

**Development Research Methods**  
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**Lecture - 15**  
**An Overview of Mixed Methods Research**

Hello and welcome to week 5 and lesson 2 of the NPTEL MOOC's course on development research methods. In today's lesson we will study about mixed methods research. We have been very briefly introduced to the idea of mixed methods research in one of the earlier classes. However, in today's class we will look at some of the visual models of mixed methods research or mixed methods approach. This has been variously termed as approaches or models or strategies. And these visual models will help a student interested in applying mixed methods approaches for visualizing their research proposals and also helping them to decide which kind of a model best suits their research question.

Now in one of the earlier classes we have already studied about pragmatism. And I have also mentioned that mixed methods research mostly follows the pragmatic worldview. So, we will first begin with a slight recapitulation of what the pragmatic worldview meant. But before that, let us see what are the things that we will cover in today's lesson.

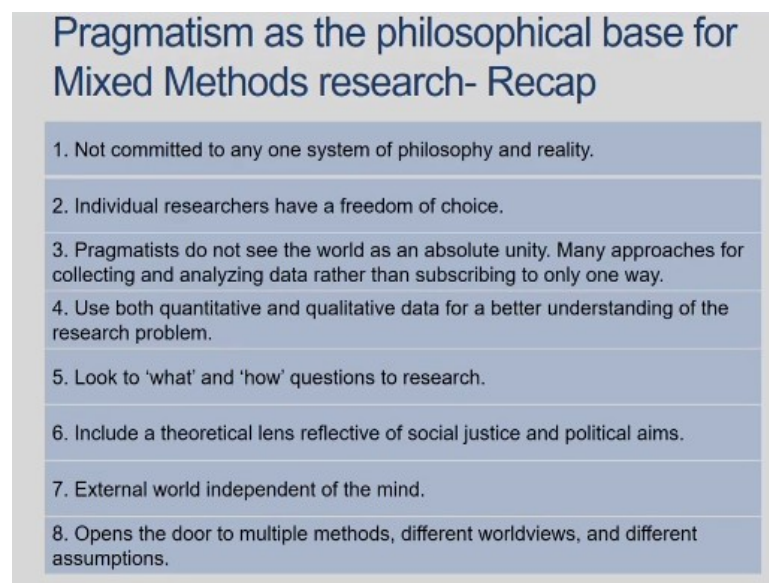
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### What we will cover in today's lecture

1. What is Mixed Methods research
2. Types of mixed methods strategies and visual models
3. How to present Mixed methods research
  - Literature review
  - Theory use
  - Procedures for choosing a mixed methods strategy.
  - Data collection procedures
  - Mixed methods sampling
  - Report presentation structure

So, what we will cover in today's lesson are as follows. First, what is mixed methods research. We will look at what are some of the possible definitions of mixed methods research. Then we will go to types of mixed methods strategies and visual models. And in the final part of today's lesson, we will look at how to present mixed methods research, particularly what kind of literature review, what kind of theory to be used, procedures for choosing a mixed method strategy, the data collection procedures, mixed method sampling, and then finally a short presentation on the report structure of when applying mixed methods approaches.

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**Pragmatism as the philosophical base for Mixed Methods research- Recap**

1. Not committed to any one system of philosophy and reality.
2. Individual researchers have a freedom of choice.
3. Pragmatists do not see the world as an absolute unity. Many approaches for collecting and analyzing data rather than subscribing to only one way.
4. Use both quantitative and qualitative data for a better understanding of the research problem.
5. Look to 'what' and 'how' questions to research.
6. Include a theoretical lens reflective of social justice and political aims.
7. External world independent of the mind.
8. Opens the door to multiple methods, different worldviews, and different assumptions.

Now let us begin with this short recapitulation regarding the pragmatism as the philosophical base for mixed methods research. In the class on paradigms and research paradigms that are used when we use quantitative, qualitative or mixed methods research we have already discussed this, the major points are as follows. First is that pragmatism is not committed to any one system of philosophy and reality. And individual researchers generally have a freedom of choice with regard to what kind of methods to use and therefore the research question assumes a lot of importance when we follow a pragmatic worldview and the research question therefore also bears utmost importance when we want to use mixed methods research or approaches.

Thirdly pragmatists do not see the world as an absolute unity and there are many approaches for collecting and analyzing data rather than subscribing to only one way and as the name mixed methods suggests that we are talking about mixing of quantitative and qualitative data. However, the mixing cannot just happen at random. There are certain set ways based upon different kinds of evaluations in development studies that have gone on so far, researchers have come up with different kinds of models that help us examine how to do the mixing and when to do the mixing.

Fourthly, pragmatists believe in using both quantitative and qualitative data for a better understanding of the research problems. They look to what and how questions to research. Generally, pragmatists also include a theoretical lens reflective of social justice and political aims. Therefore, when we spoke about action-oriented research or action research, we saw that mixed methods approaches are increasingly being used by action researchers, also those in development practice. Development studies researchers are also increasingly using mixed methods approaches. However, the transformative aspect of mixed methods research is an emerging area and there seems to be more work coming up with time and is therefore evolving.

Seventh is that the external world is independent of the mind. And lastly, mixed methods research or pragmatism opens the door to multiple methods, different worldviews and different assumptions. Therefore, it is accommodative of various worldviews that can go on to inform the research question that we are investigating.

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## What is Mixed Methods research?

- Researcher **mixes or combines** quantitative and qualitative research techniques, methods, approaches, concepts or language into a single study.
- The "third wave" or **third research movement**, a movement that moves past the paradigm wars by offering a logical and practical.
- Logic of inquiry includes the **use of induction, deduction, and abduction**.
- The fundamental principle is to collect multiple data using **different strategies, approaches, and methods**.

Now let us come to this issue of what is mixed methods research. I will not spend much time here. However, it is important for us also to define mixed methods research. Now formally mixed methods research or mixed research is defined as a class of research where the researcher mixes or combines quantitative and qualitative data or research in different forms. The mixing takes place in different forms, basically to come up with some kind of a singular study by mixing all of these methods in appropriate ways.

Now philosophically, researchers applying mixed methods call it a third wave or a third research movement that moves past the paradigm wars by offering a logical and practical alternative. We also understand now, as I have just mentioned, that mixed methods approaches follows pragmatism and pragmatism as a philosophy can come up with various methods of doing an inquiry, the logic of inquiry might include the use of induction, which means the discovery of patterns or it might follow the method of deduction, which means testing of hypothesis. Or it might follow the method of abduction which means looking for definitive patterns based upon asking the right kind of questions or uncovering the best set of answers for the research question that we are asking.

Now what is most fundamental in this method of research inquiry, as I have already pointed out is the research question and come up with all possible sets of how to go about best answering the research question and therefore not sticking to just one philosophy or one method of collection of data, one method of inquiry but trying and

looking at different ways in which the research question can be answered. Because research question assumes the prime importance and therefore the researcher goes about coming up with different combinations of methods that can be applied to the research question that we are asking.

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What is Mixed Method Approach?	
	Mixed method approach
<b>Philosophical assumptions</b>	<ul style="list-style-type: none"> <li>• Pragmatic knowledge claims</li> </ul>
<b>Strategies of inquiry</b>	<ul style="list-style-type: none"> <li>• Sequential, concurrent and transformative</li> </ul>
<b>Methods</b>	<ul style="list-style-type: none"> <li>• Both open-and close-ended questions,</li> <li>• Both emerging and predetermined approaches</li> <li>• Both quantitative and qualitative data and analysis</li> </ul>
<b>Practices of research as the researcher</b>	<ul style="list-style-type: none"> <li>• Collects both quantitative and qualitative data</li> <li>• Develops a rationale for mixing</li> <li>• Integrates the data at different stages of inquiry</li> <li>• Presents visual pictures of the procedures in the study</li> <li>• Employs the practices of both qualitative and quantitative research.</li> </ul>

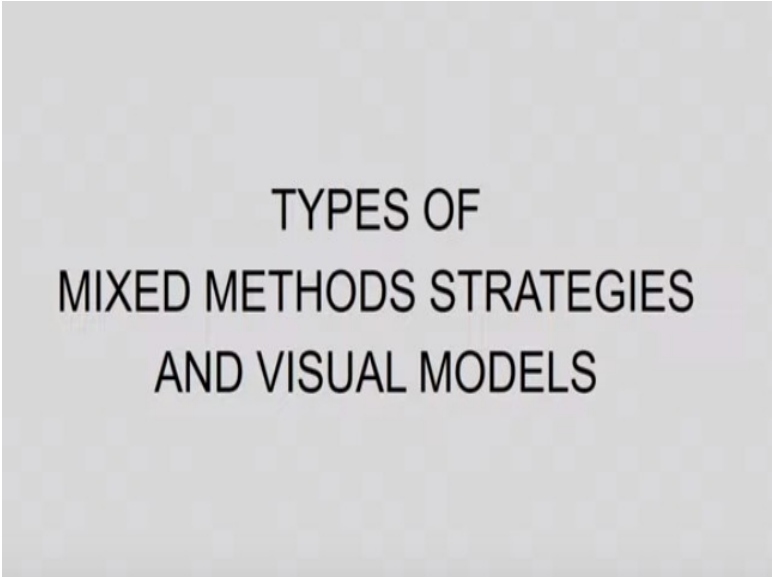
Now we can look at mixed methods approaches under four heads. One is the philosophical assumptions, strategies of inquiry, methods and practices of research as the researcher. The philosophical worldview as we all know now is pragmatic. There are pragmatic knowledge claims and the strategies of inquiry include both qualitative and quantitative methods of inquiry. However, these qualitative and quantitative methods can be carried out sequentially, concurrently or transformatively and this is something that is the focus of our discussion in the second part of this lesson. What do we mean when we are saying we are collecting information sequentially or concurrently or transformatively. And the focus here is of course, what are the different phases in which qualitative and quantitative information is being collected and analyzed or whether or not they are being collected in different phases.

The methods of inquiry, they can be both open ended and close ended questions, both emerging and predetermined approaches and both quantitative and qualitative data and analysis are used when we are applying or employing mixed methods approaches.

The practices of the researcher can follow is that they can collect both qualitative and quantitative data, develop a rationale for mixing. Barely ever when we are conducting academic research or for that matter development practice research, it is given the time constraint and resource constraint that we have with regard to finishing a particular project, it is not advisable to carry out both quantitative and qualitative methods of research inquiry. And therefore, a researcher always spends a substantial amount of time to decide what method of inquiry is to be followed. Therefore, one of the things to keep in mind is that when we are employing both the strategies of collecting data or analyzing the information, it is time consuming. And therefore, a lot depends upon the researcher's intent with regard to why we want to employ both quantitative and qualitative data.

Therefore, the developing of a rationale for mixing up of the information is very important. Therefore, they integrate the data at different stages of inquiry, present visual pictures of the procedures in the study and employ the practices of both qualitative and quantitative research.

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## TYPES OF MIXED METHODS STRATEGIES AND VISUAL MODELS

Now let us come to the second part of our lesson. We have now understood what is mixed methods research and what are the philosophies of mixed methods research and we also understand the fact that when we are talking about MMA or mixed methods approaches, we are talking about both the quantitative and qualitative approaches and

how and when the mixing of these approaches should be done. And also, we are trying to come up with different visual models of how these mixing procedures can be carried out. And also, what is the intent of doing, of going about mixing the different methods that we are talking about.

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**Aspects to consider in planning a mixed methods design**

Timing	Weighting	Mixing	Theorizing
No Sequence concurrent	Equal	Integrating	Explicit
Sequential- Qualitative first	Qualitative	Connecting	Implicit
Sequential- Quantitative first	Quantitative	Embedding	

Okay, let us begin with this first. Now while the qualitative and quantitative methods can be mixed, before that there are certain aspects that need to be kept in mind with regard to mixing itself. What are the different aspects based upon which this mixing can take place? Now first we can categorize these aspects under four heads. One is timing, second is weighting, third is mixing and theorizing. So basically, over time several typologies of mixed methods strategies and visual models have been designed. And most of these classification systems are drawn from different kinds of evaluation studies that have been carried out by different researchers, whether in the field of health sciences or education or various other kinds of social and behavioral research. So, these visual models that I am going to discuss about today are coming from these evaluation studies that have been carried out and researchers over time have been able to classify them under various visual models.

For the sake of our lesson I have taken most of my materials and depended largely on John Creswell's research design methods and this is a highly recommended book for all students who are interested in employing mixed methods approaches for

development research questions. John Creswell has written elaborately and widely in various research methods journals, and has also authored a number of books by SAGE Publications. And the publication that we are referring largely for our lesson is the one on research design.

So, let us come back to the aspects that need to be kept in mind for planning a mixed method design. Let us first come to timing here. Now proposal developers need to consider timing of their qualitative and quantitative data collection in mind. When we are talking about timing, whether the Data, qualitative and quantitative data will be carried out, will be collected and analyzed sequentially, that is in phases, one after the other or whether it will be collected and analyzed concurrently that is at the same time. And deciding on that depends a lot on the intent of the researcher with regard to what is the research question that we are investigating, who is the intended audience and what are the expectations or expected outcomes of the research that we want to communicate through our research reports and that enables us to decide whether we want to carry out sequentially or concurrently.

Now when the data are collected sequentially either the qualitative data can come first, qualitative data collection process procedure can be taken up first or quantitative can be taken up first or vice versa depending upon what is to be taken up first. So therefore, here we have sequential qualitative first and sequential quantitative first. So, when we are taking up sequential quantitative first it will be followed by a qualitative research and in the case of qualitative it will be followed by a quantitative research.

Now as I said it depends upon the initial intent of the researcher and the research questions that is being asked by the researcher with regard to the question that we are investigating and therefore, decide. So for example, if there is an emergent issue in a certain college campus with regard to student suicides and we want to study this matter in detail following a mixed methods approach, then we may want to work first with some qualitative information by focusing on the number of students that have committed suicides looking at their socioeconomic details, their grade sheets, and so on and so forth. And depending upon the findings that come from this qualitative research first, we might then want to come up with a questionnaire or an instrument that can then be administered among rest of the students within the campus to come



up with quantitative results that can go on to explain the results coming from the qualitative study that we have taken up first.

The second aspect is with regard to weighting. Now this is another important aspect where when we are taking a qualitative and quantitative research the weighting may be equal or the weights maybe more on quantitative less on qualitative and vice versa. Now in some studies the weight may be equal. In other studies, it might emphasize one or the other. A priority for one type again depends upon the intent of the research question. If the researcher is largely interested in exploring cases in detail, then maybe the emphasis may be more on qualitative studies. Whereas if the researcher wants to represent an entire population based upon a sample study the emphasis may be more on quantitative and vice versa.

Then we come to the mixing of methods. Now with respect to mixing of data, there are two basic questions. One is when the data can be mixed. When we want to mix up the data, quantitative and qualitative data and how the mixing take place. Now with regard to these two questions, the when question is relatively easier. But the how question needs a little bit of deliberation with regard to the mixing bit of it.

Now for proposal developers using mixed methods, it is important to discuss and present in a proposal when the mixing will occur. So for example, the researcher wants to collect quantitative information first, and based upon the results of the quantitative information, which goes on to inform if there are certain outliers within the population that are exhibiting certain features the researcher might want to go on to explore those cases only in detail in the form of a qualitative study. And this is what we say is connectedness in mixed methods research. We are connecting one phase of data analysis with another phase of data collection, because we are connecting our qualitative case research to be taken up in the second phase with the analysis of the first phase, we are connecting first phase of data analysis with second phase of data collection. So, this is one of the examples of how the mixing of data takes place with regard to mixed methods approaches.

Now how the mixing occurs means either that the qualitative and quantitative data are actually merged on one end of the continuum, they are kept separate on the other end of the continuum or combined in some way between these two extremes. But the two

data bases might be kept separated but connected. Now as I said in my first example that the data analysis from the first phase can be taken up for data collection in the second phase. So, which means here we are deciding that we are going to conduct a two-phase study. Similarly, we can also decide whether we want to conduct a two-phase, three-phase or a four-phase study and so on depending upon the time and the resource constraint that we have at our disposal.

In another study, the researcher might collect both quantitative and qualitative data concurrently and integrate or merge the two databases. So, this happens- connection of data takes place when the research is being carried out sequentially one after the other. Whereas there may be times when we are carrying out concurrently data collection and so which means that quantitative data and qualitative data is being collected at the same time and the purpose or the intent of the researcher here is to merge the data or look at or analyze the data separately and merge them to come up with results which show whether they are contradicting each other, whether the results of quantitative and qualitative research are contradicting each other or they are supporting each other. And this is one of the most robust ways of getting out research although it may be extremely time consuming, but this is one of the most robust ways of understanding the research questions that we are posing.

A third way of mixing data or research maybe that a researcher might have a primary aim to collect one form of data say a quantitative data, and then the researcher might also want to carry out qualitative inquiry with the data. However, the qualitative information merely goes on to support the primary findings or the findings of the first set of data. So, in this case, the follow up which is done sequentially may only be secondary to the primary database that is being maintained or collected. And that is what we call embedding of the information or that research is embedded within the larger research that we are undertaking.

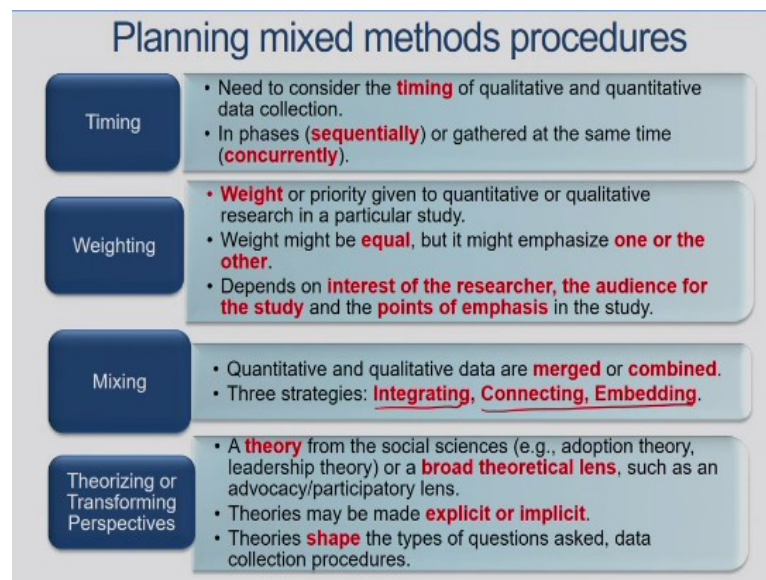
The fourth aspect is what is referred to as theorizing and most mixed methods design or mixed methods approaches come up with some kind of a theoretical construct. Now these theoretical constructs go on to inform the research design that we are following as part of the mixed methods approach. However, the theories may be explicit or maybe implicit, because usually all researchers bring hypothesis, theories and hunches to their research. However, it may not be explicitly mentioned in the

research proposal, but as the research evolves over a period of time, the theories might come to the forefront and then go on to explain the findings better. However, it is also possible and mostly it is so that mixed methods approach or mixed methods researchers start with a theoretical construct.

Now these theories might be individual theories coming from the parent disciplines, let us say a theory on migration or a theory on food consumption or a theory on leadership goals or attribution theory and so on and so forth. Or it may be a larger theoretical lens for example, a lens of capability approach or human development approach, an approach following economic growth or gender, race, class, caste and so on. However, whether the theoretical approach should be made explicit or implicit within the research design is something that is the researcher's prerogative to inform the research.

Now based upon these aspects of how to consider planning a mixed methods design, let us now come to the visual models of different mixed methods design.

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So, this is just a summary of what we have just discussed with regard to timing, weighting, mixing and theorizing or transforming perspectives. This slide has been put together for the benefit of the students so that they can read through the advantages better.

So timing, to summarize timing issues, there is a need to consider the timing of qualitative and quantitative data collection. It can be in phases that is sequentially or gather at the same time that is concurrently. And when we come to the visual models you will see that we are repeatedly using these terms sequentially and concurrently and anybody who is more intent in using visual models in the research proposal must make sure to use these terms in the research proposal, which are basically technical terms used in mixed methods approaches.

Weighting, weight or priority is given to quantitative or qualitative research in a particular study. Weight might be equal, but it might emphasize one or the other. It depends on the interest of the researcher, the audience for the study, and the points of emphasis in the study. With regard to mixing quantitative and qualitative data are merged or combined, there are three strategies; integrating, connecting, and embedding. Connecting and embedding of information can take place only when we are collecting data sequentially. Whereas integrating can take place when we are carrying out data collection concurrently, which means at the same time we are carrying out. So, you are merging the data from one method of data collection to another. Whereas connecting and embedding follows a phase. It follows sequentially.

Theorizing or transformative perspectives, a theory from the social sciences can explain the research design or a broad theoretical lens such as an advocacy or participatory lens and as we will see now in the case of certain visual models, the transformative visual models, usually always there is an advocacy lens or an appeal for change kind of an aspect when we are looking at transformative models. As I already mentioned theories may be made explicit or implicit and theories basically shape the types of questions asked, data collection procedures and so on.

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# Mixed methods visual models-

## 1. Sequential Designs

Okay, so now let us move on to the mixed methods visual models. Now as I said these visual models are taken from different kinds of evaluation exercises that have been carried out by different scholars. And in this lesson, I will be focusing, courtesy John Creswell, on six visual models. However, since this is an emergent area of research or different other kinds of visual models may also get added to these models that we are discussing. Let us first look at some of the notations that are used in mixed methods visual models.

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### Mixed methods notation

- A+ indicates a simultaneous or concurrent form of data collection, with both quantitative and qualitative data collection at the same time.
- A → indicates a sequential form of data collection, with one form (e.g., qualitative data) building on the other (e.g., quantitative data).
- Capitalization indicates that an approach or method is emphasized.
- “Quan” and “Qual” stand for quantitative and qualitative, respectively.
- A QUAN(qual) notation indicates that the qualitative methods are embedded within a quantitative design.
- Boxes highlight the quantitative and qualitative data collection and analysis. (note: notations adapted from Morse (1991), Tashakkori and Teddlie (1998) and Creswell and Plano Clark (2007).

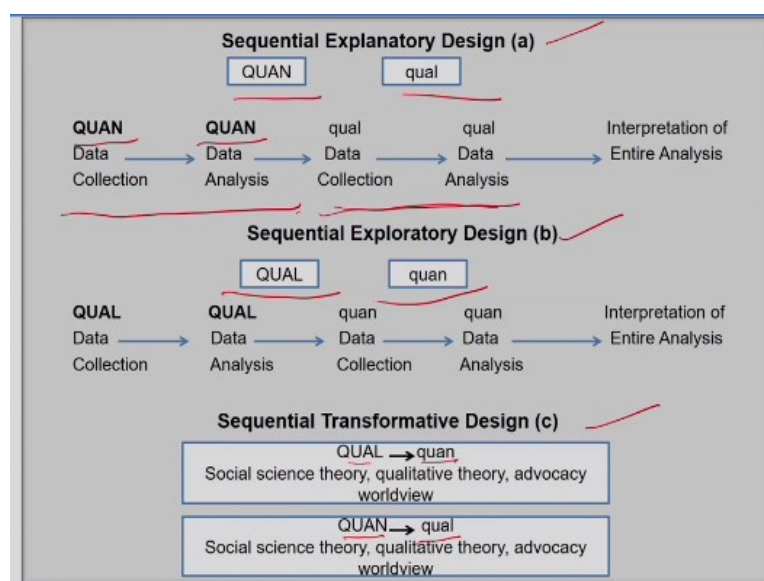
So, I will begin with this point here first, since we are introduced to quantitative and qualitative research. So, in the visual models Quan and Qual they are shortened,

quantitative is shortened to Quan and qualitative is shortened to Qual. So, Quan and Qual stand for quantitative and qualitative respectively. Whenever there is a plus it indicates a simultaneous or concurrent form of data collection, which means a Quan plus Qual so which means that quantitative and qualitative study are being carried out concurrently, with both quantitative and qualitative data collection being carried out at the same time.

When there is an arrow it indicates a sequential form of data collection with one form. Example qualitative data building on the other example quantitative data. Capitalization indicates that an approach or method is emphasized. For example, you have a capitalized Quan here, which means that whenever you see a capitalized Quan or Qual in a visual model, it means that that approach is being emphasized more in that design. So, as I said a QUAN/qual notation indicates that the qualitative methods are embedded within a quantitative design. So, in a certain design if we have a capitalized quan and a lowercase qual that means that the qualitative approach is embedded within the quantitative approach.

Boxes highlight the quantitative and qualitative data collection and analysis. And these notes are basically notations have been adapted from various scholars, such as Morse, Tashakkori and Teddlie, Creswell and Plano Clark and so on and so forth.

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So, with these notations in mind, let us look at the look at the first set of visual models. There are three models here. A sequential explanatory design, sequential exploratory design, and a sequential transformative design. Notice the capitalized QUAN here and a lowercase qual here. So, this is one of the universally followed designs when we are carrying out mixed methods approach of data collection or data analysis. This is carried out in two phases. This is a two-phase study. In the first phase, the emphasis is more on quantitative data. So, you are collecting quantitative data, then analyzing the quantitative data. Now based upon the results that are emerging from the quantitative data, we go on to carry out a smaller qualitative data collection analysis. And both of them together go on the interpretation of the entire analysis is based upon this. So, it is a sequential explanatory design. The first phase, the causal relationships are explained based upon the dependent and independent variables. And these causal relationships will help us to examine certain variables further in detail based upon the qualitative data.

Now our sequential exploratory design is typically used to explain and interpret quantitative results by collecting and analyzing follow up qualitative data and it can be useful when unexpected results arise from a quantitative data. Say for example, we are carrying out a study on farm business incomes. So, we are studying a certain number of farmers, a sample of farmers. And we are collecting their cost of cultivation data, their incomes data, and based upon their incomes data we see that a number of farmers are reporting negative farm incomes or they are reporting a large number of losses, large amount of losses based upon their cost of cultivation data. So now this is something generally we might expect positive farm business incomes or profits, otherwise, why would anybody carry out farming in the first place? Now this is a surprising result where people are carrying out farming, people are in the business of farming, even when there are negative farm business incomes or losses in farm incomes.

So, then we might want to take up only those farmers who are reporting, as I said there is a sizable number of farmers who are reporting negative farm incomes. We might want to choose a sub sample among those farmers who reporting as such, and carry out detailed analysis based upon face to face interviews of these farmers with regard to what are the additional factors that can go on to explain these negative farm

incomes. For example, one might ask questions with regard to why are they carrying out the business of farming in the first place even when there are negative farm incomes in the first place and that can go on to again inform our final interpretation or data analysis. So, this is what is called the sequential explanatory design.

Now one of the strengths of this kind of a study is that it can go on to give a holistic picture of what we are trying to portray through our research question and also it is quite a straightforward design in the sense that the flow of design is such that you are moving from one set of studies to another form of doing research. And it is better to explain to the committees that are evaluating your research and it finds a lot of acceptance in the committee with regard to the kind of research that you are undertaking. However, when the drawbacks are that it is time consuming in nature, because the quantitative information collection in the first place might have taken a lot of time. And when you are following the set of farmers, in my example, as I have taken and when you are following those cases for qualitative inquiry again, it is a time-consuming process. Therefore, resource and time constraint must be kept in mind when we want to undertake sequential explanatory design.

A reverse form of design is what is called sequential exploratory design. And here in this model as you see the qualitative and quantitative are reversed. So here the emphasis is on qual and quan becomes a smaller kind of an additional research inquiry following the qualitative study. And so, this is again in two phases. You have qualitative data collection and analysis and then quantitative data collection and analysis.

Now so what is happening here is that in the first phase qualitative data is collected and analyzed followed by a second phase of quantitative data collection and analysis that builds on the first qualitative phase. And as can be seen from the capitalized QUAL, weight is generally placed in the first phase and the data are mixed through being connected between the qualitative data analysis and the quantitative data collection.

And both these designs the sequential explanatory design and the sequential exploratory design may or may not have an explicit theoretical lens because a lot will depend upon the findings coming from each of these phases, which will go on to then



explain theories. However, they may or may not come up with any explicit theoretical lens.

Now at the most basic level the purpose of this strategy is to use quantitative data and results to assist in the interpretation of qualitative findings. But unlike the sequential explanatory approach, which is better suited to explaining and interpreting relationships, the primary focus of this model is to initially explore a phenomenon. Like I was taking the example of students' suicides in a certain campus. Now there is a certain phenomenon emerging here. So, we want to follow these cases to understand the phenomena. We want to explore the cases in detail first, then come up with an instrument which can be used for administering among the students that can help us to explain better the qualitative phenomenon that we have studied.

Okay, a third model is what is referred to as a sequential transformative strategy. And this is a two-phase project with a theoretical lens. So, it too has an initial phase, followed by a second phase. And the theoretical lens is introduced in the introduction to a proposal shapes the directional research question aimed at exploring a problem. For example, whether we want to study the issue of discrimination or whether we want to study a problem of inequality. So, in the final part of today's lesson, I will come up with certain questions that need to be put in the proposal that conveys the fact that we are heading towards a pragmatic research philosophy or we are heading towards a mixed methods research approach.

So, in a sequential transformative design, there are two phases- we may have a dominant qual phase followed by a quan. So, sequentially the data is being collected or the reverse with the dominant quan phase followed by a qual. However, the theory use is to be made explicit in both of these phases, whether we are referring to a social science theory or a qualitative theory, advocacy, what is the world view is to be made very explicit in the transformative design. Why? Because the transformative designs are at the end of the process, trying to bring about some kind of a change and therefore advocacy is the main hallmark of sequential transformative designs.

So, these are three different forms of sequential designs which researchers interested might want to show in their research proposal. And then in discussion with the supervisors or the committees may want to frame research questions that fit each of

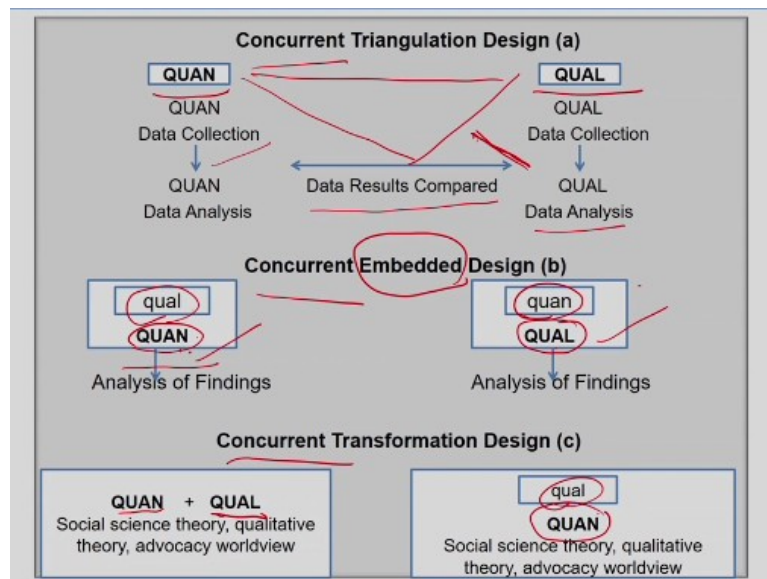
these. So, in the third part we will come to how the research questions can be presented in a research proposal. However, the research questions can follow, so once you have this visual model ready, the research questions can then be decided upon depending upon whether you want to have quantitative data collected or you want to have qualitative data collected. So, the research questions and the research objectives can then also be categorized phase-wise depending upon the vision model that you are following.

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Let us now come to a second form of designs, the concurrent designs, where we are collecting data simultaneously.

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So, like the sequential designs there are three concurrent designs; concurrent triangulation design, concurrent embedded design, and concurrent transformation design. Remember the fact that concurrent means that we are collecting information simultaneously. Embedded means that the secondary form of research becomes a part of a dominant research. The weighting here is more on the dominant form of research that we are undertaking.

So, let us come to concurrent triangulation design first. Notice here that QUAN and QUAL are equally capitalized, which means that they both of them share the same weight. The priority on quantitative or qualitative data is just the same. So, data collection take place and data analysis here qualitative data collection and analysis takes place and then finally, this is compared. So, this is some kind of a triangulation in place here, where you are collecting quantitative data, collecting qualitative data and then comparing the results.

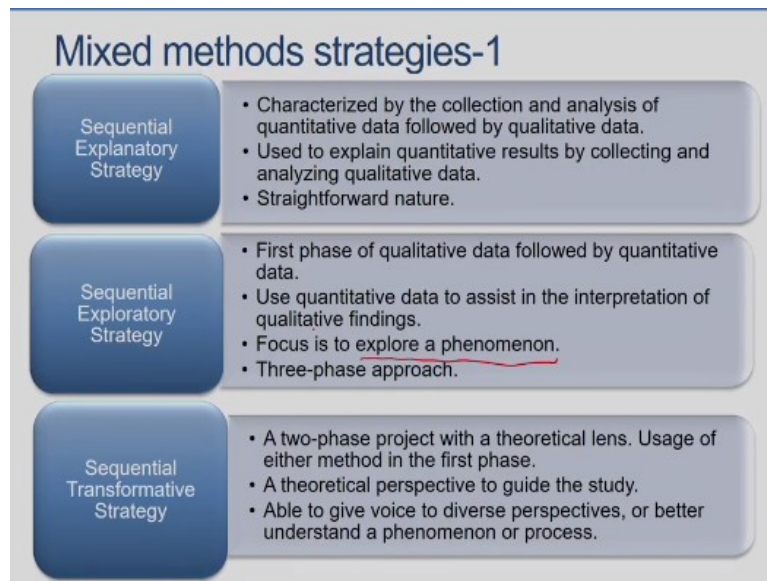
Now these results, so how do you compare the results and this is where data analysis comes into place. This takes place in this phase of the research process, where you have collected quantitative data which might give you certain numbers and the qualitative data can also be converted into counts are transformed into counts and these counts are also in the form of numbers. And these counts can then be compared with the numbers that are emerging from quantitative data and then they can be compared.

However, the thing to remember here is that when we are comparing the data results from quantitative and the qualitative research methods here, they may or may not be the same, they may contradict each other. So often the results contradict each other. And then how do we go about from there and that is exactly where reporting comes into play. That is where the interpretation of the results come into play, how do you best interpret your results when the information coming from quantitative and qualitative are contradicting each other. It may also be the same. If it is the same, then your research becomes very robust. However, it is if it is contradicting then you go on for further analysis of your research.

A second visual model is a concurrent embedded design. Notice the capitalized QUAN here and a lowercase qual which means that the weight is more on quantitative methods and the qualitative part is embedded within the quantitative. However, this is being carried out at the same time and you have another design where the qualitative is dominant and the quan is a lowercase and it is embedded within the qual. And since they are being carried out at the same time if it is being carried out by a single researcher, then obviously it is very time consuming and it requires robust strategies. However, these kinds of studies may be carried out by separate teams, a certain team carrying out this and another team carrying out this and then the analysis of findings being compared from both of these.

A concurrent transformation design again, the philosophy is the same as that when we discuss the sequential transformative design, there is a theoretical perspective there is a theoretical lens that goes on to explain the design, inform the design that we are taking up and here you see there is a capitalized QUAN and QUAL, QUAN + QUAL which means that the weight is equally on quantitative and qualitative. They are being carried out together and then there is a dominant QUAN and then embedded qualitative being carried out together with the social science theory, qualitative theory or an advocacy worldview. And this goes on to explain the why questions more and also what kind of changes need to be brought about and also whether the researchers themselves can bring about those changes. The transformation that is inherent in the research question is also emphasized upon.

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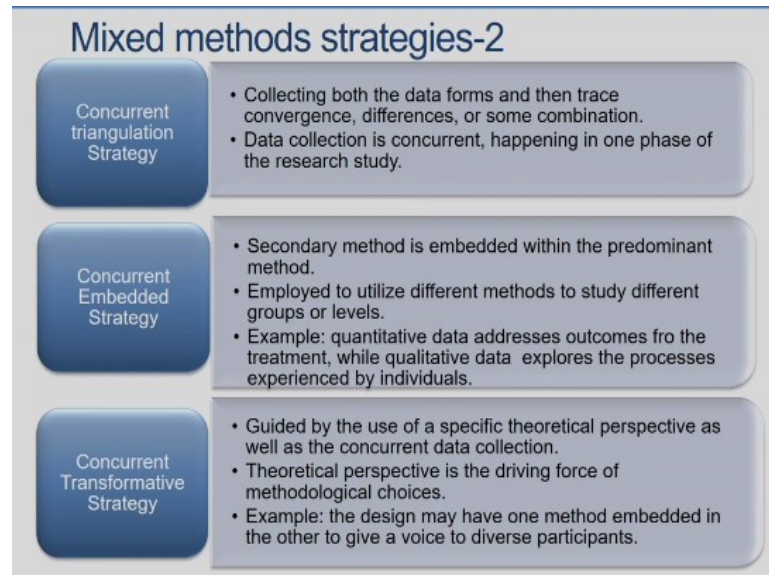
So, this is again a summary of all that we have discussed so far. The sequential explanatory strategy characterized by collection and analysis of quantitative data followed by qualitative data. They are used to explain quantitative results by collecting and analyzing qualitative data. It is straightforward in nature. Sequential exploratory design, it is the first phase of qualitative data followed by quantitative, use quantitative data to assist in interpretation of qualitative findings. Focus is to explore a phenomenon. Therefore, exploratory strategy, which means we are exploring a phenomenon and better it is mostly a three-phase approach.

The first phase is the qualitative research where you are exploring a phenomenon. The second phase is the in-between phase between the quantitative research and the qualitative research. And that second phase is basically coming up with an instrument and this instrument mostly is in can be in the form of a questionnaire or an interview schedule or a set of variables that you want to test through the questionnaire or the interview schedule that you are building. So, this coming up with an instrument is a second phase which you discuss further and then you administer the instrument in the third phase. So therefore, we can either say it is a two phase or a three phase but the second phase is the instrument and the third phase is the quantitative research that we want to carry out.

Sequential transformative, it is a two-phase project with a theoretical lens. We are using either method in the first phase. The theoretical perspective guides the study and

it is able to give voice to diverse perspectives or better understand the phenomenon or process.

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Concurrent strategies, concurrent triangulation, we are collecting both data forms and then trace convergence, differences, or some combination and data collection is concurrent happening in one phase of the research study. Concurrent embedded strategy, secondary method is embedded within the predominant method. It is employed to utilize different methods to study different groups or levels. Example is quantitative data addresses outcomes for the treatment, while qualitative data explores the processes experienced by individuals. In a concurrent transformative strategy guided by the use of a specific theoretical perspective again, theoretical perspective is a driving force of methodological choices and example, the design may have one method embedded in the other to give a voice to diverse participants.

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## How to present mixed methods research, data validation and reporting

Now let us come to the third and the final phase of this lesson, where we will simply discuss how to present mixed methods research, the data validation and reporting of mixed methods research. Now I will come up with some examples of how the research proposals look like when we are following these different sequential or concurrent models.

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### Mixed methods introduction

1. Employ either the quantitative or qualitative approach (or some combination).
2. Emphasis in the direction of either quantitative or qualitative research in writing an introduction.
3. Need exists to both understand the relationship among variables in a situation and explore the topic in further depth.
4. Introduction may emphasize a quantitative approach if the first phase of a project uses quantitative research.

So, what should be contained in the introduction of mixed methods? We must mention whether we are employing either the quantitative or qualitative approach or some combination of both. We must also emphasize the direction of either quantitative or qualitative research in writing an introduction. There is a need that

exists to both understand the relationship among variables in a situation and explore the topic in further depth and introduction may emphasize a quantitative approach if the first phase of a project uses quantitative research. So, introducing the mixed methods research is extremely important with regard to what are the different methods that we are employing and in what phases we are employing all of these methods. For an interested student, there are various kinds of examples on dissertations that follow mixed methods approaches that you can find online. A simple Boolean search on mixed methods research will give you a number of results which is highly recommended to follow.

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**Mixed methods purpose statement-guidelines**

1. Begin with **signaling words**, such as "The purpose of" or "The intent of."
2. Indicate the **overall intent** of the study from a content perspective.
3. Indicate the **type of mixed methods design** used, such as sequential, concurrent or transformational.
4. Discuss the **reasons** for combining both quantitative and qualitative data.
5. Include the characteristics of a good **qualitative purpose statement**.
6. Include the characteristics of a good **quantitative purpose statement**.
7. Consider adding information about the specific types of both qualitative and quantitative data collection.

**Reasons**

- Better understand a research problem by **converging**.
- Explore **participant views** with the intent of supporting with quantitative research.
- Obtain **statistical, quantitative results** from a sample following up with qualitative results.
- Best convey the **trends and voices** of marginalized groups or individuals.

What are the guidelines to mixed method purpose statement? In one of the earlier classes, we have already looked at various kinds of purpose statements that is important. But let us look at some of the guidelines when we are employing mixed methods approaches. So always begin with signaling words such as the purpose of or the intent of. The intent of the researcher must be made very clear in the proposal and therefore, the use of signaling words is very important. Indicate the overall intent of the study from a content perspective. Indicate the type of mixed methods design that we have just discussed, that must be mentioned sequential, concurrent or transformational. Discuss the reasons for combining both quantitative and qualitative data.



Now this is a very important area of debate in research methods. Because when we discussed paradigm wars, I also used the terminologies of quantitative purists and qualitative purists. There are researchers that focus a lot on quantitative methods completely denigrating the importance of qualitative methods and vice versa. And in response to which the pragmatic worldview has come up, that the research question assumes importance and therefore, there is a need to decide, what method to apply or employ depending upon the research question that the researcher has taken up. Therefore, the reasons of combining quantitative and qualitative data is very important, it should not be done at random.

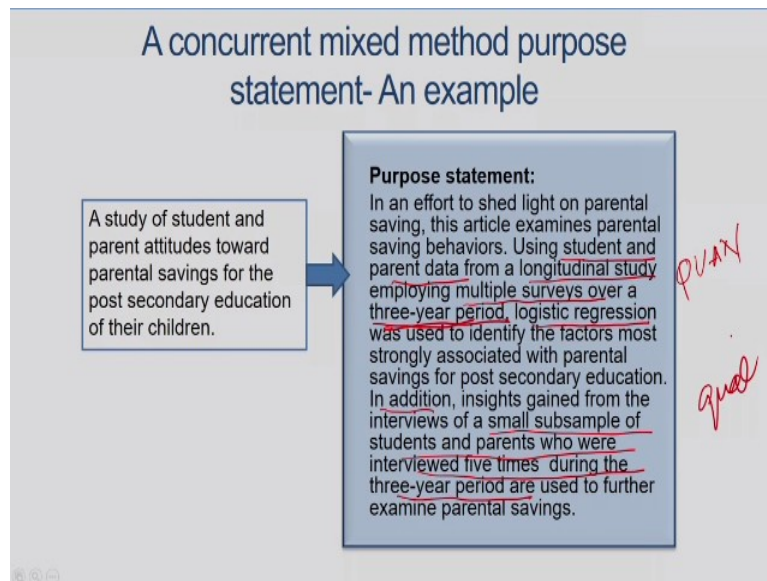
Now because mixed methods researchers have come up with different kinds of visual models, there is a tendency among researchers, amateur researchers to start using different methods at random without understanding the importance of when and how to mix the methods. Therefore, the reasons are very important.

Now some of the reasons I have highlighted as follows here. One is to better understand a research problem by converging. Often a research like for example the issue of student suicides or farmer suicides is a question that can be understood better by converging the research inquiries. So, you have a quantitative model, you have a qualitative model and then you converge, whether by the method of sequential converging or you want to follow it through a concurrent method.

Explore participant views with the intent of supporting with quantitative research. Obtain statistical quantitative results from a sample following up with qualitative results. Best convey the trends and voices of marginalized groups or individuals and we are following a transformational approach whether concurrently or sequentially.

Fifth point here include the characteristics of a good qualitative purpose statement. Similarly, include the characteristics of a good quantitative purpose statement. Purpose statements have been discussed in detail in the earlier classes. I suggest you refer to the lesson on purpose statements. Finally, consider adding information about the specific types of both qualitative and quantitative data collection.

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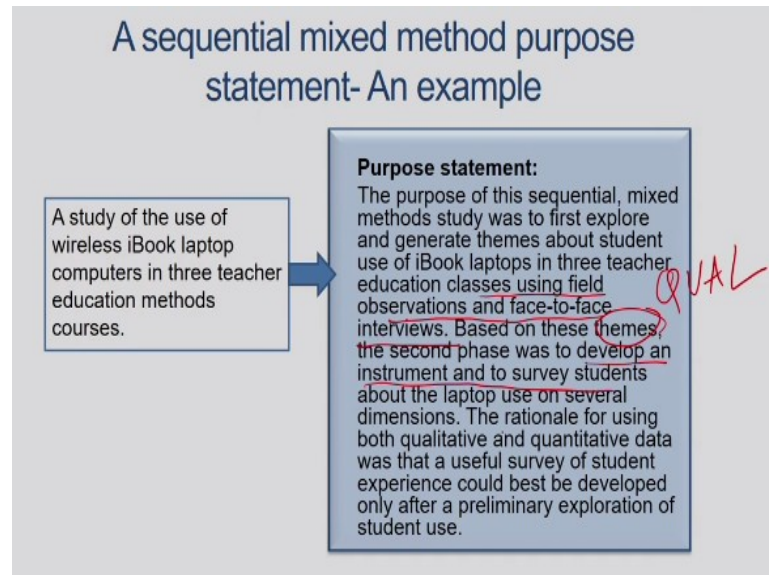


Let us look at an example of a concurrent mixed method purpose statement. Concurrent remember, means that the qualitative and the quantitative design or data collection method is being carried out simultaneously or together. So, the problem that we are studying here is a study of student and parent attitudes towards parental savings for the post secondary education of their children. So, what is the purpose statement here? Purpose statement is ‘in an effort to shed light on parenting saving this article examines parental saving behaviors using student and parent data’. Notice the terms here ‘using student and parent data from a longitudinal study’. It is a long-term study, ‘employing multiple surveys over a three-year period’. It is a three-year study. So, survey is longitudinal study, which means multiple surveys, or quantitative data collection has been applied over a three-year period. ‘Logistic regression was used to identify the factors more strongly associated with parental savings for post secondary education. In addition, insights gained from the interviews of a small subsample of students and parents who were interviewed five times during the three-year period’.

So here you have an example where a longitudinal multiple surveys and small subsample of students and parents interviewed five times during the three-year period was carried out. So, it is a concurrent study, where the quantitative and the qualitative is being carried out simultaneously, together. However, it is possible that this study also has a dominant quan and a subsidiary qualitative. So, the dominant framework here is that of the quantitative method because there are multiple surveys being

carried out to understand parental savings for post secondary education, whereas the interviews go on to support the study, but both of them are being carried out together.

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This is an example of a sequential mixed method purpose statement. So, what are we studying here? A study of the use of wireless iBook laptop computers in three teacher education methods courses. So, the purpose statement reads as follows. ‘The purpose of this sequential mixed methods study was to first explore and generate themes about student use of iBook laptops in three teacher education classes, using field observations and face to face interviews. So here you have qualitative method being applied first, ‘using field observations and face to face interviews. Based on these themes’, based upon the themes that are emerging from the qualitative study ‘the second phase was to develop an instrument and to survey students about the laptop use on several dimensions.’ Notice the term developing an instrument. ‘The rationale for using both qualitative and quantitative data was that a useful survey of student experience could best be developed only after a preliminary exploration of students use.’ So, this is a sequential exploratory study where the qualitative follows the quantitative, the second example that we had taken.

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## A transformative concurrent mixed method purpose statement- An example

### **Purpose statement:**

A study is conducted to contribute to the general understanding of how perceptions of fairness are formed and how gender equality is conceptualized by Swedish women and men. The aim of the article is to study the importance of time use, individual resources, distributive justice and gender ideology for perceptions of fairness and understandings of gender equality. Two Swedish studies are used to do this, a survey study and a qualitative interview study.

Okay now, this is a transformative concurrent mixed method purpose. So here ‘a study is conducted to contribute to the general understanding of how perceptions of fairness are formed and how gender equality is conceptualized by Swedish women and men. The aim of the article is to study the importance of time use’, which can be carried out only through quantitative methods, the survey instrument, ‘individual resources, distributive justice and gender ideology for perceptions of fairness and understanding of gender equality. Two Swedish studies are used to do this, a survey study and a qualitative interview study.’ So, these are two phase study, but the theory use is explicit in this and therefore, it is transformative in nature.

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## A mixed methods proposal format-an example

### **1. Introduction**

- a) The research problem
- b) Past research on the problem
- c) Deficiencies in past research and one deficiency related to the need to collect both quantitative and qualitative data
- d) The audiences that will profit from the study

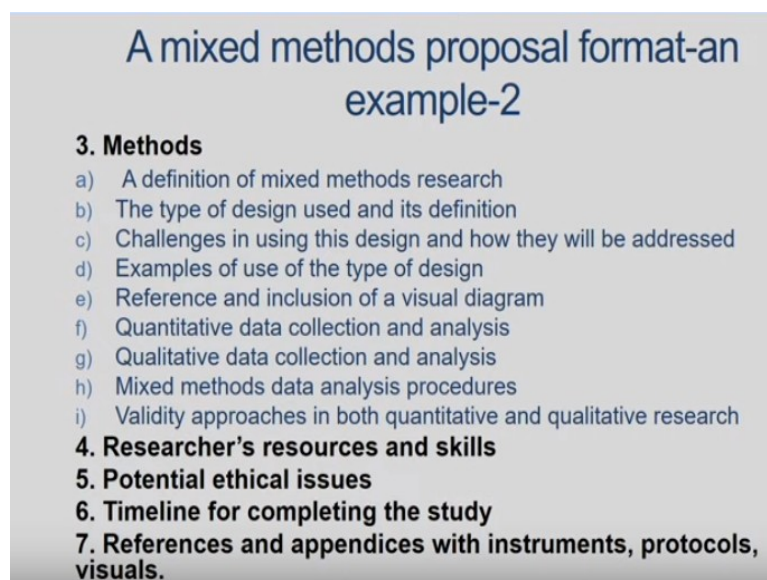
### **2. Purpose**

- a) The purpose or study aim of the project and reasons for a mixed methods study
- b) The research questions and hypothesis (quantitative questions or hypotheses, qualitative questions, mixed methods questions)
- c) Philosophical foundations for using mixed methods research

So, let us also look at an example of a mixed methods proposal format, what are the different categories or sections that must contain in a mixed methods proposal format. The first is introduction. The introduction must cite the research problem, the past research on the problem, deficiencies in past research and one deficiency related to the need to collect both quantitative and qualitative data, this part is important. Usually in the introduction of traditional research where we are employing either quantitative or qualitative, the intention to use either of these methods is explicit and therefore, there is no reason to go on to explain why both of these methods need to be employed, both qual and quan needs to be employed to bridge the deficiencies of the past research. Whereas mixed methods research proposal needs to mention this very explicitly. This is usually absent in traditional research proposal formats. And lastly the audiences that will profit from the study. Second section on purpose.

The purpose or study aim of the project and reasons for a mixed method study, research questions and hypothesis, quantitative questions or hypothesis, qualitative questions, mixed methods questions, philosophical foundations for using mixed methods research.

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**A mixed methods proposal format-an example-2**

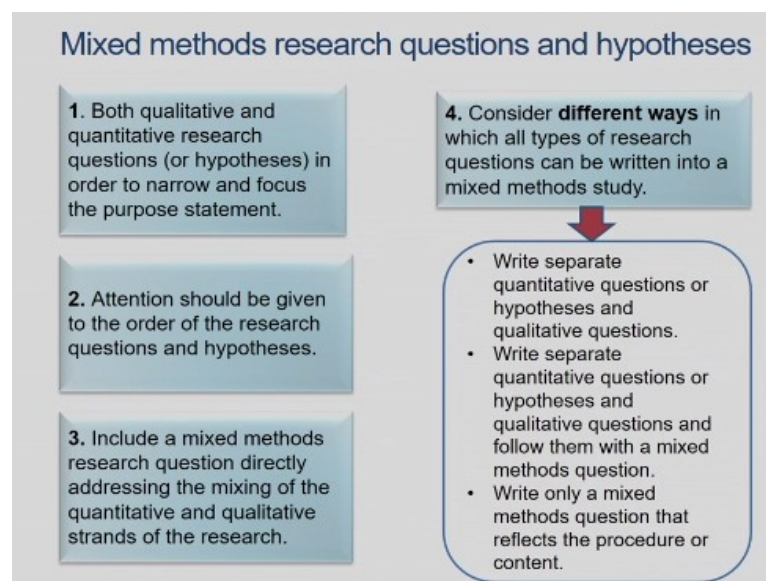
- 3. Methods**
  - a) A definition of mixed methods research
  - b) The type of design used and its definition
  - c) Challenges in using this design and how they will be addressed
  - d) Examples of use of the type of design
  - e) Reference and inclusion of a visual diagram
  - f) Quantitative data collection and analysis
  - g) Qualitative data collection and analysis
  - h) Mixed methods data analysis procedures
  - i) Validity approaches in both quantitative and qualitative research
- 4. Researcher's resources and skills**
- 5. Potential ethical issues**
- 6. Timeline for completing the study**
- 7. References and appendices with instruments, protocols, visuals.**

Methods- the third section on methods will contain a definition of mixed methods. You can utilize the definitions that we have just discussed in this lesson. Type of design use, challenges using this design, examples of use of the type of design, other

past studies that might have used these visual models, reference and inclusion of a visual diagram that really helps to smooth matters with regard to the methods section when we are presenting our research proposal to the various committees, quantitative data collection analysis, qualitative data, mixed methods data analysis procedures, and the validity approaches in both quantitative and qualitative research. The rest of the sections can be on researchers' resources and skills, potential ethical issues, timeline for completing study, and references and appendices with instruments protocols visuals.

This is just an indicative example of what should be the research proposal format, when we are following mixed methods. Now it is important to follow a format such as this and distinguish these kinds of proposals from other proposals, because we are making a point here that the method of study is unique, the mixed methods of study goes on to explain questions better. The research question as I said is of utmost importance when we are following MMA.

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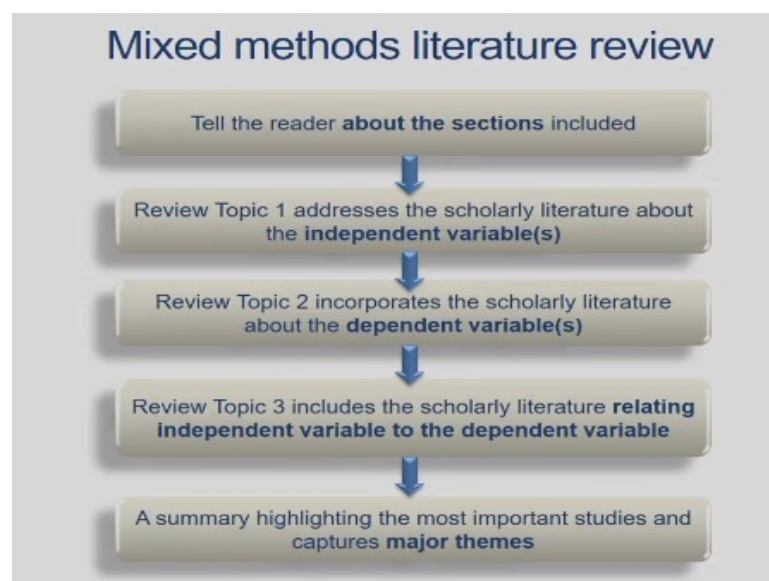


What do the mix methods research questions and hypothesis look like? Both qualitative and quantitative research questions in order to narrow and focus the purpose statement, attention should be given to the order of research questions and hypothesis. Order is important because we are following a visual model and depending upon which phase comes first if the quantitative phase comes first, the

research questions that can be answered from the quantitative study must be explained first and vice versa. Therefore, the order of research questions on hypothesis is extremely important.

Include a mixed methods research question directly addressing the mixing of the quantitative and qualitative strands of the research. Consider different ways in which all types of research questions can be written into a mixed methods study. So, you write separate quantitative questions and qualitative questions, write separate quantitative questions or hypothesis and qualitative questions and follow them with a mixed methods question. That will signal that the fact that quantitative and qualitative are not just stand alone, but they are to be mixed in some proportion. Whether you are doing it concurrently or sequentially the fact remains that it has to be mixed at some point. Write only a mixed methods question that reflects the procedure or content.

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This is one of the examples of how to design a flow of literature review when we are following mixed methods. You tell the reader about the sections included. You review a topic which addresses the scholarly literature about independent variables. Review topic 2 incorporates the scholarly literature about dependent variables. Topic 3 includes scholarly literature relating independent variable to the dependent variable and a summary highlighting the most important studies and captures major themes.

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## Mixed methods theory use

1. Include theory deductively or inductively.
  - Deductively as in quantitative theory testing and verification or inductively as in an emerging qualitative theory or pattern.
2. A framework of social science or a health science theory.
  - To be tested in either a quantitative or qualitative approach to inquiry.
3. Transformative design as a distinct form.
  - Gave primacy to value-based, action-oriented research.
  - Mixing the value commitments of different traditions, the use of diverse methods, and a focus on action solutions.
  - Integration of transformative methodology into all phases of research process.
4. Use of theoretical perspectives
  - Gendered, feminist; cultural/racial/ethnic; lifestyle; critical and class and social status.

Now with respect to theory use, whether you want to include theory deductively or inductively. So deductively as in quantitative theory testing and verification or inductively as in an emerging qualitative theory or pattern. A framework of social science or health science theory for example. Transformative design as a distinct form. So, give primacy to value-based action-oriented research. As I said that you know, that mixed methods approach or designs are usually followed by action-oriented researches or action research. Therefore, the primacy is to be given to those kinds of language in the research proposal that you are proposing. Mixing the value commitments of different traditions. Use of diverse methods and a focus on action solutions and use of theoretical perspectives. We have discussed this in detail.

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## Theory in a transformative-emancipatory mixed methods study- An example

- Issues in an urban, predominantly African American HIV/AIDS community were studied.
  - The language of participants with HIV/AIDS within the participants' social context was examined.
  - 75 open-ended ethnographic interviews were conducted to identify "language themes".
  - 40 semi-structured interviews addressing demographics, daily routine, drug use, knowledge of HIV/AIDS risks, etc.
  - Following the qualitative data, concepts and questions to refine follow-up questions, including the design of a quantitative post intervention instrument were used.
  - Empowerment approaches in evaluation can be useful.

Now this is an example of theory use in transformative emancipatory mixed methods study. For example, we are studying issues in an urban, predominantly African American HIV/AIDS community. So, the points to keep in mind here is that the language of participants with HIV/AIDS within the participants social context was examined. 75 open-ended ethnographic interviews were conducted to identify language themes. 40 semi-structured interviews addressing demographics, daily routine, drug use, knowledge of HIV/AIDS risks, etc. Following the qualitative data concepts and questions to refine follow-up questions, including the design of a quantitative post intervention instrument were used. And empowerment approaches in evaluation can also be useful.

So, this also gives us a notion of the elaborate steps in which the mixing of data takes place. 75 open-ended ethnographic interviews, 40 semi-structured interviews following qualitative data concepts and questions and then following up with the design of a quantitative post intervention instrument. These are all time-consuming procedures and needs to be thought out, deliberated carefully before initiating the mixed methods research.

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## Transformative-emancipatory questions for mixed methods researchers throughout the research process-1

### 1. Defining the problem and searching the literature.

- Did you deliberately search the literature for concerns of diverse groups and issues of discrimination and oppression?
- Did the problem statement arise from the community of concern?
- Did your mixed methods approach arise from spending quality time with these communities?

### 2. Identifying the research design.

- Does your research design deny treatment to any groups and respect ethical considerations or participation?

### 3. Identifying data sources and selecting participants.

- Are the participants of groups associated with discrimination and oppression?
- Are the participants appropriately labeled?
- Is there a recognition of diversity within the target population?

Now, some of the questions that need to be kept in mind for defining the problem and searching the literature some of the questions are as follows. Did you deliberately search the literature for concerns of diverse groups and issues of discrimination and oppression? Did the problem statement arise from the community of concern? Did your mixed methods approach arise from spending quality time with these communities? Often these days in various institutions across the world, researchers who are employing transformative designs or action oriented research encourage the researchers to spend a lot of time in the field variously referred to as village immersion programs, where researchers spend time with the community to understand, to be a participant themselves in the community and then come up with research questions which will then go on to explain or inform the researcher as to what method to be employed to collect data with regard to that question.

So, did your mixed methods approach arise from spending quality time with the community themselves? Research problems not coming from literature review, but research problem coming from the immersion programs that the researchers have. Identifying research design. Does your research design deny treatment to any groups and respect ethical considerations of participation? Identifying data sources and selecting participants. Are the participants of groups associated with discrimination, oppression? Are the participants appropriately labeled? Is there a recognition of diversity within the target population?

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## Transformative-emancipatory questions for mixed methods researchers throughout the research process-2

- What can be done to improve the inclusiveness of the sample to increase the probability that traditionally marginalized groups are adequately and accurately represented?

### 4. Identifying or constructing data collection instruments and methods.

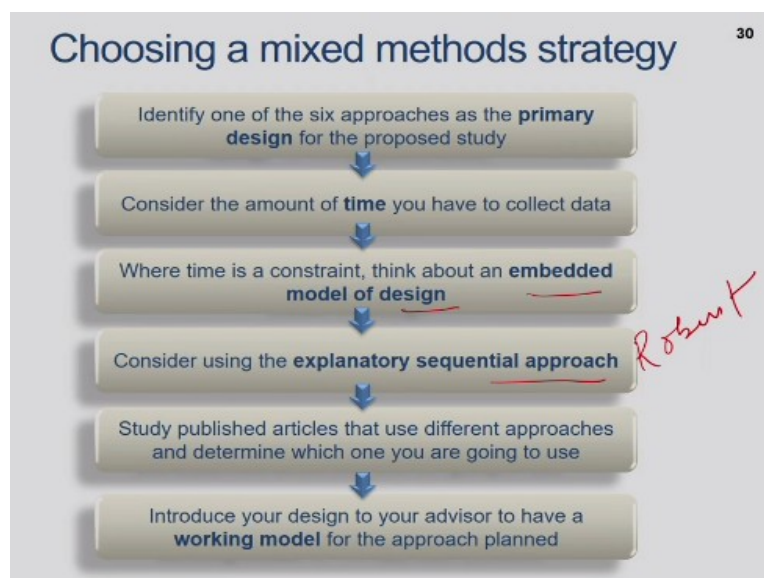
- Will the data collection process and outcomes benefit the community being studied?
- Will the research findings be credible to that community?
- Will communication with that community be effective?
- Will the data collection open up avenues for participation in the social change process?

### 5. Analyzing, interpreting, and reporting and using results.

- Will the results raise new hypotheses?
- Will the research examine subgroups (i.e., multilevel analyses) to analyze the differential impact on diverse groups?
- Will the results help understand and elucidate power relationships?
- Will the results facilitate social change?

Identifying or constructing data collection instruments. Some of the questions are, will the research findings be credible to that community? Will communication with that community be effective? Analyzing, interpreting and reporting using results. Will the results raise new hypothesis? Will the results help understand and elucidate power relationships? Will the results facilitate social change? These are some of the questions.

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For choosing a mixed method strategy, identify one of the six approaches as a primary design for the proposed study. Consider the amount of time you have to collect where time is a constraint, think about an embedded model of design. Consider using

explanatory sequential approach because this is a more robust approach. Study published articles that use different approaches and determine which one you are going to use. Introduce your design to your advisor to have a working model for the approach planned.

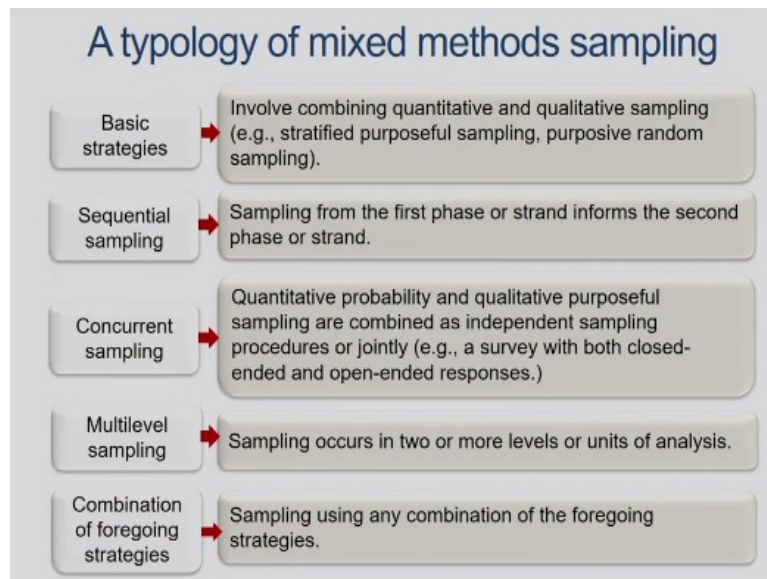
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**Data collection procedures**

- 1. Identify the type of data to be collected.**
  - Be specific about both the quantitative and qualitative type of data to be collected.
- 2. Convey rigorous sampling procedures in a proposed study.**
  - Quantitative data involves random sampling, while qualitative data uses purposeful sampling.
- 3. Include detailed procedures in your visual model.**
  - **Example:** a discussion of the approach used might include describing the use of survey data collection followed by both descriptive and inferential data analysis in the first phase. This is followed by qualitative observations and coding and thematic analysis within an ethnographic design in the second phase.

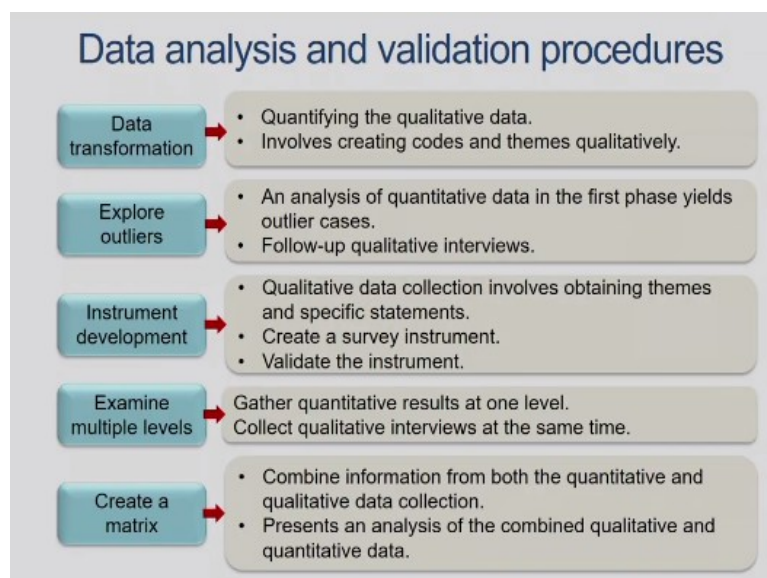
These are the different data collection procedures. Identify the type of data to be collected, convey a rigorous sampling procedure in a proposed study, include detailed procedures in your visual model. For example, here a discussion of the approach used might include describing the use of survey data collection followed by both descriptive and inferential data analysis in the first phase.

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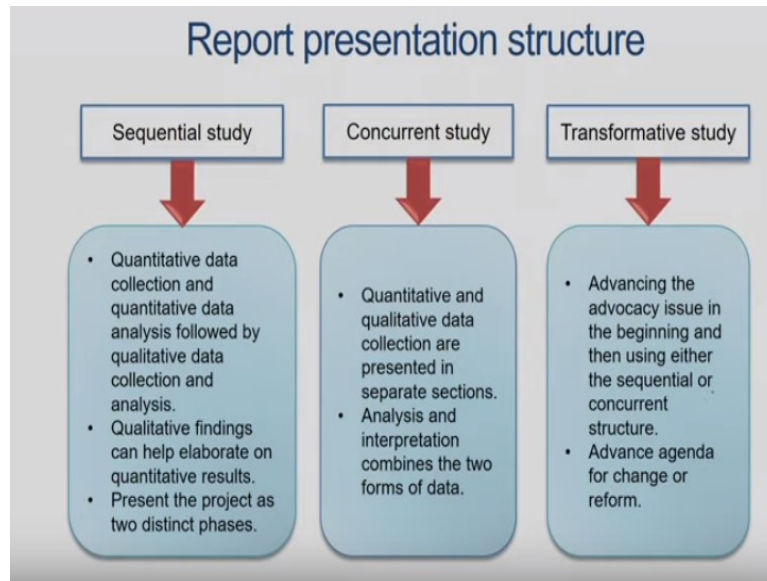
These are certain typologies of mixed methods sampling. Basic strategies that involve combining quan and qual sampling, for example, stratified purposeful sampling, purposive random sampling and so on. This lesson will be followed by a lesson on sample survey methods, where we will go into details of what are purposeful sampling, purposive random sampling and so on. And therefore, we will discuss this slide in the upcoming lesson.

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These are some of the data analysis and validation procedures. Data transformation, explore outliers, instrument development, examining multiple levels and creating a matrix.

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And finally, the report presentation structure. The sequential study usually includes quantitative data collection and qualitative data analysis followed by qual. Qual findings can help elaborate on quan results and present the project as two distinct phases. Concurrent study- quan and qual collection are presented in separate sections. Analysis and interpretation combine the two forms of data. Transformative study- advancing the advocacy issue in the beginning and then using either sequential or concurrent structure, and advance agenda for change or reform.

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**Examples of mixed methods procedures-**  
**A sequential strategy of inquiry**

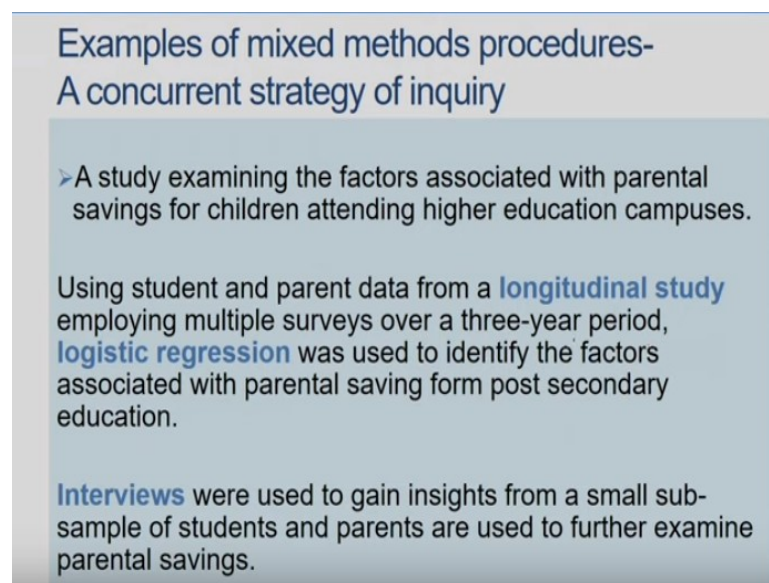
➤ A two phase explanatory sequential mixed methods study of two types of teacher workplace commitment- organizational commitment and commitment to student learning in 63 urban elementary and middle schools.

**Phase 1: a quantitative study** that looked at statistical relationships between teacher commitment and organizational antecedents and outcomes in elementary and middle schools.

**Phase 2:** looked within specific schools, **using qualitative /case study methods** to better understand the dynamics of teacher commitment.

So, these are certain examples of sequential strategy of inquiry. A two-phase explanatory sequential mixed methods study of two types of teacher workplace commitment, organizational commitment, and commitment to students learning in 63 urban elementary and middle schools. Phase 1- a quantitative study that looked at statistical relationship between teacher commitment and organizational antecedents and outcomes in elementary middle schools. Phase 2 looked within specific schools using quantitative case study methods to better understand the dynamics of teacher commitment.

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Examples of mixed methods procedures-  
A concurrent strategy of inquiry

- A study examining the factors associated with parental savings for children attending higher education campuses.

Using student and parent data from a **longitudinal study** employing multiple surveys over a three-year period, **logistic regression** was used to identify the factors associated with parental saving form post secondary education.

**Interviews** were used to gain insights from a small sub-sample of students and parents are used to further examine parental savings.

A study examining factors associated with parental savings for children we have discussed this in one of the earlier slides where the in first phase it was a longitudinal, this was carried out concurrently, so, a longitudinal study constituting of multiple surveys and interviews of a small subsample of students.

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## Examples of mixed methods procedures- A transformative strategy of inquiry

- A study examining whether theories of patriarchy apply to South Asian women (from India, Pakistan and Bangladesh) living in East London.

Discussion presented **how feminist methodologies** informed her study. Research also involved putting the researcher into the process of production.

Mixed methods study helped to expose the lives of women and have a **transformative effect** in which the "women benefitted from the research project."

Transformative strategy, a study examining whether theories of patriarchy apply to South Asian women from India, Pakistan, and Bangladesh living in East London. In two phases discussion presented how feminist methodologies informed her study. Research also involved putting the researcher into the process of production. Mixed methods study helped to expose the lives of women and have a transformative effect in which the women benefitted from the research project.

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## References used for this lecture

- John W. Cresswell, "Research Design, Qualitative, Quantitative and Mixed Methods Approaches", 2014, Sage Publications.
- R. Burke Johnson and Anthony J. Onwuegbuzie, "Mixed Methods Research: A Research Paradigm Whose Time Has Come" 2004, Vol.33, No.7, American Educational Research Association.

For a comprehensive literature on the topics covered in this lecture it is also suggested that students go through the reference list of the above cited papers.

So, with this we end today's lesson, where we have been introduced to some of the basic concerns surrounding mixed methods strategies. The focus of this lesson has been on the visual models of mixed methods strategies and the different phases in



which whether different researches can be carried out by different I mean, quantitative and qualitative researches, can be carried out sequentially or concurrently and what are the ways in which they can be mixed. And as I inform you this is an emergent area of study and as we talk about it, various kinds of models are being added on to the existing models. And therefore, depending upon the interdisciplinarity of the research question that you have taken up, the research question receiving primacy, you can also add on to these visual models by coming up with more innovative ways of embedding other kinds of research into the dominant framework that you have taken.

These are the references that I have used for this lecture. And John Creswell's book on 'Research Design, Qualitative, Quantitative and Mixed Methods Approaches' is a highly recommended book for an interested student wanting to take up mixed methods approaches.

So, I will end today's class with this. See you in the next class. Thank you.