versus when you're later in your career.

OK, so how frequently do you meet with collaborators when you're working on a project?

Depends on the project. Obviously, I typically try to reach out to people sort of monthly if I haven't heard from them. It's a project that's, you know, just ramping up and that will be more frequent.

19:37 It might be weekly and you get organized and then once it gets rolling, it'll usually be weekly or monthly or bi monthly. Certainly I have a project that started at <redacted>, but the collaboration with a practice in <redacted> and certainly that's how it was where in the beginning it was sort of this they'll stay on top of things, you know, right at the beginning and for everybody on the same page and things are rolling in the news that he it back about. And you recognize that there's issues.

20:06 But I think if you're not touching base or some sort of monthly basis for six weeks and you potentially could have some issues that you're not aware of.

OK, so just the frequency at which you meet with your collaborators, change with, say, the location of your collaborators or the size of your group or the backgrounds of the people that you're working with. Huh?

20:35 But I guess I tend to think that if the people that I work with all the time, I probably don't have a formal meeting with them. Say, because you happen upon them and your chat about the third of the other, if it's people that are off site, I think I'm much more proactive on setting, you know, setting up meetings and keeping in touch with what's going on because they're off site.

21:00 I also think if they're new at doing this or you're concerned about, you know, a conflict protocol, then that would also be another reason why I would tend to meet with them more rather than less.

OK. Have you ever had a project fail because of collaboration issues?

So define failure. You mean like the project didn't finish ?

21:23 **Yeah.**

I've never had a project not finished because the collaborators I had I've had a project, you know, fall apart quite a bit and one that we had to put back together and finish without the person.

OK, how did that what happened?

It was it was a program that was just not agreeable to work with and sort of dropped the ball on sampling and basically you have to get somebody else to pick it up and run with it.

21:52 OK, but without having sort of those routine meaning, you would have we would miss that.

Really. Which do you think has the biggest impact on the outcome of a project the size of the group, the location of your collaborators, or the backgrounds of the people that you're working with?

Background, the people you're working with.

Can you elaborate?

22:22 I think. That doesn't matter how big my group is, as I am with a small group of people that really know what they're doing and have good experience, you'll be successful. If I'm with a big group that has it, I'll be successful if I'm with a small number of people that have no idea what they're doing and are not very effective, then. I'm not going to get anywhere and likewise with a large group, I think it's partly because it's large, but I think it's definitely critical that the background of the person that's leading the charge needs to be somebody that has been successful in the past and has some skills when it comes to dealing with large groups.

22:58 **OK, what kind of skills?**

Being able to provide leadership, being able to identify potential issues between collaborators and knowing how to manage that.

Mm hmm.

I think having somebody that a good mentor at the top, because presumably in your project, you're going to have people that are more senior and people that are less dangerous. You need to have somebody that that can be a good mentor for the group.

23:26 And so they need to have some pretty diverse, you know, experience in that. Right, being able to work alongside colleagues that are there equal as well as, you know, fostering that learning and growing of, you know, colleagues that are new, colleagues that are younger and coming up through the ranks.

OK. So as we've been talking, you've mentioned a couple of things that are kind of collaborative tasks. And in your research, you've mentioned meeting with collaborators and also writing or preparing manuscripts.

24:00 **Are there any other tasks or things that that you do that when you're doing your research that involve working with another person?**

So certainly we write the grants that typically involves other people. For me, whether it's something the idea of them or having them as a collaborator and having them working on the ground or having that person that maybe is on the grant but is willing to read your work for you and give you some feedback.

24:28 I think when you develop the study design, think it's critical that you have other people involved in that.
Right.

And it will be people with you are saying, you know, that are epidemiologists working right there in the same field that you also are depending on what you're doing for doing something like a survey or anything like that. And you need to have people look at that for you and let you know if it makes sense that there's any issues. And so I think for me, research in general, I think it's collaborative.

24:57 There's very little that I actually do on my own.

OK. OK, and then what about bench work or data?

And also I think data analysis can be sort of collaborative, although I tend to do my own, but I will reach out to people when I need help with stuff. And so that's, you know, collaboration bench work. I typically have done my own, but now, of course, I've got students. And so there's sort of it's not much collaboration and mentorship, but I have a collaboration with a program that that is doing some cultures for me.

25:33 So it could be a collaboration. It depends on who's got the expertise that you need. A lot of the stuff that I do, I you know, I can do it myself. But sometimes when you get into some of the bio informatics embedded genomics, certainly I'm not going to do all of that myself. I'm going to have collaborators helping with us.

OK, what about sharing your data?

I don't like to share a lot of the data that I have used, data that was generated in the issue, so it's not really my data to share.

26:05 So that would be somebody else's data recorder data that I'm generating. That's something that I'll have to decide is how available that data will be for other people to use pluses and minuses of that.

Right.

You want people to have access to your data and use it and benefit from that. But the flip side of that is you want to be able to use that data for further research. And so sort of a double edged sword, right? What you do with that?

OK, so what about sharing with your collaborators?

- 26:33 They definitely showed my collaborators with tools or methods used to share your data with your collaborators. I typically use Dropbox to share stuff because that's when I figure out how to use or try to use Google Docs. But it's not totally intuitive. Miss, work email or write your emails that the people.
- OK. And so just kind of bounce back to Google Docs and what I mean, what happened?**
- 27:04 I am either just handicapped or like I find it. So I like to go through and he'll try to, you know, have a interact document that everybody can work on. But then you make comments and your comments don't show up because I didn't do the right thing just in my straight forward to me on how to freakin use that program. And so it's just a nightmare. And so that's why I quit using it. I tend to just put stuff in Dropbox and email somebody and say, OK, it's your turn to look at this and make edits.
- 27:33 And he's got three days. And then when they're done, it's like, OK, the next person, this is yours now. And so we do this a lot when we're developing like we're going through a curriculum development here. And so we'll certainly do that when we're developing a curriculum, we're developing a proposal, things like that, where it's like I'll either email it to them and let that one person comment and then I incorporate that and then I send it to the next person or I put it in a Dropbox and let them access it. But that's OK. It's a box that doesn't I don't know if I'm the only one who has issues with it that I just cannot seem to figure it out.
- 28:02 **No, you're definitely not the only person who has this problem and everybody uses it.**
- Like for in fact, I was like, oh, you've got to do whatever it I'm like, oh, God, please don't make me use it.
- OK, so when do you. OK, so what do you choose to say, put a document on Dropbox versus send it in an email.**
- If I am looking for very specific feedback on one thing, I'll send you the document and that person's like, hey, can you look at this one thing?
- 28:36 I put it in the document, please take a look and it'll be a very pointed question. Password with a Dropbox is to the project. So it'll be your Facebook approval. It'll be the grand prize that's been written. It'll be a copy of the of the data that's being entered. And certainly when I'm working with students, I've got a few students working on the issue. They'll ensure that they're supposed to enter the data on their computers as well as in that Dropbox folder, or at least copy it into their system.
- 29:06 That also allows them to have multiple copies. So stuff like that, sometimes resources. So if we find a good reference that we want people to read, sometimes I'll have a folder and Dropbox, it'll be like you references for this, that or the other. Mm hmm. That's mostly what I do with it.
- Have you ever had any issues come up when using Dropbox?**
- Yes.
- You describe them to me.**
- 29:31 So one issue would be that people don't know how to use it and they'll take the document out of the box and put it on their own computer so they'll drag it into sort of copying it so that it'll be if you drop starts filling up. So you share it with somebody. And so if they start adding stuff to it without sort of thinking about the fact that it's going up in the Dropbox and that wasn't an issue. As I started doing that all sudden, we were going back and forth. I mean, it's a piece of crap off there and they go with lots of stuff on there.
- 30:03 So I think those are the biggest issues is that people sometimes take stuff off unknowingly.
- Right.**
- And then people don't think about the fact that when they put stuff in there, make sure that it's relevant and it's small enough that it's not going to cloud up other people's boxes.
- OK, are there any people that you choose not to use Dropbox with?**
- Not yet, I can see why I might not do both of them off, I think, because they don't know how to use it.

- 30:37 But in general, I feel like most people that I work with or know about Dropbox. Mm hmm.
OK, so have you ever had, like, data that was too large to put on Dropbox?
Yes. Yes.
So that little I was going to ask you, what do you do with it?
So that'll be. You know, you usually try to email it to him or cut it in the channel or hopefully meet with them face to face and get it transferred.
- 31:08 **OK, so that computer thing. OK, so are there we were kind of asked about data sharing. We kind of ended up talking quite a bit about people who are reading right now, manuscripts. So what would editors use to write your papers?**
But I mean, other like we're talking about or oh, yeah, we're talking about very some very computer, you can tell.
- 31:40 Yeah, you were wayward because I was on my computer, OK? And so my computer is owned by <redacted>.
Right.
And this is what they put on it. Yeah. No, that's probably I could probably request something else, but that's what I'm used to. And so that's was bummer.
Yeah.
This is perfectly reasonable. I just come out here like, you know.
- 32:06 **No, I look specifically. Yeah. There's no there's no wrong answer here to that.**
And I'm like, I don't, I don't know you but I look on my computer. Yeah. I mean, I'm not here to judge or anything like that for sure. Yeah. Should I be using it. No.
OK, so and when you're when you're collaborating with people and you're doing that whole you said that you're emailing back and forth and so are you emailing the document back and forth or.
- 32:40 Sometimes yeah. Sometimes it might just be that I'm struggling with the section and I'll cut a section out and paste in the email. But a lot of times it will be the whole document. When I when I write, I tend to put notes on the side if there's specific questions for specific people so that they can then address that and provide the information. And if so, that isn't that will depend on how far along the document is. Early on, it might be just a chunk that I send in an email later on when the document gets more pulled together and is more ready for submission of the whole topic because.
Mm hmm.
- 33:10 **OK. So have you ever had any issues using Microsoft Word with to collaborate on papers?**
No, not that I know of at this point. It's like, again, I keep asking the same questions. Right. But, um.
OK, so we also you also brought up a meeting with people for a variety of reasons, actually, and you brought up using Skype in the face to face conversations.
- 33:40 Is there anything else you use or you face. I'm on my phone sometimes. OK, so face to face and worn out, face to face. Otherwise sometimes text messaging feels like fall out with or having an issue in the text. Message me.
OK, um, so how often do you use Skype for meetings.
Right now it's pretty infrequent. Over the last year though, it's probably monthly because I have four projects running with students on them. Mm hmm.
- 34:09 And that's the issue. And so it was Skype with them to make sure that they were, you know, where they were supposed to be and get any questions answered.
OK, so when were you using Skype over a different kind of communication method like email or phone calls or.

Whatever for some, sometimes it feels like it's just easier to have the conversation rather than trying to type it with students they might know, might not know what issue they're having.

34:38 And so you sort of talk about how it's been going and then all of a sudden realize that maybe I am having a problem and I didn't know it. But I think having that actual conversation and I don't want to talk on the phone. And so it's sort of nice to be able to see them and to have that, you know, more and more intimate.

Right.

Even though you're so far away to be able to see the person you're talking to. So I tend to do with things like that where I really want to know what's going on with the project and make sure that everything is good. And it tends to be with sort of novices as opposed to more seasoned researchers.

35:10 And a lot of times that might just be a conference call.

OK, OK, so what is the benefit of doing a conference call over Skype?

So the conference call. I mean, it just seems like sometimes that people are more willing to do that, they can do that anywhere. So certainly my collaborators, where they're equine practitioners, are out in the field. You know, they can jump on a conference call while they're driving down the road. And it's a little bit easier for busy people.

35:40 I think when you do the Skype, you need to have that defined period of time where they can actually sit in front of their computer and be able to Skype with you.

OK. Have you ever had any issues with using Skype to sort of have some connectivity issues in terms of video?

Doesn't work very well.

Mm hmm.

36:06 That's pretty much it otherwise, and sometimes it's hard to find the person you're trying to, like, make that initial contact, but that kind of thing, you know, I have an issue I just lost because I apparently had an old Skype account. So like one that's like <redacted> and I have another one <redacted>, <redacted> and, you know.

Yeah. OK, so what about conference call, I guess, or any difficulties or issues with that?

36:35 The issue is figuring out how to do it because every phone system is different. It's a bit of a nightmare and you have to jump through all these hoops and figure out how to do it. And once you sort of figure it out, it's OK. You know, the people are you know, people have to be available to answer their phones through the other issue. That's part of it.

OK, what about using FaceTime?

FaceTime? I said pretty good. Like, that's usually when I'm just trying to meet with one other person and FaceTime sometimes lots have some video connectivity issues, but in general it works pretty well.

37:05 **Mm hmm.**

And it's funny because I usually do that when it's like this really quick, you know, to chat with you quickly and you'll FaceTime versus Skype. And to do that when I have one, I expect to have a longer conversation for some reason and no idea why I do that. But now that I think about it, I've never used FaceTime.

So can you kind of elaborate on, like, how it's quicker or whether it's right on my phone?

Right. And so if they've got FaceTime on their phones, a lot of people do.

37:36 You just instead of doing the phone call, you just get FaceTime and connect them and you can talk to them and see a video.

Right.

And so it's kind of nice. And if it's a student in allows is having an issue, they can actually show you what the issue is, which is sort of nice because it goes a little bit easier sometimes with your computer. It's hard to sort of show people what you're doing. And so that's sort of like this because it's my mobile device.

Right.

And so it's easier to use Skype on my phone, too. But I don't generally use my phone. I usually save on my laptop.

38:06 **Why don't you use on your phone?**

I think it's because I got FaceTime. Well, that's a good one. But, you know, I think if the other person didn't have the same Skype survival option.

Right. Right, right. OK. And then text messaging. Do you mean like like SMS texting or does that include email?

No texting. So it might be email because you give it right away. But students in general, they will do the actual text message about the text message.

38:35 Be a question.

OK, have you ever had any issues with that?

Sometimes the text can be delayed, it gets stuck in cyberspace and then eventually gets you for that sort of a bummer, because usually it's something that they need to know now, which is why they're sort of doing that. They call you, I don't know. But yeah. So if it and they're going to be like I texted you and I'll never get it because I know that it just didn't go through or what happened.

39:03 **OK, so my next question was going to be, so why was the benefit of using text messaging over a of communication?**

I think it's just sort of a quick question. So they want an answer to that, maybe doesn't need a whole email and quite frankly, text messaging work using sort of shorter versions of words. And it was a really short message, whereas email, even when you do it on your phone, you tend to type things out. So I think it takes longer.

39:32 And so I think that's the way we do it. So yes. And then face to face meetings like in-person meetings.

When do you what do you do that?

Huh, well, I do that with people that I know that are physically located in my location, right. So my day to day stuff is I've got projects that need to have, you know, group meetings and we'll get together somewhere on campus. I tend to try to do face to face meetings with collaborators when we're at the same conferences, take advantage of that time and just to touch base and make sure that we're all on the same page.

40:07 **Mm hmm. OK. So would you choose to do a face to face meeting over Skype or.**

Well, sort of the same answer when they're in the same location, I would prefer to see the face to face meeting. The reason they sort of lean to the face kind of escaping is because I spent a lot of folks that are not physically here, but sort of like being able to see them when you pass them and stuff like that.

40:35 **OK, so I have a couple of questions for you. If you create any hypothetical future technology and you don't need to limit it to what you think we can or can't do, that would help you collaborate when doing research, what would it be or what would it do? Well, because it incorporates all of what we're talking about.**

Right. It would be that platform that would let you have shared documents that were easily accessible.

41:05 And it was very obvious how you edit them in real time and have that show up. It would be a big enough platform that it could house, you know, a reasonable amount of data. That would be something that has, you know, a video conferencing capability that could be either laptop based or, you know, an iPhone type idea.

Right.

That would have some apps that would support sort of that kind of interactive collaborative group work. But it would be nice to have it all on one package.

Right.

41:35 Instead of, you know, we're talking about all these different all these different things that I have to sign into in my last year to get anything done. It would be nice to just have that one centralized thing that provides all that and something I thought you maybe would ask about, but didn't want to talk about marriage, because the other thing that I would have in there is a way to share references, easily share references. I, you know, like when I type papers I need and but not everybody that I work with does sometimes have issues with trying to share references, I think, for metagenomics.

42:05 But to put a link in there that goes to the <redacted> library, well, I don't have access to the library anymore, so that would help me write. I have to go and find my way into PubMed and get it through the <redacted> site. And so having something that somehow builds that in where all that stuff is, you know, organized, easy to find and can be all included in one location, in a secure location. And that, hypothetically, is <redacted> great service.

42:36 But everybody can access to that. You can, you know, invite people to write. Yeah, for sure, but I only want to point to one thing.

Yeah, absolutely.

The issue is nothing. So you have to have a log in different for, like, everything, really. I've got like 15 passwords.

Yes.

And so then you get to the thing and it's like, OK, put in your party. OK, I got that list of your passwords, like some of it. I don't know which one. So you just start running through them and it's a nightmare.

Mm hmm.

43:06 And so that would be nice. And I think, you know, they try to get to that where they can provide the sort of Google Docs platform, but it's so not user friendly that I can't use it. And in fact, a lot of people I work with use it. And so I think all of that and easy to use platform where it's all included. You sign in and you're there would be great, especially if they could host that video conference where you basically just sign in and there's something there that you can all just talk to each other.

Mm hmm. OK, great. OK, do you have any questions for me?

43:37 No, I just wanna know if you're going to do that for me, which is kind of a kind of a big undertaking, right?

So I mean, we're to like five years from now, right?

Yeah, I think that's the kind of thing that I don't I don't think.

Yeah. I think that's the kind of thing that you would need to, you know, like. We finished we finished with a giant grant and like a slab of people in order to spend the next 10 years doing that.