00:00	**So I'm going to start off with some kind of getting to know you questions followed by questions regarding collaboration and then some like that about technology. OK, so what kind of research do?**
00:28	I am an epidemiologist, yes. So I do research around prevention and control of infectious diseases.
	So is the goal of your work– well, I mean, some of these questions are going to seem a little obvious, but I need to hear it from you because it's better.
	So what's the question?
	Was is the goal?
	The goal of my research is to fight practical solutions for preventing infectious diseases and their impact both to animals and to people.
00:58	**So how many collaborators on your current research project?**
	All of my research projects for this <redacted> grant or whatever.
	I'm going to ask you if you are going to ask you about your how many are on your small how many on your biggest, how many current and how many is your average in general?
	Yeah. OK, so an unfunded research or a research that we've applied for?
	Any research.
01:30	OK, I'm going to limit my answer really to the active stuff which is which is the funding for research on the smallest projects– you know, two people. The largest projects… I don't know, 30.
	OK, now, what would be the central tendency around that?
02:00	I mean, probably where I spent most of my time would be so really it's on the larger end of it. It'd be projects that are on the order of 10 to 30, you know, 10 to 30 collaborators. And that includes all levels of scientists.
	Right. And that's that is what I'm asking about.
	And then the current project, the <redacted> proposal that would be on the thirtyish side.
	So what is your role? And I mean, again, I should do this, but I have to ask you, what is your role on that project?
02:32	I'm co-lead on that project.
	OK, you know, so if you will, elaborate just a little bit.
	Well, OK, one of my responsibilities I am responsible for is that I lead in the grant submission and development and submission. <redacted> and I work kind of an equal partnership way.
02:58	And so we are responsible for overseeing all aspects of the project, from project design to implementation, to overseeing the funding, the spending, the accountability of those items deliver the you know, the deliverables report preparation, dissemination of information both in a scientific and a public context.
03:31	**OK, and then what we what are your roles in general, like across the board for all your projects?**
	I, I do a little bit where I'm a collaborator in the sense of doing analysis or, you know, that's my that's my principal role. For the most part, I act at a level that's higher. That's more on the project development and oversight.
04:00	**OK, so you mentioned that your smallest research project is linked. Are there any disadvantages or challenges to working on smallest research projects?**
	Well, it in general, the work that I do, which has a larger number of collaborators, is more impactful. And that's not necessarily driven by how many collaborators I have.
04:32	It's kind of chicken and egg. I cannot engage in larger, impactful projects without bringing in scientists to help me adequately cover the knowledge base and the deliverables.

Right.

I cannot engage without having larger numbers of collaborators. And working with larger number collaborators leads to bigger ideas and those kinds of things.

05:01   **Are there any other benefits to working in large groups?**

Well, I enjoy I enjoy the research collaborations, I mean, and my motivations for being collaborative– so, my primary motivation for doing science is not about prestige as a primary thing, it's not about the money or attention as a primary thing.

05:35   It's about helping other people and enjoying it. And I enjoy working with people in that collaborative relationship.

Are there any challenges or disadvantages to working on larger projects?

06:04   Yeah, they're harder to they're harder to ensure… You have to trust people that they will come, that they'll deliver on what they're supposed to do, right? The more people you bring in, the harder it is to ensure that everybody's at the same level and the same standard about those kinds of things. That's probably the biggest one.

OK, any additional?

Oh, there's always more people, more and more potential for conflict or more potential for disagreement.

06:33   **Conflict may be the strongest, but more potential for disagreement or whatever, right?**

I suppose.

OK, I'm kind of on the flip side, are there any benefits to working with smaller groups?

Yeah, you tend to be more personally in control of what's happening.

Right.

That's a downside, I guess, to go on the other side of benefits, of having a smaller group. It's not all depending on part of me doing the work. I mean, I'm busy.

07:00   I have lots of projects going for things to depend solely upon me pushing this widget, you know, across so many people's desk. That can be hard for me because I've got so many things going on here. So I have more people that I can depend on in a large collaborative setting.

OK, about what percentage of your projects involve at least one collaborator who's at another institution?

07:37   Ninety five percent.

OK. Why are you choosing to work with those collaborators?

They're good scientists and I get along with them.

OK, so how do you go about meeting social networks? Is there any instances where you're meeting expertise from somebody you don't necessarily know them?

07:57   Not so much at other institutions. Once in a while, you know– yeah. And I can think of specific examples in in my career. And almost inevitably, it's led to, you know, trusted relationships, friendships around those kinds of things.

08:23   But more often than not, when seeking people outside a reach to people that I know and I trust already, it's not a blind date.

Mm hmm. Right. Right. Can you elaborate on the benefits of working with those people that you already know?

08:48   Well, some of the things that I look for in collaborators are getting along, being reliable and the deliverables being high quality science, right? Those are things that I need to do, need to have an effective collaborative network.

09:14   Being able to cast my net outside of my immediate contacts in a location know allows me to find those people, you know, so. It's as common to get to work on a new project with those people because we like to work with each other as it is for us to say, hey, here's a great idea and this widget fits into this whole and you're a widget.

09:46   It has to do with and the people that I collaborate with; it's not that I don't have friends at other institutions that are doing different things, but the people that I collaborate are working in the same area.

And so, have you ever had a project fail because of collaboration issues?

Yeah, having people not doing their job, people creating conflict.

10:15   **OK, what was the ultimate outcome of this project?**

If they were sort of ad hoc projects where there was not a lot of funding in place, so it was then they then they would just tend to fade away, you know, evaporate kind of a thing.

10:41   If there was funding on the line and the project was centered here, you know, end up having to pick up the pieces for what they were doing. And it usually took longer. Sometimes we had to find additional funding because of those failures sometimes. And almost inevitably, it put publication of the of the research in jeopardy. And some of those projects, while they may have been completed, they've never been published.

11:15   If they were centered somewhere else, I just pull out. You know, from that standpoint, that's actually a huge consequence of graduate students not doing a good job, not following through. Right.

11:39   If a graduate student falls through and then it falls on to a busier person, someone whose attention is spread out across more things, it puts the publications in jeopardy. So that's a pretty frequent one on that. But I've had faculty, professors that have basically completely, you know… There's one in particular I can think of. It hasn't happened much more than that out of all the people that were removed.

12:10   But they really screwed up. Right. And it cost me cost me like about two hundred thousand dollars and wasted funding. And, you know, now I know I'm able to remember this off the top of your head.

Yeah, yeah, yeah. So anyway, so when you're working with collaborators who are outside of your institution, what roles are they playing in your research?

12:38   Oh, well, everything from facilitating the physical conduct of the research like sample collection or something like that to full fledged. We collaborate in developing the ideas and trade on getting the funding. Or I have collaborators who work for government agencies and so they have some control over dissemination of funding. And so, you know, to all the way to facilitating me getting funding.

13:05   **OK, you mentioned that sometimes you're working with your collaborators because you like to work with them, and they kind of come up with a project to work together, and sometimes the have something that you need. How often would you say that their roles are very vital to the project?**

Frequently. Frequently.

Yeah, I see. Seems silly. I'm trying to motivate why I'm actually like looking into.

It's OK.

13:34   **Right. OK. So frequently those people.**

Those. Yeah, I don't. There's a few situations where I where I ask people to do trivial things for me that we don't just take it over ourselves or that we do fee for service things, but that's it. We pretty much are self-contained with people who participate in determining the course of the research.

14:09   **OK, are there any disadvantages or challenges associated with working with people who are at a different institution?**

Not many, really, I mean.

14:33   I have as close or close relationships with people who are different places than I do with people who are across campus, like there's people that I speak with, I can think of I think I can think of three, four, five people who are in different countries who I speak with basically on a weekly basis.

OK.

14:56   And, you know, we just you know, so that's true for <redacted>, you know, I mean, so and I don't see him more frequently. Well, maybe touch maybe a bit more frequently. So it's not, you know, that that the technology around the ability to communicate and the ability to communicate and the ability to interact is so great these days that the distances around collaboration or, you know, they're very they're not that they're not that many.

15:34   **OK, how about how often do you meet with your collaborators?**

Well, even if they're out of the country or whatever, I mean, I meet very frequently, so multiple times a week or– well, yeah. For those that are my closest collaborators, daily.

Right.

15:52   And for those and then, you know, less frequently for those that I'm that we're not working as closely on a particular project or whatever. It does the frequency, you know, I'm coming to this because images change due to location of, you know.

What about the size of the group or the backgrounds of the people that you're working with?

No, no. OK, I'm just as likely to communicate frequently as someone who's in a different discipline as I am with someone using my own discipline.

16:23   **Right. OK.**

And I'm just as likely to work closely with the same thing. Right? I mean, we work closely with people who do very similar things that people will do very different things. OK, yeah, there is a question. I came up with something like related literature.

So are there any benefits to working in distributed projects for people at different locations?

16:58   Well. Yeah, I mean, I think that I think that it expands possibility for that social network, that professionally social network, that a professional network, I guess, to find additional great collaborators, you know, so someone at a different institution that I work with very closely with, they know someone that they work very closely with.

17:25   And then that has brought them into a into a professional network setting, you know, and there have been a number of those.

Right. OK, are there any benefits to working on projects where everybody's the same location?

Sure. I mean, now, proximity is relative, right? For someone who's down the hall, that has advantages.

Right.

You're working close with someone in there and they're like, you can bump into him or you can walk out of your office and go talk to him or whatever. That has advantages.

17:53   But, you know, really so <redacted> and I like we're on the phone every day to each other talking about various things and checking in and stuff.

Right.

We're texting right every day about research questions or things that are going on. So we're checking in all the time. That wouldn't be that wouldn't be any different if he had an office next door. So it does sort of help it.

18:19   It helps in the ability to strengthen those, but it doesn't impede– it doesn't eliminate the ability to be close and a professional in a collaborative relationship. It helps that it helps that he and I can sit in the same room and in bullshit sometimes, you know?

OK. Are there any disadvantages to working on projects or everybody's at the same location?

18:47 Well, the counter right would be, you know, who's in one location is a limiting factor, right? Not everybody can be in the same location. So if I'm looking to work with the vast array of people I would get along with or whatever, it just limits those possibilities.

OK, so about what percentage of your projects involve collaborators who are in different fields, not epidemiologists?

19:15 Oh, well. Most of them I mean, there are people that do different things than I do, right? You know, I don't know, 90 percent.

OK, are there any challenges or problems associated with working with collaborators who are in different fields?

19:45 Yeah, not everyone who works in a different field, it goes to an individual personality, not to their disciplines, right. So some people believe that what they do is most important, OK, as opposed to seeing the benefits of people bringing different things to the table. Some people who are working in different fields aren't interested in learning about what other people do.

20:13 OK, so I'll give you a for instance. OK, so as an epidemiologist, you know, we often are people who think quantitatively, OK? And because of that, then we tend to become over time fairly proficient in statistics or different types of modeling and math a bit not in a not in a you know, for fun kind of, but for a utility perspective, not Sudoku.

20:47 **Right.**

You know, statistics for answering research questions. OK, and so, I work with some people that I got to take this. You can be in the same location and have conflicts about working together.

Right.

That was not a collaborative situation, per say, but it's about what it is about a collaborative situation. Right. I mean, if we're in the same building, if we're in the same college, there's sort of a premise that we have the potential of working.

21:20 We have we should be working together. And here we are arguing about whether or not a cubicle has three walls or two walls. OK, so anyway, my lab is also in the middle. Yeah, yeah, yeah.

OK, so we were on disadvantages or problems associated with working with collaborators here in different fields. And you had discussed it was more of a personality issue.

Yeah.

With regards to I think that my work is the most important.

21:52 Yeah. And I was going to give you an example. Right. So that's where I was. And so I'm you know, so we have quantitative things that we do in statistics and that and so people will come and they'll see that as you can do this, it's a little bit like saying, you know, as a microbiologist, you can do this test for me right now. They'll come to me and they'll say, well, I want this to test these statistics done this way. And they have less expertise around it.

22:20 And when I try to explain or tell them that that's not the best way or that's not the approach, then they're like, no, no, no, no, no, no. I don't want to hear that. I just want this done. So it's a little bit like fee for service or specific thing. That's a little bit like me going to the microbiologist and saying, well, I need you to do this test and then having more expertise and telling me that that's not the right way to do it. And then me telling them, no, I want to think you better sit at 55 degrees instead of you know, it makes no sense that I would not use their full knowledge.

22:47 **So anyway, are there any advantages to working with people who are on the same location, that five percent of 10 percent of groups?**

Well, yeah. I mean, in the sense of, you know, I guess it goes back to personality. I mean, because there are people that are difficult to work with or do what I do, too. So it's really more it's really more about the personality of the individual.

23:19 **What about, say, benefits of working with people who are in different fields?**

Well, I can't do you know, it's just the nature of science anymore. I mean, it you know, there's very few <redacted> out there that can just do their own thing about what they do, create their own space. You know, it's just I mean, my research is has less impact.

23:46 You can't do as much.

OK, what would you say has the biggest impact on the outcome of a project the size, the location of the parts of the researchers or the backgrounds of the people involved?

What are the three?

The size, the group size, location and background.

Well, it's not the location. And it's not the size per say; it's the background, it's the mix of expertise that you need.

24:17 **OK, so as we've been talking, you've mentioned kind of a list of things that you do when you're working with other people, grant development, experimental design and implementation, overseeing funding, reporting, preparing reports and disseminating analysis.**

24:51 **What kind of how does how does that how does that work? What kind of tools to use really communicating with what's kind of like the workflow development grant?**

Well, it probably starts in two ways, either a funding opportunity or a research idea, OK? And so if it starts with a research idea, then we're looking for a funding opportunity.

25:22 So we may have a research. We need to do this bit of work. And then, you know, we probably don't get way down the line of developing a project until we understand that there's a target for doing the development around the research. That would be then you would get with your primary people that are the leaders in development of the idea and you would figure out a goal and a scope. Right. And sort of like, OK, this is this is the generality of how this goes.

25:52 You'd look at the budget and figure out how much you could afford. Right. How big the project can be and give you a good answer. OK, and then go back and do the detailed design around what fits into the box.

Right.

26:13 And also it goes to also it goes to that research idea, maybe turned a little bit depending upon the what we know about the funding agencies approach and what they what they will fund. It really does. It does gets influenced by what they will fund and what the goals of that call are.

26:40 **OK, so OK. So that initial conversation was with regards to figuring out the goal and the scope of your project. How are you communicating with your collaborators during this method, like are you having a face to face conversation emails back and forth?**

Yes, all of that. All of that teleconferencing. Yeah.

Anything in addition?

Yeah. I mean, yeah. I mean, there might be video conferencing, I mean any with Skype or whatever to. Right.

27:09 But yeah, it's not location, it's whatever is the most efficient for that. And I could have a phone call, it could be a teleconference with someone who's on campus, you know. Just depends.

Right. Yeah. So right now I'm going to be asking you about like all of the technology and say non technology, non technology methods that you're using for accomplishing these tasks. Yeah, because

my overall goal is to support collaboration with technology, regardless of like where people are located in that kind of thing.

27:42   **So going with I don't know, let's go with face to face. When would you use a face to face meeting over any of the other methods?**

Well, I mean, there's no advantage to me, really, and a person over a telephone call, unless people are in proximity. In proximity, we tend to get in the room together.

28:15   You know, I wouldn't have a telephone call for a detailed conversation with a guy who's next door. I would go and talk to him or even on campus. So I said with the benefit of speaking face to face over doing this phone call, there's a little bit of the, you know, one dimensionality of a phone call as opposed to the in-person thing. And I'm finding myself reaching to Skype more often.

28:44   I don't typically do that in proximity.

Why not?

Because I'm not a millennial.

Right.

I mean, it's a little bit it's generational, right? I mean, there was no email. There were no cell phones when I was in college. When I was in graduate school. Right. I mean, so, you know, the phone is you know, I spent a lot of time on the phone and I'm sure it's a little bit who I am. Right. I mean, my kids, they never use their minutes.

29:13   They never use minutes. It's all texting in that kind of stuff, you know, whereas I'm the biggest minute user in our plan, you know.

Right. Right. So are there any drawbacks using the phone other than like that one dimensionality?

No. And there are some advantages in that you find people where they are and they can talk in the car. You know, it doesn't have to have that proximity stuff.

So, yeah. Have you ever had an issue come up when because of using communication?

29:47   No.

OK, so tell me about that.

Well, right, I mean, you know, talk about when, you know, if a phone is a phone is one dimensional, then emails, half a dimension.

Right.

You know, I mean, I'm a fast typer, but, you know, for a complex conversation or conveying a complex idea, you know, I'm not going to spend the time writing an email.

30:14   I'm going to pick up the phone because I can because I can say it right. And the email I have to it you know, I'm editing, I'm working on typos. And then there's always the context kind of a thing because people are shortcutting right. So they can be misinterpreted, there can be misinterpreted. It's harder to get complex ideas around and they can be they're more likely to have misunderstanding or miscommunication in email and then by phone write the text or any other limitation on that is just magnifies that.

30:46   **OK, are there any benefits though?**

Yeah. I mean the quickness of doing email or text and find myself multitasking in meetings and stuff like that. And I can, you know, flip a quick note to someone right. As we're talking, you know.

Yeah.

So now there's a fallacy, right, that multitasking is just as efficient as working on an individual subject.

31:19   And that is a fallacy, right? I mean, they've shown that you actually do worse. You're less effective on both of the things that you're doing. But at a bit of that is the reality of just busy lifestyle.

Right.

I would like to go back to a time when there wasn't even an email, let alone faxes or anything like that. I mean, I've been hearing you go of.

Yeah, yeah. And what about your conferencing– as we talked about learning to speak one on one on the telephone– how often do you teleconference?

31:51   Every day. Every day.

Any issues with that?

I mean I, you know, it's easier to arrange a phone call. It is a face to face.

And then you also mentioned Skype, although you don't use it. You're experiencing video conferencing.

32:24   Yeah. The technology is not always… You know, so we went to a meeting in <redacted> and they work in the government, and you can't just Skype. You have to use their secure video conferencing stuff and they have to send you an invitation. You know, the technology around effective, effective teleconferencing is not.

32:54   **It's more complex and, you know, you know, the three words that go along with technology is great when it works.**

And so it doesn't work more often on teleconferencing than it does probably in any other thing that you're videoconferencing. Yeah. Ah, sorry. Videocon sorry. Videoconferencing. Sorry, telecommutes.

I just want to make sure teleconferencing, like, you know, no big deal.

33:18   Right. You get multiple people on the phone and stuff. OK, so but videoconferencing, you know, you know, the bridge doesn't work. It's, you know, you're, you know, you know, the connection is not a high speed. And so it buffers or you know, and people don't know enough about the software hardware to make their own adjustments. They have to have experts that are doing that for them. The if you're doing a desktop one to one, that's fine.

33:49   If you're trying to do someone that's in a meeting room, those that never works very well, you get a shot of this cavernous anyway.

So there's no advantage of that over a telephone right, at that point? So I do it well. Exactly. OK, you know, when we get to the point where it is a bit more seamless, like cell phones used to be a bit that way, too, right?

34:18   I mean, you drop towers and blah, blah, blah. So when it gets to be a bit more seamless in terms of connectivity and it gets a bit more in terms of it doesn't matter what kind of phone you have, you're calling between them. And it works just fine as opposed to who's got what software and who's got what camera, who's got what microphone when it gets a bit more seamless in terms of that, it'll be it'll be brilliant, right? I mean, it will be I mean, I'm still you gotta remember, I'm still I we didn't have we didn't have hard drives on the computers that I started using, OK?

34:52   They were floppy drives, five and a quarter inch floppy drive. OK, so probably will lag a little bit in that adoption. But still, I mean, why wouldn't you, why wouldn't you shoot it. Why wouldn't I Skype to someone who's on campus as opposed to picking up the phone. Right. Anyway. Yeah. I mean that's exactly what I asked you. So I think you it's just, you know, it's just familiarity and not everybody has that and it's just not as commonplace.

35:20   **OK, we kind of jump down to sharing your data during and after analysis. What do you use? How do you do that?**

You mean with the public or between investigators?

With your collaborators.

Email Dropbox. OK, anything else?

No. OK. When do you use email over using Dropbox?

Most of the time.

35:48 OK, why the whole idea of sending invitation, people have that or whatever in their space limitations on a Dropbox is too cheap to buy the professional thing. So if I had a large cloud that again, if not everybody has the same cloud, the cloud and not everyone has the same cloud service.

Right.

Versus an email, which it doesn't matter who, it's just its universality. Right. I can send email and it's going to go there as long as the file's not too big, you know.

36:20 **OK, so I'm going to ask you, are there any issues with file size?**

Of course.

Right.

And so when we get we go all the way to a very large data sets and we're still using VPN sharing, and not everybody— you know, that's even less than using Dropbox or Google Drive or whatever.

Right.

So size is probably the probably one of the biggest things that drives that.

36:49 **OK, so when do you use Dropbox?**

When there's lots of things that have to be shared or we have to do some editing across multiple locations.

Yeah.

That's you know, so why not use it, put it on a server and use it to be because most people don't know how to use FTP and Dropbox is again its ease of use.

37:20 Drop it in. It's there. And most people can get that right.

Yeah. Have you ever had any issues using Dropbox for sharing data?

Yeah. Version control.

Can you elaborate on what you mean by version control?

Yeah, sure. Well, you know people, you know, people edit well a couple of things.

Right.

So you got multiple versions and then who's editing what version. Simultaneous editing of the same document would be another portion of that.

37:49 It's not exactly version control, but I mean, you have the same issue and then someone editing or deleting something that shouldn't happen.

Right. So just as a as I wanted to clarify. So there's like additional information, just as an FYI, in Dropbox, you can roll back to a previous version if someone edits and shouldn't have, and you can restore lost documents if you're already aware of that.

I don't use it that much, but that's good to know.

38:16 Yeah. So because I had spoken to somebody earlier who mentioned this as being, you know, I just wanted to give that give that information out since, you know, that's good. And I can.

OK, so and then you elaborate on the issues with FTP for file sharing?

Well, most people going they can't they don't know how to do log ins and do FTP addresses and send and receive the you know, they really even though it can be fairly easy and transparent, as simple as using a Web browser.

38:53 **Right. I mean, most people don't know how to do that.**

OK, and then I'm also old fart. I used to do that.

So sorry. Sorry.

No, no.

I mean, you don't seem that old. So I'm going to kind of jump down to preparing reports and writing documents. So we kind of mentioned this a little bit. So what do you use to write your documents?

39:24 Word processor. The word processor Word. Yeah.

Anything else?

Oh, well, so graphics and tables and all those kinds of things are different.

OK, so why, why over its alternatives?

Well, I used to use WordPerfect and was a very die hard user of WordPerfect forever and ever. And ever. And ever and ever. But then the support just kind of dried up and everybody was using Word. Actually, Microsoft made it very difficult to import Word documents.

39:53 And so everybody else was using word and they couldn't use my WordPerfect files. And so, again, this is repeating theme of difficulties in sharing data and communication stuff I think is a big deal. Right. So the fact that everybody uses Word, then when you're revisions, you know, draft track changes in that kind of thing, it's all you can do. This it may not be perfect, but everybody uses it.

40:23 OK, OK, so it was hard when Mac and Mac and PC versions didn't communicate well either. OK, anyway. Sorry. Right. Know it's the same thing. Yeah.

OK, so when you're working with multiple people on a document, can you describe how that like workflow is going? What's going on there?

But typically, someone would draft, you know, a first version or a straw man document, and then it would be sent to–there's two ways that some people do that. They'll disseminate to a lot of people, and then pull their individual revisions into a document verses.

40:59 And then there will be the Round-Robin , right? It goes one, two, three, four people to use. It depends a little bit with primary with primary researchers, with the people who have most impact on a particular document. Usually it's someone or someone will revise and then another person will revise. So you don't someone doesn't have to pull everything in together. For people who are not as major of a contributor, it's probably that disseminate.

41:30 So we probably do Round-Robin to get it to a second draft. Right. The first draft then to get the second draft and then it would be disseminated.

OK, what are the advantages and disadvantages of each?

Well one delays getting responses back right. If everybody has to wait. And then the other one is like pulling all of those revisions into a single document and there are ways to merge those. But there again, they don't work so great when you have four or five people.

42:00 **OK, can you elaborate a little bit on what happens in that situation? How do you how do you overcome it?**

I usually have a graduate student who has the best method. Well, typically, I'm working. I'm overseeing someone else's work. So I would typically have that person go through and say, right. So some of these edits may be conflicting or whatever you need to you need to consolidate them.

42:31 Draft pick the one that you think is the best. Make sure you tell me that there's another that there's another opinion out there and we'll go from there. So it's really take someone going line by line in the various edits.

OK. And if you could create if you had access to there is any sort of future technology, you don't need to limit this to what you think we can or can't do. That would help make collaboration easier for you. What would it be? What would it do?

43:01   Well, I guess we go back to this recurring theme that one of the reasons, you know, you use or don't use things is, is the universality of being human use that. So it would have to be highly disseminated as it was available to all kinds of people. And they it was intuitive. So it didn't have to have a special I didn't have to have a technician come in and figure out how to do the video conferencing.

43:25   You know, it would talk to Universal in a sense. Either it would merge, it would mesh with other alternatives, or it was the only thing that people did. It facilitated short communication as well as long communication. So text message versus an email, right?

43:57   It would be transportable. So you could do it. You could use it on the road as opposed to sitting in your desk. It could be large group and small group rates. So and it could be voice, it could be text, voice, video kind of all wrapped into one. And you could choose how that would be used. How's that?

No, that's great. Is there anything else?

Oh, sharing documents. Yeah. So sure, sharing documents in that kind of stuff would be would be useful to write.

44:27   **OK, can you elaborate on how this would, how would it work? How well are a little bit like what, what would you like to see with regards to sharing documents?**

Well. You know, probably that it would probably that it wouldn't matter what kind of a computer you're what operating system you were working on, it would it would work the same way.

45:02   You know, some of the Web browser type stuff that comes out is actually better in that regard because it's not so dependent on the native operating system, you know, operates, you know. Well, you know you know, the A.P. writing it, you know, JavaScript, it's universal. It's made that way. So that that that would be great.

45:24   You could use it online or offline that, you know, I wouldn't have to pay for it.

Mm hmm.

That it had a large capacity hate running into storage capacity issues or interfaced with some way of backing up stuff on your machine. You know that it would take care of that.