

## **CDC Coffee Break: Using Mixed Methods in Program Evaluation**

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Division for Heart Disease and Stroke Prevention



Welcome to today's Coffee Break presented by the Evaluation and Program Effectiveness Team in the Division for Heart Disease and Stroke Prevention at the Centers for Disease Control and Prevention.

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## Overview

- 1. Understand what mixed methods are and how they can be used in program evaluation**
- 2. Integrate multiple qualitative and quantitative form of inquiry to answer evaluation questions**
- 3. Apply mixed method approaches to create and implement an evaluation plan**

We're going to be talking about using mixed methods and program evaluation today. And just as a short overview, we'll really talk a bit about understanding what mixed methods are and how they can be used in program evaluation. We'll talk a little bit about how to integrate multiple qualitative and quantitative forms of inquiry to answer evaluation questions, and we'll have a little discussion about applying mixed method approaches to create and implement an evaluation plan.

The focus of this presentation will be really to get at being purposeful about how we design mixed methods, evaluations, and how we plan our evaluation using both qualitative and quantitative methodologies for data collection and for analysis. We often spend quite a bit of time putting together evaluation plans and conducting evaluations where we really don't give much purpose to how we put qualitative and quantitative methodologies together, which one we use, how one enhances the other, all those kinds of things, so I'll be reiterating throughout the presentation about how important it is not to be haphazard about that and to be really purposeful on how we make those kinds of decisions.

## Why Conduct an Evaluation?

- ❑ **To gain direction for improving projects as they are developing**
- ❑ **To determine projects' effectiveness after they have had time to produce results**

Before you even get to how you decide what methodology you use, it's important to think about why we even conduct an evaluation. And so really it's to gain direction for improving projects as they are developing, and also to determine project effectiveness after they have had time to produce results. They've been implemented for a while, do they work? Do they not work? We definitely want to know that, and then after we know that, we'd really like to know why they work. What about the components of certain interventions make it effective, or what about those components led to it not being effective? Those are all questions that we ask in an evaluation and need both quantitative and qualitative methodological forms to answer.

## **Definition of Mixed Methods Evaluation**

**Mixed methodology is a design for collecting, analyzing, and mixing both quantitative and qualitative data in a single study or series of studies to understand an evaluation problem. (Adapted from Creswell and Plano Clark, 2007)**

For the purpose of this presentation, we'll use a simple definition for mixed methods. Mixed methodology is a design for collecting, analyzing, and mixing both quantitative and qualitative data in a single study or series of studies to understand an evaluation problem.

## Reasons for Mixed Methods

- ❑ **Why are you planning to use mixed methods in your evaluation? What purpose will it accomplish?**
- ❑ **Why do you plan on gathering both quantitative and qualitative data?**

We often spend a little bit of time asking ourselves what are reasons for using mixed methods? And some of the questions that we should be asking when we come to the table, to design an evaluation plan, is why are you planning to use mixed methods in your evaluation? What purpose will it accomplish? Why do you plan on gathering both quantitative and qualitative data? This is a large investment and so as you make the choice to invest in doing a mixed method study, it's important that you're really purposeful about why, how you use those methodologies, those kinds of things. Do you really need both methodologies? Those are the questions you need to answer.

## Reasons for Conducting a Mixed Methods Evaluation

(Bryman, *Qualitative Research*, 2006)

- ❑ Validity – to corroborate quantitative and qualitative data
- ❑ Offset – offset weaknesses of quantitative and qualitative and draw on strengths
- ❑ Completeness – more comprehensive account than quantitative/qualitative alone
- ❑ Process – quantitative provides outcomes; qualitative, the processes
- ❑ Different question – quantitative and qualitative answer different questions
- ❑ Explanation – qualitative can explain quantitative results or vice-versa
- ❑ Unexpected results – surprising results from one, other explains
- ❑ Instrument development – qualitative employed to design instrument, then it is tested
- ❑ Sampling – one approach facilitates sampling from other approach
- ❑ Credibility – both approaches enhance integrity of findings
- ❑ Context – qualitative provides context; quantitative provides general.
- ❑ Illustration – qualitative data helps develop “depth” for quantitative data
- ❑ Utility – more useful to practitioners
- ❑ Confirm – quantitative tests qualitative generated hypotheses
- ❑ Diversity of views – relationship and meaning; researcher/participant views
- ❑ Enhancement – augmenting or building on one form of data with the other

Some of the reasons for conducting a mixed methods evaluation are listed below, and I'll highlight a couple of them but I won't actually go through all of them for the purposes of this presentation, but you'll have the list so that you can kind of look at it as you start to plan your own mixed methods evaluation. Definitely we want to be able to offset the weaknesses of quantitative data collection, as well as qualitative data collection. They both have strengths and they both have weaknesses, and when done together, we can offset that a bit. Also completeness—you get a more comprehensive account of what's going on within the program when you use both quantitative and qualitative methods. When you're looking at getting outcome, finding out what the outcomes are, whether a program is effective and you employ a quantitative methodology, you can answer more how and why questions with the addition of a qualitative approach.

In regards to instrument development, oftentimes qualitative methodology is used early on to develop the instrument, to put it together, to make sure the content is correct, and then it's tested in a more quantitative manner. Regarding credibility, both approaches enhance the integrity of the finding, and so if you use both quantitative and qualitative methodology, it kind of bolsters what it is that you're able to say in your discussions, and help you in terms of interpreting what you found.

And lastly, I'll highlight illustration, because the addition of qualitative data really helps to give depth to the data. It really helps to give some color to what we get from the quantitative portion of the study. All of the things listed are good reasons for including both quantitative and qualitative methodology. Sometimes we need to be able to visually look through those and see why it is that we need what we need for our study.

## Types of Quantitative and Qualitative Data to Collect

### Quantitative Data

- Instruments
- Checklists
- Records

### Qualitative Data

- Interviews
- Observations
- Documents
- Audio-visual materials

When it comes to types of quantitative and qualitative data to collect, from a quantitative standpoint, you might use instruments, checklist, and records. Included in instruments would be things like surveys—I mean there are a host of other data collection tools or ways to use those kinds of tools that you may choose to employ from a quantitative standpoint. From a more qualitative standpoint, you may look at doing interviews, both individual and groups, so focus groups, observations, documents, audio-visual materials, and how these things kind of come together would be unique to the needs of your evaluation.



## Type of Mixed Methods Design

### Will the Quantitative and Qualitative Data Be Collected:

#### Timing

- Sequentially? – one builds on the other
- Concurrently? – both are collected at the same time

#### Emphasis

- Quantitative emphasized?
- Qualitative emphasized?

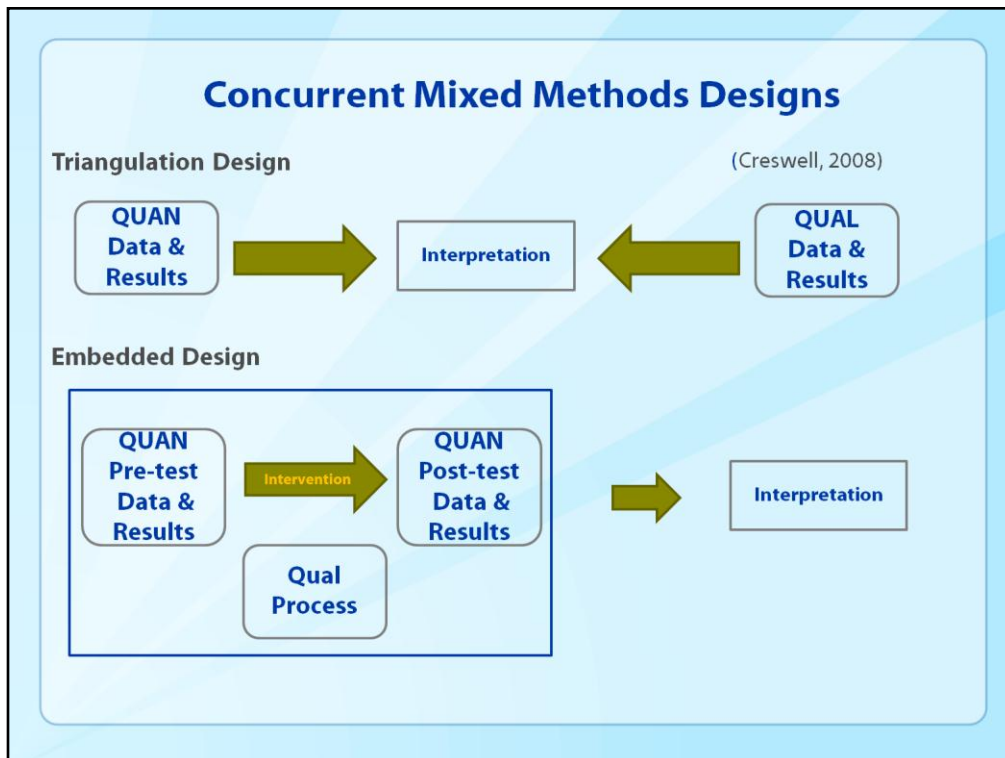
#### Mixing

- Merging?
- Connecting?
- Embedding?

As we think about types of mixed methods design, it's important to think about how the quantitative and qualitative data will be collected, so as we think about that, we think about things like timing—will they be collected sequentially where one builds on another, or will they be collected concurrently where both are collected at the same time, and really use more in the interpretation and discussion portion of the study? What will be the emphasis? Will a quantitative portion of the methodology be emphasized, or the data collection, or will it be the more qualitative portion?

That gets to, what are the goals of the study? Now if the goal of the study, is this a well established intervention or program, and are we really looking to identify whether or not it's effective, and we're using our qualitative data to really enhance that portion of our question, but our goal is to prove effectiveness, then probably the quantitative portion will be what's emphasized in that kind of study.

And then lastly, mixing—will you be merging that kind of data collection or will they be embedded in the work that you're doing, and how the design is put together. These are three things definitely we're considering as you get into your evaluation planning.



Concurrent mixed methods designs include triangulation design, as well as embedded design. Triangulation design really speaks to quantitative and qualitative data collection happening simultaneously. There happening at the same time—one is not influencing the other at all—but the results of both are used in interpretations to provide more information to bolster the results on both sides; so they'll offset the weaknesses hopefully of the other and be able to really work well or help in the discussion portion.

In terms of a more embedded design, what I have is a pretest, posttest example that is really where one type of methodology speaks to the other. So there may be a quantitative pretest that occurs and then the qualitative data collection really focuses more on the process, and then some sort of post-quantitative data collection that really looks at the outcomes. They're very unique in each individual data collection phase and get at answering two different questions or separate questions.

The difference that I'm really highlighting here is that in triangulation, you're really more answering the same question and you're using two different ways to try to get at that question. And in the more embedded design, you're answering two separate questions with your quantitative and qualitative methodologies, and so it's important to know or to be very clear about what it is that you're asking and where you're going with your study as you design how you'll use quantitative and qualitative methodologies.

## Triangulation Design

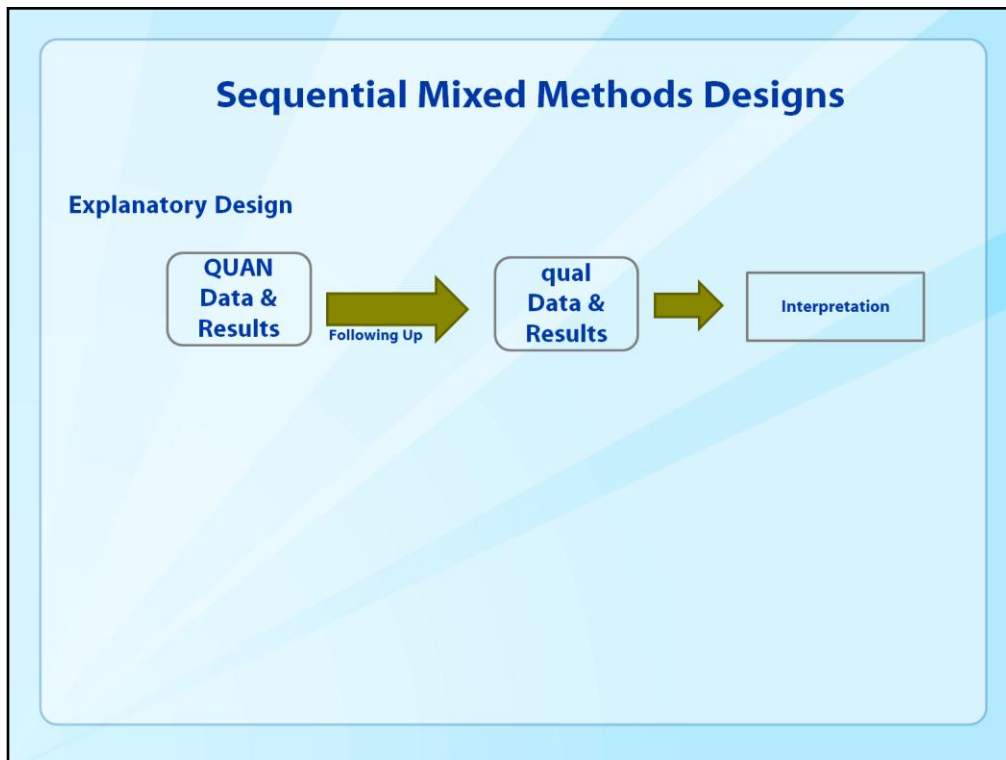
- ❑ **Approach used in attempt to confirm, cross validate or corroborate findings.**
- ❑ **Useful in off-setting the inherent weakness within one method with the strengths of another method.**
- ❑ **Interpretation of mix methods can either strengthen the claims of the study or explain the lack of convergence that may result.**

The triangulation design really focuses on an approach that's used in attempts to confirm, cross validate, or corroborate findings. It's useful in off-setting the inherent weaknesses within one method and with the strengths of the other method. And then it's also good in terms of interpretation of mixed methods—it can either strengthen the claims of the study or explain the lack of convergence that may result.

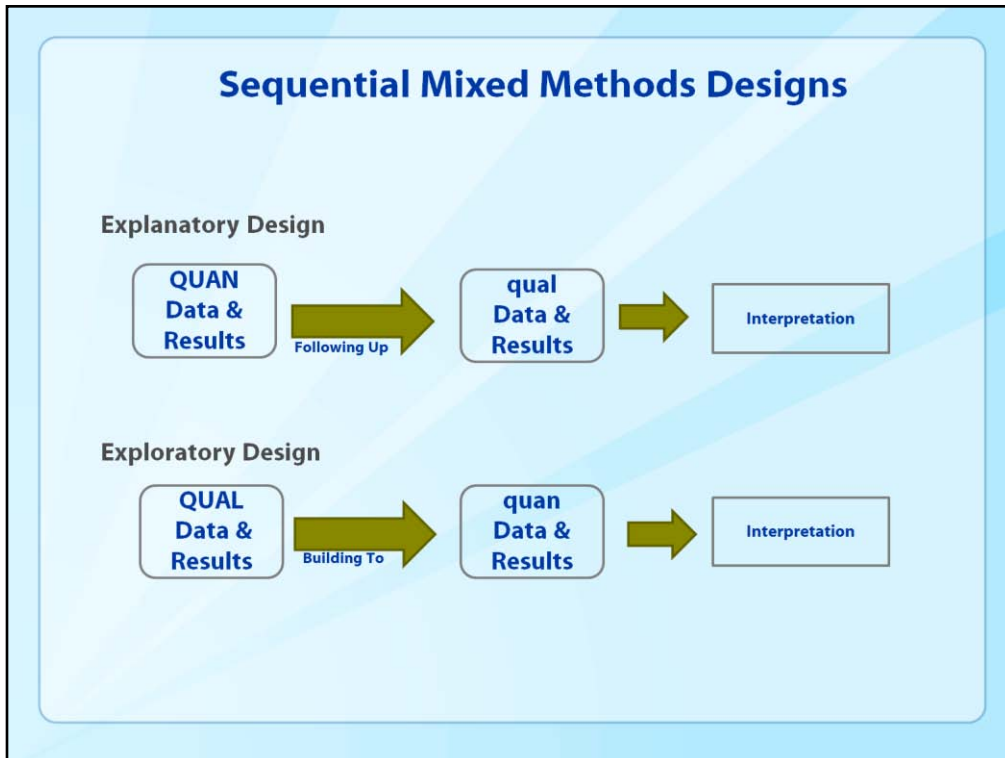
## **Embedded Design**

- ❑ **Embedded designs employ the use of qualitative and quantitative methods to answer separate and distinct evaluation questions.**
- ❑ **The use of quantitative methodology is to answer questions related to outcomes and qualitative methodology is to answer more process questions.**

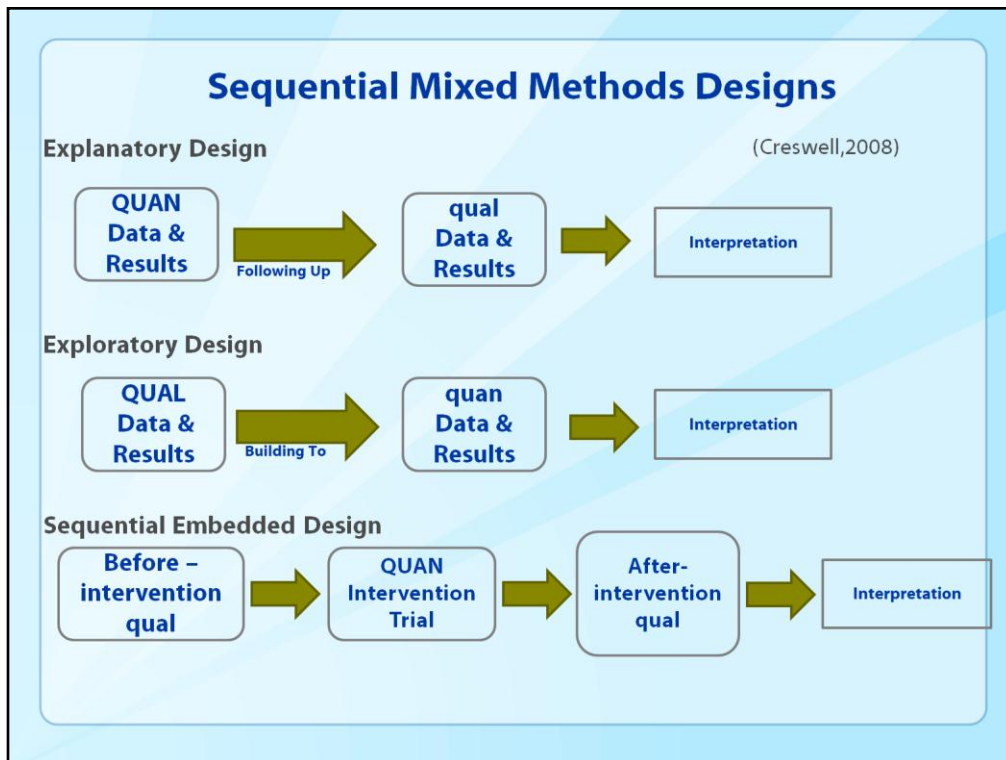
When we discuss embedded designs, embedded designs employ the use of qualitative and quantitative methods to answer separate and distinct evaluation questions. The quantitative portion more focuses on the outcomes and the qualitative portion more focuses on the process. You need both to answer both of those questions.



When we talk about timing, and when things will take place, that also can't be haphazard. That part is very important. On an explanatory design, you may start with quantitative data collection, and you may follow that up with qualitative data collection that helps to explain the results that you've got in your quantitative data collection time. It will be important to use what you learned when collecting the quantitative information to develop your questions for the qualitative portion of your study so that you can really answer some of the things that are still left unanswered.



When you're talking about a more exploratory design that focuses much more on qualitative data collection first and the results of those qualitative data collections, then you can use those results to influence or to build to your quantitative data collection and the use of quantitative methodology. Really, these things, the direction, the arrows are showing that they're directional. You're using your qualitative data and the results of that to influence what kind of quantitative data you even collect.



And lastly, the sequential embedded designs really focuses on collecting qualitative data before the intervention and then putting the interventions together and having say a trial of that intervention which will be much more quantitative in nature, and then really looking into why those things happen. How did those things happen? And more qualitative inquiry after the quantitative data has been collected. And all of these things can be discussed in the interpretation section. They'll be important to interpret to be able to show all of the different factors of a program.

## **Sequential Mixed Methods Designs**

- ❑ **Sequential designs focus on the order in which quantitative and qualitative methods are employed.**
- ❑ **The timing and order in which quantitative and qualitative methods are employed should be driven by one's question.**

Sequential designs focus on the order in which quantitative and qualitative methods are employed and they're not haphazard. It's very important that timing and order in which quantitative and qualitative methods are employed should be driven by one's question, not convenience. They really need to be able to answer both questions using both methodologies.



## **Reporting Results of Mixed Method Evaluations**

- ❑ **Ascertain the needs and interests of the audience**
- ❑ **Organize and consolidate the final report**
- ❑ **Formulate sound conclusions and recommendations**
- ❑ **Maintain confidentiality**

Regarding the reporting of results of mixed methods evaluation, it's important to ascertain the needs and interests of the audience, to organize and consolidate the final report, and then to formulate sound conclusions and recommendations using both types of methodologies, which is no easy feat to create—to be able to use your qualitative data and your quantitative data and to be able to create a story that really tells whether or not an intervention is effective and then why that intervention is effective, how—what things are happening in the program that prove the effectiveness. And then if it's not effective, that qualitative data hopefully will tell you why it's not effective, and be able to shed some light on what changes need to be made in the future. And then lastly, it definitely is going to be also important to maintain confidentiality in that reporting.

## Formulate Sound Conclusions

- ❑ **Distinguish carefully between conclusions that are based on qualitative and quantitative findings**
- ❑ **Provide full documentation for all findings where available**
- ❑ **Use the recommendations section to express views based on the total project experience**

It's also going to be important in mixed methods studies to formulate sound conclusions—to distinguish carefully between conclusions that are based on qualitative and quantitative findings. We've talked a little bit earlier about the fact that in some of the designs, qualitative methodologies or qualitative data collections are specific to certain questions, but it's important that they are used to answer those questions, not questions that need more quantitative methodologies to answer. It's also important that we provide full documentation for our findings where available, and that we use the recommendations section to express views based on total project experience.

## Helpful References

- **Journal of Mixed Methods Research**  
<http://mmr.sagepub.com/>
- **National Science Foundation's User Friendly Handbook for Mixed Methods Evaluation**  
[www.nsf.gov/pubs/1997/nsf97153/start.htm](http://www.nsf.gov/pubs/1997/nsf97153/start.htm)
- **AEA 365: This is Mixed Methods Week!**

Some helpful references as you embark on your own mixed methods, or mixed method evaluations are the Journal of Mixed Methods Research, and the link is provided here, as well as the National Science Foundation's User Friendly Handbook for Mixed Methods Evaluation. The link is also here. And it just so happens that if you are a member of the American Evaluation Association, this is Mixed Methods Week, so all of the 365 this week will have examples of successful mixed methodological evaluations as well as lots more resources that you'll be able to use embarking in your own mixed methods evaluation.

# Thank You

If you have questions, please contact:  
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