

Case Study Design: Data, Analysis, Findings, Discussion

To our research methodology group, uh, webinars.

We are excited to have our, um, case study design webinar today with Dr.

Manura Reci, who is the research with the research methodology group, and, um, one of the research chairs for c.

Um, so, uh, we are really excited to have her share her knowledge about case study, and I know you will enjoy this webinar.

So without further ado, I'd like to hand it over to Dr.

Cabrice.

Thank you very much. Um, Dr. Smith. Um, hello everyone.

Welcome to our, uh, case study design data analysis findings and discussion session.

Um, very excited to have you here.

Um, and as you may know, we have provided a series of, um, webinars related to case study starting from, um, beginning of like forming your, uh, research problem, purpose questions, and then, um, essential component of cases study.

Um, and so today we are focusing actually on data analysis, um, data, basically data collection, data analysis, finding and discussion.

So I wanted to focus on data analysis only, but I realized as I was putting together my slides that um, it's kind of impossible to jump all of us into analysis.

So I move a little bit back and include the information regarding data collection as well.

So we are going to talk about, uh, data collection, analysis, finding, and a little bit of discussion for cases study design.

Um, I am going to provide example for you guys.

Uh, if you feel you have question related to, to this slide that I'm sharing, please go ahead and either raise your hand or you can type your question in chat.

And, um, Dr. Smith, I appreciate if you read the questions if they are added to the chat.

Absolutely. Alright, so with that, it, um, I wanted to start again with the, the main, uh, prominent methodologies in case study design as I did the same thing in other, um, presentations regarding cases study.

Um, and the reason that I'm doing this is, it's really important to see who are the reliable, prominent methodologies in cases study, otherwise we may get confused or, um, misguided.

Um, so really, um, there are, um, three major prominent methodologies when it comes to case study.

Uh, we have, uh, Robert, Dwayne, uh, RO, and then Robert Stake, and then Sharon t.

So each of these, um, methodologies, they have, um, different, um, conceptual framework in a way.

Like Robert.

He is coming from positivism background and he believes that cases study can be, uh, both quantitative and qualitative.

Uh, Robert's stake coming from constructivism and exist existentialism.

He thinks that we only need to include qualitative data in cases study.

And Miriam also coming from constructivism, uh, focus on qualitative only.

So I'm sharing this with you 'cause I know sometimes you hear this question that, oh, can we include quantitative in case study or just go with qualitative? So I, I just wanna clarify that depending on who you are following, you may go with qualitative only or include quantitative as well.

So that's just like some overview and you keep hearing from me quoting these methodologies throughout the session.

Um, I stop here to see if there is any question at this point.

Dr. Ricci, there is a question.

Uh, it is how do you align your research questions with the case study design? Uh, all right, so we are going to talk about that a little bit today, but just a little bit.

Um, but we discuss about this extensively in the previous webinars.

So I would, uh, refer you to, uh, uh, previous webinars.

The recordings are posted in the research hub as well as our, um, team research methodology group team.

So I would encourage you to listen to the recordings.

Um, but I'm going to a little bit talk about cases study in in the next few slides as well, just because I wanna set up the, uh, stage for talking about, um, qualitative design, actually.

Um, so still, I guess there was a question about sending the, um, recording.

So if you just send, uh, email me or doctor.

Yeah, here you go. So, yes, so I, yeah.

Okay. So basically to, uh, definition of cases study, just to have the idea that basically cases study is, uh, is an empirical inquiry that investigate a phenomenon in a real, real life setting.

In a real life context.

Um, we are focusing on a, uh, usually we are focusing on a phenomenon that has, is bonded, like there are some border around it, and we need to be able to define the border.

For example, we can focus on, um, how the behavior of, um, a teacher, um, influenced students' learning in a particular classroom.

We can consider that a case of study, but we cannot say that we are focusing on teacher behavior, a teacher behavior, behavior in, in, um, learning in general.

So you have to kind of specify, when we are talking about cases study, you need to specify the, the border and specific, uh, scope of our study.

Um, and again, we talk about these extensively in other, uh, previous sessions.

Usually we focus on cases, the use cases at the event.

Uh, we try to answer questions starting with how, why or what.

So basically we either try to describe a situation, um, and that would be descriptive cases study, or we try to, um, explore situation that would be exploratory cases, study, or we try to explain a situation that would be explanatory cases, study, starting with what? So these keywords, how, why, what we use these keywords for putting together research questions related to cases study.

One thing that you may wanna consider is that we are not going to manipulate the behavior of our participants in our study if we are going to use a cases study.

Basically, we try to just, um, better understand what's going on in a natural setting.

But if we try to see, oh, let's offer in a situation, there's in a study, let's offer, um, intervention or a treatment to a group of participants and compare with the other group of participants without that behavior, if we are trying to do such thing, then it, that study may not be appropriate for cases.

We, we are not going to manipulate anything.

We just wanna see in a real life setting what's going on when, when we use a cases study.

Now, uh, the other thing that we need to consider when we use cases study is the fact that data collection should happen in a, uh, very, um, natural setting, uh, related to context.

Uh, for example, we are, again, we are just trying to develop a deep understanding about the phenomenon, and we simply use different type of instrument to better understand the phenomenon.

So when I'm saying natural things, just like we, we don't really provide, make any experimental setting, it's just a real national setting.

Uh, some of the example as far as research questions, like how and why a high school principal did an exceptionally good job.

So the principal, we didn't really try to manipulate principal behavior.

We just learned that, oh, a principal did a wonderful job, and now we try to kind of understand how or why that happened.

So you see, it's really natural.

The behaviors not, it's not manipulated by anyone.

And we just kind of go to that setting and learn about the situation.

How did it happen or why did it happen? And another example is, what are the dynamics of a successful negotiation with the, with severe consequences? So the, the negotiation is just going on.

You are not really trying to change the negotiation process, but we just wanna learn about the, the dynamic of that negotiation.

So these are the example of the situation and questions that we need to use for cases study.

And as you hear from me, and you'll hear more and more, uh, basically, um, we always try to use at least two sources of data.

Two instrument. Now I, I'll talk about this in following slides, but that's another difference between cases study and other designs. For some other design, qualitative design, you may go with just interview or survey, but if you are going to use cases study, make sure that you use at least two different sources of data.

And the reason is just better understanding and capturing the situation, the phenomena.

Alright, I stop here to see if there is any question. Dr.

Silla.

There are, there are no questions yet.

There's, um, a lot of people are being in 'cause they want a copy of the, uh, PowerPoint and so I've told them that I'll send that, but I haven't seen any other questions yet.

Alright, thank you. Um, so again, like if you have more question or interested in learning about how to put together, together your research questions, definitely, um, listen to our previous webinars.

And so here is the blueprint of a case study. Dr. Yes, Dr. Bridge. I'm sorry, right when you were speaking, a question came in.

So there's a question about, um, case studies are just, are case studies, just observations? So a question about the kinds of data that you would have.

Yes. So no, we will, I'll talk about the type of data that we are collecting in the following slides, but not just observation.

Observation can be one source of data, but definitely we need to include, collect more, um, data, different type of data to cross validate, uh, the observation.

So, um, this is the blueprint, uh, the, for designing a case study.

This is from Yen.

And as you see there are multiple steps here.

Um, so again, the first step is really developing the research questions.

Then propositions, propositions, we discuss about this again in previous, um, webinars.

Uh, they are like, they are similar to hypothesis in a way that we have in quantitative studies.

So this is suggested by yin and it's only for, um, uh, explanatory cases that are not exploratory.

So if you are just going to explore a phenomena, you do not have perhaps any particular proposition, so you cannot come up with a proposition, right? But if you have some predicted, um, explanation in explanatory cases study, then you can have proposition.

Um, and then the, the next thing is defining the case.

You need to have analysis.

Again, we talk about this in the other, the webinars.

I'm not going to discuss them just because there are a lot to cover.

So, um, we are focusing basically on step four, on basically focusing on data, um, and data analysis and how to interpret the, the, the finding and criteria for judging the quality of our, uh, research design.

I'll talk about all of this in the following, um, slides.

But also you see that there's a note used theory in design work.

This is the suggestion by yin.

And as I mentioned, yin is coming from positive and background.

So he suggested to have a theory to, uh, enhance the rigor of your study, and particularly if you're using explanatory cases study.

So I know that it may not be a little bit, maybe difficult for you, but to get that, those definition if you haven't, if you haven't attended the other sessions.

But again, go ahead and review those webinars and let me know if you have question as far as proposition and using theory, um, in your study.

Now, uh, switching to the case to study data collection, um, like I mentioned, it's very critical to use at least two.

The ideal is using three sources of data to better understand the phenomena.

And then we are saying that use different type of data and collect different type of data.

We really want you to use these sources as a piece of puzzle.

So in the data analysis section, when you are analyzing them and you wanna put them together, you put them like result from interview next to result for observation, next to result from, um, reviewing document.

So basically you integrate these and then reports your findings.

So this is a very important part that you may wanna pay attention if you are considering using cases. Study.

Dr. Kci, there's a question. It, it's, it's, Uh, for data collection, if there will be 20 interviews and lesson plans analyzed, is it acceptable to use less than 20 lesson plans? If not every participant shares one That yes, it is acceptable as long as there are, um, some meaningful enough data, like 20 interviews, then we are talking about like, there should be, if not 20, but close to 20 if we are missing a lot.

Like if half of the people who had the interview didn't have the lesson plan, then, then maybe we have a problem.

But it should be close to that. Yeah.

So the data collection, different type of data collection, uh, are listed here.

Um, as you see, uh, all of these prominent methodologies, they suggested interview, observation and document review as, as sources of data.

Uh, but you see that yin included, um, direct observations and participant observation.

Now I'll talk about those in the following slides.

Also added suggested, um, using archive records and examining physical artifacts.

So basically yin uh, suggested a few more sources of data.

Um, typically we interview is the most, um, popular way of collecting data.

Um, then you can go with reviewing of document and the observation.

These are the three major ones, but, but again, um, archival data can be useful as well.

Now, difference between these, um, instrument, so when we are saying document review, basically we want you to focus on document that have some information that is related to, to the phenomena, to the event that you wanna review.

You wanna kind of do the study.

So, um, for example, if you are focusing on how a principal, uh, did a wonderful job, you may wanna see the documents related perhaps to, uh, on the report, weekly report if the, the, if the school, uh, documented some weekly report about how school was operated.

So that's one example of document that you may wanna review.

Um, archival data, any data that are collected before doing your, your studies called considered archival data.

So if, for example, there was some reflection in this social media media regarding how the principal is behaving.

So for example, students share, oh yeah, today principal did this and that.

So they are there and accessible.

Those are, those can be considered archive by data and you can use them, uh, direct observation of versus participants observation.

Direct observation is a type of observation that you as a researcher go to a classroom, for example, and just watch the, the way that teacher is teaching.

You are not a student, you are not a teacher.

You are just there to observe the classroom.

You are not part of that.

Uh, basically teaching and learning.

You are just there to observe how a teacher is teaches, for example, participants observation is different because then you basically become part of that setting as well.

So in that example, you, you may decide to become a learner in that classroom and observe how teacher interact with students and you'll be a learner and yet observe this, this classroom as well.

Or you may decide to become a co co-teacher and then observe how the teacher is interacting with you as a co-teacher when teach the classes.

So basically you are taking part in that setting, whatever it is, and observe the setting as well.

So I stop here to see if any question, Dr. Ricci, there is a question.

So someone is asking, what does, uh, lesson plan mean? Um, and so they, they have for their research interview survey and documents, um, their question, for example, how women perceive their contribution to innovation in their organization.

So if you are getting multiple sources of data, what would be an example of how people respond to that? So like how might a principal behave if you're getting observation data? So what the principal, you mean the, the example that I shared or what they, uh, the question was asked basically, Jean, did you wanna come off mute and provide some more context for your question? Okay, I think she's gonna come off mute. Dr. K? Sure. Yeah, because I wanna make sure I understand the question.

Are you able to unmute yourself, GI Don't see her unmuting.

Can you provide more context in the chat, Jane? Okay, here's another question while we're waiting for the, for her to respond.

I have a question about archival data.

The school district emailed me enrollment and matriculation rates for a program I am researching.

I collected interviews from alumni, faculty and administrators of the program for my data collection.

Where would I include the data in my dissertation that, where would I include the data provided by my district in my dissertation? So those are considered documentation.

So you collected some reports, gathered some reports, and so you wanna include them in, in your study.

So the, those are tho those information can be included in, uh, your data collection and reported in chapter four.

Basically you need to analyze them, excuse me, you need to analyze the reports and include everything the result in your chapter four and discuss about them in chapter five.

I'm sorry. That's okay, Jane, go ahead.

So sorry. Okay. Um, my question is, um, would you mind to show the example, because you give a very good example is, uh, how principal behave.

So for example, my, my question is how a, um, engineering's perceive their contribution to innovation within their organization.

So in these questions I have interview, I have survey and also document, uh, documentation analysis.

So, um, can you give example how, how we are they, for example, how do we respond, how this I can consolidate an analysis.

Oh yeah. So how do you, how can you put together all of these? You are saying, right, like You have Yeah. Can you give example? Yeah, yeah.

For example, what are the documents I will collected in the document? Uh, what are the documents i, I will collect in the documentation analysis? So basically you said you already have, you, you already have some document and now you're going to interview the, in the participants as well.

Right? And I don't the documents, I don't have the documents now, but I'm not sure what documents I need to collect.

I have the interview question. I have survey, um, Yeah, okay. Now you, you are looking for the documents.

So basically the performance review, if the company have some performance review and they are willing to share with you regarding their, um, employers, then, um, employees, then you can use that as a form of documentation.

Keeping in mind that pharmacy deal Uhhuh Yes.

If, keep, keep in mind that you have to always be careful about, uh, possibility of accessing the data or not.

So if mm-hmm.

If it's not possible for the company to provide you with those documents, then obviously it's impossible for you to, in, to add documentation to your study.

And so you can go only the, with the survey and the interview.

So we always need, you don't have to, the Document is available for the public, uh, public only. Oh, Okay. Okay.

So you can then use that if it's available. Yes.

Mm-hmm. So the performance of the engineers, or if, if the companies publishing, sometimes companies provide like, um, frequently, um, uh, evaluation and then send, share it with others.

Now you're saying sharing with the even public.

So then that can be a source of, uh, data for you if it's related specifically to your research question.

What about, what about the, um, a the patent filings, the sustain, uh, annual report or sustainability report Pattern? Yeah, but are you interested to know? It depends on what do you want, what is your research question? Are you interested in behavior of the engineers in that company? Is that what you are trying to do? Or are you trying to see why the company is very productive? It really depends on your research question.

Oh, and my research question says how the, the women engineering perceive their contributions to the innovation.

Okay, so, so yeah.

So it's, it's about, it's about, uh, uh, their perception.

Mm-hmm. So a, any document that you gather, you, it has to be related to, to the employer's perception toward their innovation.

So if the document, if you're saying that, um, the document, the document has to really be related to that, if it's related to that, then it's appropriate for you to use.

Oh. So that way I think it depends on their, their interview results, how they, in the interview.

So the inter you, I think you should do the interview, and then if you can do a survey survey, that's great too.

And then see if there are any more documents that are relevant, or you need to get more documents to cross validate and complete your, your, um, data collection.

Sometimes you may wanna, you may think that, oh, I asked this question in the interview, but I'm not sure if they reality if they are truthful, for example.

So you may wanna gather additional document making sure that the result that you got from your participants actually is true.

That's what you go with documentation. I see.

You see what I'm saying? Okay. Okay.

Yeah, yeah, yeah, yeah, yeah.

Let me, I need to wait for their interview first.

But you mentioned about performance review.

So what does performance review means? Is it the, the the performance review between employee and the managers? Yes, that's what I was referring to. Yeah.

Basically that'ss like, yeah, that's, that's a third party document that someone else evaluated.

Because the perception, the thing is that no, you're looking for perception.

If you're only looking at perception, then collecting data from someone else may not make sense.

You see what I'm saying? It really, depending on what you're focusing, if you only wanna explore your participant's perception, so it has to come from them.

Yeah. If they have reflection, for example, if they have reflection somewhere, then that can be a document that you can gather, uh, like sometimes.

Yes. So you see what I'm saying then? So the manager perception here doesn't make sense because you are foc you are focusing on your participants' perception. Yeah, Yeah, yeah.

So maybe the performance review is doesn't, may not apply. No.

Unless they have some, some docu companies, like they have, um, system that on quarterly basis, um, employers basically reflect on their own performance.

So because that's their own perception, that could be a document if you can access those documents.

Oh, okay.

Understand, I thought that is the pattern fed filings.

So how many pattern results and how many is involved in women and what about their contributions? Okay. Alright. Thank you. Thank you.

Sure. So, Dr. Ricci, there's another question. Yes.

So when obtaining data for academics on students, um, I know interviewing anyone under 18 is, is a no, but this pers but I am able to obtain different testing scores for students from teachers parents if willing, if they are willing, yes.

If they're willing. So you need Yes, if they're willing, exactly.

And Then, all right. Yeah. What else? There's one more.

So, um, in a peer reviewed paper, could we really depend on our own experiments findings or company provided number? So is that question about just the data that you use in order to put together the peer review paper? Al I guess the event, yeah.

Okay. Whether it's publishable, this is study publishable, yes.

Mm-hmm. It'll be, but there are ways that you can basically incorporate to improve the, uh, rigor and quality of your research.

And I'm, I will talk about those in these slides.

So the answer is yes, but you have to follow the, the recommendations.

Yeah.

Okay. All right. Um, moving along, uh, data collection.

So basically you as a case study researchers, you wanna conduct effective interviews, very careful as far when you are observer, and also try to gather data from document, this is from Miriam.

Like, when you're using three sources of data, you have to be very meaningfully and deeply involved in your data so that you can gather relevant, uh, information.

And then also you need to have a plan.

So particularly when we are talking about doing a interview, you need to have an interview protocol.

So what sort of questions you ask, what sort of questions you avoid to ask, uh, what, what are basically the guidelines that you follow? Um, so what sort of interaction you are going to have with your participants.

All of these are really important.

And this is one example that how, how can you increase the quality of our, our research by having plan and protocol for conducting our data collection.

Now for interview, we need to have protocol for observation.

Also, you, if you're doing observation, you need to follow a particular plan or protocol.

Alright? Um, now I'm going to jump into this case study data analytical techniques.

I just wanna share this with you because these are recommended by, um, by yin.

So imagine that now you follow the rules and you collected the data.

You had, you have data from multiple sources, and now you wanna kind of analyze your data.

Now, yin suggested, um, these techniques, but keep in mind that you don't need to include all of them.

It really depends on your particular study.

You can pick one of them or two of them, however it applies.

So, uh, one, one approach that you see in suggested is pattern matching.

So basically saying that you need to match the collected data and emerging data, um, with the predicted pattern.

So remember I mentioned that you can have different types of cases study.

So when you have explanatory cases, study when you wanna explain something, then you have a proposition or some predicted pattern.

And so then in that case, pattern matching makes sense that you kind of match the data that you see, identify the themes that you see and match it with your predicted pattern.

So this is good for, um, explanatory, um, cases study, same thing when again, yin suggested explanation, building like building, um, putting together, uh, some explanation regarding the sequence of the event that happened.

That's also applied to, uh, explanatory case study.

You may go with time study analysis.

So basically as you gather your data, you kind of organize the event, uh, time-wise and see the consequence and logic of everything that happened and explain how and why.

Uh, for example, in the example that I mentioned, related principal behavior in a school.

Uh, so you may see that, oh, like principal, you may realize that the principal started having a very, uh, exceptional behavior at some given period of time.

And so then you may kind of investigate whether anything particular happened that basically, um, encourage the principal to have a better behavior.

Or if that's not the case, you may wanna see if the setting changes or anything happens in school.

So basically you try to put together a sequence of events and make a logic out of this and try to answer your research question.

So your question is, why did the principal behave like that? So you wanna see the sequence of events around the time that the principal was behaving.

Was there any significant thing? Can you put together, does that make any sense out of those events? That's one example.

Uh, the next thing that logic models, basically, uh, you try to visualize all the events that happen in that school as an example, and then see if, if you can notice any, any particular, um, again, cause for that behavior.

So using a logic, visualizing the event and chain of events.

And the next thing that you suggested is cross cases and synthesis.

This is for the time that you have multiple cases.

Like I said, not all these techniques apply to all studies.

In cases study, you can have single case or you can have multiple cases.

Going back to our, uh, example of school in and principal, if that principal work in multiple schools previously, and now in this current school, if you focus on only the current school, that would be like a single case study.

That's as an example.

But if you focus on the previous school that principal work, that then you can say that you focus on multiple cases.

I just try to provide example to clarify what I mean by multiple cases.

And then the if happened that you are focusing on multiple cases, for example, you're focusing on multiple organization in the, in gene example, then you need to cross examine the data that you gather from different cases to make sure that they are making sense.

So I know that these techniques may not be all applied to your case.

Maybe you can get one or two of them.

Like I said, maybe for explanatory, go with explanation billing.

I would say that, uh, the time series also sometimes applies, sometimes doesn't.

But I wanna take you to, um, other level basically provides you with more general approach to analyze your data.

If, if these are not applied to your particular cases, that, uh, just I wanna also mention that because we suggested to collect different type of data, don't get overwhelmed because in case of study, as you see, you collect a different type and you feel overwhelmed.

So you have to be careful on that.

And also, um, keep in mind that once you analyze their data, you really need to put them together.

So one of the major issue that we have with cases study is, okay, students collect multiple data from different sources, but then when it comes to reporting, they just report these independently.

And that's a problem. So make sure that you are not doing that.

You have to integrate them when you are answering your research question.

Um, one of the techniques that, um, we suggested here how to do it basically is having someone else helping you as far as examining how you are putting things together.

So you have observation from principal's behavior, then you have interviews maybe from in principle in our example, and then you have maybe documentation.

So you need to kind of analyze them.

And then when you write your report, include and integrate all of them together.

If you think that you are still going with separated report, then that's the thing that we suggest that maybe you wanna have other researchers examining and making sure that you are properly integrating them.

So these are the notes that I wanna share with you.

But before that, also I wanna go to general, um, data analysis approach, because I know, again, that's the issue that we often, we are not very clear about it.

So imagine that you conducted your interview and then you collected your survey.

Keep in mind that mostly we are saying open-ended survey, so qualitative data, uh, and then you have maybe some, um, documents as well.

Now you need to analyze those, these, how do you do that? Uh, the first step is actually preparing your data and managing them.

So if you have conducted the interview, you wanna use the transcript, you need to turn that recorded interview to transcription, and you wanna make sure that your transcription is kind of nicely provided without error.

Uh, basically we wanna turn all our document, all collected document into a text, everything should be turned to text.

Um, then you wanna kind of, um, have a organization data, organizing your data.

Basically, you wanna kind of put them in, in this very organized folder.

If you wanna put them in in some spreadsheet or something, you can do that.

And then you need to kind of reduce these data because you collected a lot of data from the interview.

From the survey or maybe documents, maybe pages, reports of performance or whatever.

There are a lot of information that are not related to your research question.

So you need to really kind of summarize and remove the information that are extra and kind of condense your data.

So that is called data reduction, basically removing the extra information and putting together only the part that are related to your study.

So these are called kind of data preparation management before entering, analyzing your data, basically, uh, in order to manage your data, you may use a software or you may not.

It's optional. Don't think that you have to use the software.

You can just, uh, put together all your, uh, data, like the, the interview transcript, your or your survey, put them all in, um, the Word document or you can put them in Excel sheet and just manually could quote them.

That's okay. Uh, but if you feel that you wanna use a software, then there are some options.

They are called the software called Computer Assisted Qualitative Data Analysis Software.

Um, so these softwares help you code your data, link your data if you wanna map them, network, like search the data, the software are really useful for doing that.

Um, you can use NVivo or you can use, I added the link for ddus here.

These are two examples, but there are so many other software out there that you can use.

But just keep in mind again that you don't have to, this is just optional because I have seen sometimes, um, just learning, working with this software actually takes a lot of time from us.

So if you rather go manually and just use Excel sheet, that's fine too.

Okay, so I stop here. Dr.

Speed, is there any question related to this part? Yes, there are some questions.

Um, one of them, um, goes back to earlier in our, in your presentation when you were discussing about interviewing 15 to 20 teachers and then not having to do 15 to 20 lesson plans.

The student is asking how many lesson plans would they need to review? So it should be really, um, should make sense.

Like if you are having 20 participants, I would say that you need to have maybe 15, 18, something like that.

But if you are going to have like half, like 10 lesson plans, 20 is just kind of a little bit off.

So just make sure that you are around the same number. Okay? Keep in mind that we are, yeah.

Oh, I'm sorry. Go ahead, Dr. Ricci.

Go. Well, when we are in qualitative design and we are talking about sample size and how much we need to collect, we, we always go with data saturation as well.

Mm-hmm. So it is not like a quantitative, uh, uh, analyst design that you need to have specific number, like minimum sample size.

It's, we are not in that situation.

However, we do, we do need to have, um, sample size that makes sense for our study.

And also we need to reach through saturation.

Like, basically saturation means that you have lesson plan, lesson plan, and you see kind of, you get to saturated stage in a way that after the 15 or 16, you see the similar pattern.

So maybe you can stop there. You see what I'm saying? Even though like your number of, uh, participants for interview is 20, it's okay to have less number of lesson plan if you reach to saturation.

So there's another question about how do you determine what is a good interview question? Well, interview questions, definitely you need to have a planned protocol and questions need to be aligned with your research questions.

Um, you should not ask any additional information, any information that is not aligned with your research question.

Main research question should not be asked within your interview.

And even IRB may may question you that, why do you ask this question? Um, and then there is in our, if you're doing their dissertation, like when you have the interview questions, there's a table that you need to fill it up that for like, you have 20 say that you have 20 interview questions and you have three research question.

So you need to say each of these interview questions related to which of your research questions.

So again, shouldn't, should be exclusively aligned with your research question.

Like what you are asking should, should be meaningfully help you address your main research question, should not ask anything extra.

And also there are rules about, um, privacy.

Like you should not really ask questions that are too private, uh, too sensitive.

You have to be careful that, um, you should not emotionally burden your participants with your questions.

So there are ethical consideration using proper language not being biased.

When you're putting together your question, you should be very objective.

If you are really trying to explore what your participants think, you shouldn't also give away the answer.

So it should be, your question should be very open-ended.

Just let, let your participant, uh, freely share his or her perception.

So these are some examples.

Obviously there are more guidelines, but just some of the guidelines.

So there's another question, and it feeds into what you just shared.

What tables are required in chapter four and five regarding reporting themes aligned to research questions.

Would that be something that's in the dissertation guide? Yes, there's in the dissertation guide, yes.

So if you go to the dissertation guide, um, well, I, I am providing some example in this, um, Oh, okay. Presentation. Okay.

So it's coming down.

Okay. You can even look at the, I provided the references and examples, and you can go and look at these, these successful cases, study the, you can see the dissertation and see what I'm talking about as far as the tables, I'm putting together your teams and all of these are there.

So, and any other question before I move on? Yes, There's one, um, at least one more.

So they said, I'm using exploratory case study.

Can I use pattern only? So I guess that's an ana the pattern analysis.

Yes. Pattern. Exactly.

So that's what I'm actually going to explain.

Ex if you are going to use ex if you have exploratory cases study, you would just need to identify teams identifying patterns and teams.

So yes, so, mm-hmm. Um, that's about That Question. That's it. Okay. All right.

So, so the, the thematic analysis, I, I'm just sharing this because this is really applicable to many, many qualitative studies, uh, analysis including, um, cases study.

Um, so I provided this chart because I think it's much easier to visualize stuff, and we look at this stuff.

So when we are saying thematic analysis, particularly inductive, tema thematic analysis, we really wanna kind of develop some teams based on our data.

So you see, ba we, we have a lot of data, we use some coding.

I will explain coding, um, in the next slide.

Uh, basically coding is identifying some, some highlights in our data.

We put together our coding, all the codes and categorize them, you see as in the chart, then moved it category to higher level, and then finally end of the teams.

So that's the overall, uh, process that we are going to, um, use for analyzing qualitative data.

This is not just for cases study, but in general, you, you, you can use thematic analysis, and this is from Lina.

For more information you can go and review his manual.

But I included this because I think it's very helpful to, to kind of understand what are we talking about when we are talking about thematic analysis.

So starting from data, remember I mentioned that we need to kind of clean our data, summarize them, remove the extra information.

So once we have these nice data, include it, summarize in a file, then you start to code them, then put together code and categorize them, then go to higher level and finally move up to teams.

So the goal is basically putting identifying teams related to your research questions.

Alright, very good.

Now, when we are talking about code, what do we mean exactly? So there are these type of coding.

The first is open coding.

So basically you just review all the data and labeled the text basically.

Uh, um, and you just really exploring.

You don't have any preemptive idea.

You just kind of, uh, label them, give them some name.

Next level is actual coding.

You try to group the code into kind of some categories.

Basically you provide some, try to provide some sort of relationship, see if you can put together codes, uh, and put them in the categories.

And then the next one is selective coding.

You try to kind of put these category to higher level and move them up to teams.

Basically refine their coding and moving up and up.

So coding, just to make it very simple, you see it's not really complicated, is coding is just the first level is open coding, just giving label.

Then trying to group these codes because we wanna put them in categories and then refine them a few more times until you think that, oh, there is no more, uh, way of refining them.

You reach to independent teams.

Then you say that, oh, okay, these are my teams.

So that's the whole basically process when we are talking about coding and moving to teams.

Uh, basically, uh, question, no question, Richie. There are lots, there are several questions in here.

And then there's also a student that wants to ask a question about their dissertation analysis.

So I don't know, we're at, um, six till, so I don't know if, if you have more in your presentation or Yes, you'll take the questions and maybe we can answer some of them.

Um, respond to them.

Like if they put all the questions in the chat, we can email them back with that.

It, I know it depends on the time that you have available, Right? So, because I have a few more slides to share, maybe it's better to, uh, keep the questions.

And let's see at the end of session, if you have time to address them.

Or maybe as you said, we can email them. Okay.

Can email and, uh, yeah. Yeah. Alright.

Um, now along with coding, once you are doing the coding, there are some techniques that you may wanna use as well.

And these techniques are really helpful to enhance the quality of your research.

And also when you are going to share your result with others and present and publish, it's great for them to understand that you had a strategies.

So basically you need to have some strategies.

So the first one is memoing.

So again, you don't need to use all of them.

You can use one, one or two of them depending on the nature of your study.

Uh, so Memoing is writing reflective notes on data.

Basically, as you read, uh, as you read the transcript or the survey data, you kind of, uh, you may have some sort of reflection.

You may get surprised, you may get, um, impress, um, so you can write your reflection.

And also when you are identifying some pattern, you can also say that, oh, I think these, these two, um, concepts are kind of related that can move together as a pattern.

So basically you're just reflecting and writing as you are getting involved in coding process.

That's called ic.

So that's, that's one technique that we recommend to you for you to use.

Um, the other, uh, technique is concept mapping.

Basically, um, you are visually trying to put together some graph or some sort of flow chart to, to better identify relationship between codes.

So that's called concept mapping.

That's also, um, very useful depending on how you feel.

So we, some of us are really visual learners.

Some of us just kind of write down things.

Depending on your preference, you may use these techniques, matrix analysis.

Um, so once you have all these codes, you wanna compare and contrast the codes, particularly when it comes from different sources.

So basically matrix analysis, a table, you make a table and you say that data from interview.

And then include codes there or categories, then data from the survey, and you include that and include the codes.

And then, uh, document data.

So again, include codes from document, and then you can compare and contrast them and see if there are any similarities.

So basically it's called constant comparing and contrasting.

So you keep comparing, you see that, oh, in interview, the principal says that I, um, I got internal motivation to behave so extraordinary that what came from the interview.

And then also, uh, in the documentation, we, we read that, um, always maybe like there was a report from the teachers that the, the principal seems like have internal motivation.

So you see internal motivation as, as a data come out that's like, you see that, oh, I identify internal motivation as one of the major highlights or code.

So it comes from the interview from the principal, comes from document that teacher provided.

So when you compare you to yes, these are integrated, these are cross validated and that they are coming from both sources.

So that's how I'm, you can use this matrix basically.

Oh, and then the last one, narrative analysis, you focus on story of the individual within your case.

Basically, um, you wanna see in, again, going back to our, um, example, you may wanna deeply, if you're going with a narrative analysis, deeply focus on the story of this principle life.

What happened, what did he do? How did things change him to become so extraordinary? So basically focusing on narrative and analyzing that that's along the way as you do the analyzing your data that's useful.

So again, multiple techniques you can choose depending on your, uh, preference and the nature of your study.

Um, now here are the examples that I mentioned.

Um, it's really good to focus on examples.

This is one dissertation, um, dissertation of the year awardee.

Basically this is a, um, study focusing on, uh, perception of test score pollution stemming from COVID-19 and status testing.

And this is an exploratory case study.

So, uh, I included the details like the, the problem, purpose, and research question.

And so this particular, um, researcher students collected data from multiple sources.

But I wanna also mention that sometimes, um, you can use, collect data from different individuals, and that comes toward having multiple sources.

So in this is one example of it, like the, uh, students actually interview participants, but they are not the same participants.

So basically interview middle school teachers, high school teachers, middle school administrators, high school administrator.

That's how provide collected data from different peoples.

So use the interview, but coming from different people, that is also count or the requirement of having data from multiple sources.

Um, and then this students use memoing, member checking, Excel coding, all of this.

Um, so I provided the reference so that you can look at the dissertation and better learn how, uh, these students handle, uh, the situation.

And the table that I mentioned con uh, compare, uh, matrix, matrix analysis table for comparing and contrasting included in this dissertation as well.

The next one is another example.

Again, this one was, uh, the winner of, uh, dissertation of the Year.

And this is study focus on, uh, perception of cultural biases in multicultural US organization.

This is an explanatory case study.

Uh, so in this example, the researchers used interviews and focus group, um, as sources of data and used thematic analysis.

Um, the sample size was 20 and the researcher used 15 employees and five leaders.

So you see different, different type of participants.

So again, uh, I encourage you to look at this dissertation as well in interest of time.

Um, I like to move on, but I provided the references.

Uh, so the next thing, once you kind of analyze all those data based on the way that we explained, basically you need to move to the next stage and that interpretation and synthesizing of everything that you gather.

So basically, you wanna kind of put together, uh, as I mentioned many times, integrate the findings from your data, not just reporting separately, but putting them together as you are in interpret your data.

Um, you, you do need to draw conclusion about the case and its implication.

So this is really important steps.

Uh, once you basically put together everything and then go to analysis.

The next step really, you need to draw conclusion and make suggestion based on, um, the findings.

And then you need to really link your findings to existing literature.

So basically, uh, how your, your result can be related to the other empirical study, to the other theories existed in your field.

Um, one thing that you really need to pay attention is data validation.

In order to make sure that you, um, complete a high quality research, you really need to make sure that, uh, all the way through your case study, you did the right job objectively.

Um, and it's not only generating, uh, basically using kind of like triangulation multiple sources to cross value, but also in your interpretation you wanna make sure that you are, um, objectively handling everything.

So for that, uh, there are criteria basically for judging the quality of your research.

Um, these are all for qualitative studies.

Um, perhaps you heard about validity reliability in quantitative studies, but for quality qualitative study, we use, uh, different language.

So in order to make sure that your study is trustworthy and authentic, uh, and has high a tendency, you really kind of need to use multiple sources, as we mentioned, and, um, record all the process that we suggested and go with member checking.

These are the suggestions.

So basically the internal validity is called credibility when it comes to qualitative study.

To establish credibility of your study, making sure that you conduct a trustworthy study, uh, you do need to have multiple sources of data.

Plus, um, recording the chain of evidence, doing member checking and member checking, as you know, is just giving your, uh, once you collect your data, for example, once you did the interview and transcribe it, you wanna go back and share it with your participants, making sure that what you transcribe is correct, even in the next level.

Once you analyze them, maybe you wanna go back and check with your participants, making sure that what your understanding is aligned with the real experience of your participants.

So that's for member checking.

Uh, the next thing, confirmable confirmability that's related to objectivity.

Uh, you really need to make sure that you are objectively conducted your study.

The technique that you may wanna use for that is, um, using peer review or added trails.

Peer review basically is just giving, once you are conducting your study, having your expert check on you, making sure that the steps that you are done are, are objectively are done, uh, audits trails, basically recording all the process.

You keep the record of data collection, data analysis, everything.

Next thing is transferability.

That's equal to external validity.

Basically that means to the extent that the finding can be applied to other context.

Uh, so in order to do that, you need to provide tick description of your case and provided along with your study.

So when people read that, understand the context of your study so that they can apply your study in the similar context and situation.

And then the last thing is dependability.

That is related to reliability in quantitative study.

Basically it's related to the extent that your study can be replicated.

So for doing that, uh, you need to again, maintain documentation of your research process.

So when you are writing down your results and your dissertation, write it in a way that if someone wants to replicate your study can do so properly.

So I'm a little bit concerned about time.

Dr. Smith, I have a couple of more slides and then we wrap it up.

So basically, once you are done all of this, you need to report your, your case study, provide a very vivid picture of your case, include all the details, um, tables, figures, either, uh, visual aids are actually useful to communicate your findings and make sure that you discuss it.

Limitation. Um, when we are conducting a research, we always end up with some limitations.

And limitations are the issues that we didn't expect, the challenges that we didn't expect that happened.

But you know, it just happened.

For example, you COVID-19 is a really good example that you plan to conduct observation interviews.

Well, when the school closed or the company's closed, you couldn't go to research site.

So that's just like a limitation.

And then obviously you have to come up with alternative plan to collect your data.

Maybe you did like, um, online interview or observation cannot be done online.

So then replace alternative data collection, um, and didn't use observation.

And the last thing, I included this slide that's related to discussion that you include in your, uh, study.

This is like a general better for your case study or, or any other design you would need to provide interpretation of your finding.

In order of your research question, compare and contrast your results with the literature, talk about the implication, limitation as well as feature studies.

So with that, I know that we are running out of time, but uh, we provide a copy of these slides for you and make sure that you complete the survey.

And, uh, our next presentation is next week actually.

Mm-hmm. Uh, we are focusing on power notes, but at this point, if there are question, I will be happy to answer Dr. Smith.

Okay. So there are some general questions and then there's um, a student who is working on their data, uh, analysis now for their dissertation that had some specific questions.

How would you like to handle those two different types of questions? Yeah, let's, let's go with the general question and then the specific, specific question related to dissertation.

We can maybe set up another session or maybe in office hours we can talk or maybe over the email.

Okay. So Gina, um, send me, uh, some times and we can see how we can get your questions answered and get you the time you need.

Okay. Understood. Is she, uh, Dr.

Ricci, are you able to answer the other little random questions that I had not related to my dissertation? I mean, yes, if, if there are general question, let's talk about the question now, because now you are at the end of my, my slides like, yes, I like to an, an answer the question, but if there are too specific for your research, then we wanna have a separate session.

Well, no, not every single one. Some.

So I started with one question and then I have, I put like five different questions, random spots.

Okay. So I asked about the tables. Um, what else? Uh, you talked about data triangulation with document reporting.

How extensive does that section have to be? Um, with the triangulation? What exactly what items are you aligning? Um, I don't know if that's, So basically the, the data, uh, as I mentioned, like you have to summarize it, uh mm-hmm.

Because not all the stuff that you see in documents are related to your research questions.

Right? So how extensive, I mean, I cannot quantify it, but again, as long as there are just including for the, the document information that are relevant to your research question should be manageable.

Like, I dunno, 50 pages, 60 pages.

If you have a hundred pages, break it down into summarize it, so it would be manageable.

And then keep in mind that document is just one sources of your data.

Then you have your interviews perhaps, or survey.

So we definitely don't want you to get overwhelmed.

It has to be meaningful and manageable.

Okay, that makes sense.

And then familiarization, is that technically a form of coding or is it just familiarization? No, basically remember I mentioned that, um, you kind of try to review your data or remove the extra information and summarize that.

That's, that is called familiarization.

So you make yourself familiar with your data? No. But is that considered a, a round of coding or just not anything? Well, I would say in, in the, there are different levels.

In the preparation, you get yourself familiar with data.

Mm-hmm. In the coding.

Also with the, in the first round that you read, maybe you wanna deeply get involved on familiars yourself and then move on to identify the codes.

So familiarization can be the very initial, uh, review of your data as well when you are entering to co coding? Yes, that's the initial review.

Okay. And are you able to tell me really fast in a nutshell how to go about, uh, evaluation, coding? 'cause, so I have two sets of interviews and then I'm evaluating three documents.

So I decided to do evaluation coding, but exactly what is different about evaluation coding as far as what you do? Like step one, step two, um, compared to like open coding or in vivo coding.

So the, okay, so we have open coding.

When you just go and try to identify code based on the data, you don't have anything yourself.

When you're saying evaluation, are you going after identifying codes based on your proposition or theory or prediction? That's what you're saying.

So that then basically that's another way of coding.

Like you just evaluate some data based on what you have already.

So that's another coding.

You just say that you are interested only in, um, internal motivation.

So any other data or related listed in that interview, you would kind of exclude them.

You just focus on internal, internal issues.

So that's kind of, you're evaluating the data against what you already have as a proposition, is that what you're saying? I think so. And then you're saying those sections, what you're identifying there, those would be the quote unquote codes, right? Yeah. You could consider the codes. Okay. Yes.

Alright, that cool? I think that was my last question. Thank you Dr. Ricci.

And thank you Dr. Smith as well.

I'm basically harassing her on here. I can ask. No, That's okay.

I mean, send more question, uh, if you have in through email, basically Yes, we're at seven 16 my time, so it's eight 16 your time.

Dr. Ricci. Yes. So are there any more questions? Um, I'd like to just respond via email.

I put the, um, link for office hours in the chat, so if you wanna schedule an office hours appointment, um, we have methodologists that focus on qualitative that can help you with kind of these nuts and bolts questions around coding and data analysis.

So we can do that. Um, and, uh, so Dr. Johnson has jumped in here to say that she's able to answer questions as well.

Um, so we have people that can help you if you, um, join the research methodology group team site, you'll see on the left hand side there are channels for different types of research.

You can ask your questions there and then a methodologist will come and respond to those questions.

So we do want to, um, assist you with your questions as much as possible, um, as you're working through this process.

I have a question. I don't know if it's possible for me to ask it here.

Go ahead. Yes, and it goes back to my question about, um, document, re document analysis.

So in my case, the documents, the lesson plans that I'm analyzing are provided by the district and not by individual teachers, but the teachers are middle school teachers.

And so I was wondering, even though I'm doing 2015 to 20 teachers, that's what it says in my proposal.

Like, uh, how many of the, my question about how many to, uh, and how many of the documents to analyze, uh, it has to do.

I didn't wanna repeat like the grade level and the content.

You see what I'm saying? So we are looking at three different grade levels and three different content areas.

So my thought was to do one in each and that will give me nine, um, nine lesson plan overviews.

So would that seem insufficient? Well, again, like, I think first of all, I guess we need to see, I need to see your specific research question and details to be able to better answer you.

But also, yeah. Yeah.

And I, and I, like I said, when it comes to qualitative, we cannot really go with, okay, is, is nine enough? Is 12 enough? Like how do we know what, you know, what number is enough? So we always go with mostly the quality of our data and saturation.

Whether when you are reviewing this lesson plan, do you get this feeling that, oh, you reached to a good understanding about, you know, this lesson plan and how they are related to your research question? Yes or no? Do you see that? Do you feel that, oh, I need to see more.

So researcher usually have this, um, strong feeling.

You know, in qualitative study we say that researchers themselves are kind of like instrument.

So you should be in a position that you feel, oh no, I really need to see more.

Three is not enough.

And then you read more and you get, and you get to the point that, oh no, I think that this is enough.

Now I see the repeated pattern in lesson, lesson plans, so I should stop here.

So basically saturation, I would say the main, um, way that you can see whether you have enough, see if you reach to saturation, data saturation or not.

Okay. All right.

Okay. Alright. Any other pressing questions? I know that we are over time. Yes. Hi Dr. Kimchi. I'm so sorry. I think I have a very quick, um, question.

Would in vivo coding be like an example of conducting open coding? Like an initial label? See in vivo actually doesn't code for you.

I mean, InVivo just give you a space, it's like a platform that you can enter your data there like, like interview, uh, interview transcript, and then you do the coding yourself, like open coding.

Also starting with open coding. You do it.

InVivo doesn't do it for you. Yeah.

Okay. So then the InVivo is just making the participant's responses and then I can go about doing or explaining the initial labels and then how I grouped them and then how I refined them. Correct? Yes, you do all of the job, but InVivo just give you more, uh, I think tools like help you doing that.

For example, if you're trying to search for a concept, you can put that in that in vivo search box and then it search for you.

It makes it easier for you to better, uh, work with your, uh, data, but it doesn't do the coding job for you.

At the end of the day, you should do the coding, but it help you in this searching and analyzing.

Okay. Because I select like recurring words, phrases, and from there I conducted what I believe to be coding, but I need to be able to explain.

So I'll go ahead and I will search back the book that you referenced so that I can better organize myself.

Yes, yes, definitely.

Look at, uh, Selena, it's, it's a great manual. Yeah.

Thank you so much. I appreciate your time.

Sure, my pleasure. Alright, any other questions? Okay, if not, thank you very much.

Thank you Dr. Schmidt for.

