**Webcast Lecture - CARMA**

**September 20th, 2024**

# MIXED METHODS RESEARCH:

## INTEGRATING QUALITATIVE AND QUANTITATIVE METHODS


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# INTRODUCTION

*** Important parts in a research (doctoral dissertation, article, …):**

- Topic / specific problem / research question(s).

- Literature review / theory.

- Methods (population, sample, data collection, data analysis).

- Results and discussion.

- Conclusions.

- Quantitative methods
- Qualitative methods

# INTRODUCTION

## * QUANTITATIVE METHODS ( QUAN ):

- Variety of quantitative data collection and analysis techniques (questionnaires, secondary data, statistical analysis, ANOVA, regression analysis, cluster analysis, SEM, …).

- Usually, study of a high number of cases (firms, managers, employees, …).

- Statistical analysis about relationships and influences between variables.

# INTRODUCTION

## * QUALITATIVE METHODS ( QUAL ):

- Variety of qualitative data collection and analysis techniques (interviews, case study, ethnography, document analysis, participant observation, grounded theory, … ).

- Usually, study of a low number of cases (firms, managers, employees).

- Mainly, understanding of a topic in a specific context.

# INTRODUCTION

*** Which method is better? QUAN or QUAL?**

RESEARCH QUESTION ⟶ research method

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FROM THE EDITORS

# OPENING UP AMJ'S RESEARCH METHODS REPERTOIRE

*British Journal of Management, Vol. 35, 24–35 (2024)*
DOI: 10.1111/1467-8551.12791

# Advancing Research Methodologies in Management: Revisiting Debates, Setting New Grounds for Pluralism

Journal of International Business Studies (2020) 51, 1478–1499

www.jibs.net

# Fifty years of methodological trends in *JIBS*: Why future IB research needs more triangulation

© Academy of Management Journal
2023, Vol. 66, No. 4, 1007–1015.
https://doi.org/10.5465/amj.2023.4004

FROM THE EDITORS

# PUBLISHING MULTIMETHOD RESEARCH IN AMJ: A REVIEW AND BEST-PRACTICE RECOMMENDATIONS

# INTRODUCTION

*** Structure:**

1.- First experiences.

2.- Definition, purposes and basic designs in mixed methods research.

3.- Integration and quality in mixed methods research.

4.- Conclusions.

References

# 1.- First experiences

## * My doctoral dissertation: 2 experiences

### 1- Literature review about the resource-based view of the firm:

- Classification of empirical studies in two groups: quantitative and qualitative.

Quantitative studies

Qualitative studies

# 1.- First experiences

## * My doctoral dissertation: 2 experiences

### 1- Literature review about the resource-based view of the firm:

- Classification of empirical studies in two groups: quantitative and qualitative.

Which is the group of the article by Sharma and Vredenburg (1998)?

("Proactive corporate environmental strategy and the development of competitively valuable organizational capabilities", Strategic Management Journal)

?

Quantitative studies

Qualitative studies

*** Research methods used by Sharma & Vredenburg (1998, SMJ) in their study about environmental strategy and firm capabilities:**

**("Proactive corporate environmental strategy and the development of competitively valuable organizational capabilities")**

I – Exploratory study (qualitative part):

- Case study (7 firms in the Canadian oil and gas industry)
- Interviews with managers; analysis of documents.
- Identification of several capabilities.
- 2 hypotheses.

II – Test of hypotheses (quantitative part):

- Survey (responses from 99 firms).
- Regression analysis.

# 1.- First experiences

## * My doctoral dissertation: 2 experiences

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- Classification of empirical studies in two groups: quantitative and qualitative.

Which is the group of the article by Sharma & Vredenburg (1998)?

("Proactive corporate environmental strategy and the development of competitively valuable organizational capabilities", Strategic Management Journal)

Quantitative studies | Qualitative studies | Studies with combination



## 1.- First experiences

*** My doctoral dissertation: 2 experiences**

**2- The empirical part was <u>planned</u> as a quantitative study:**

- <u>Strategic groups</u> in the construction industry:
  - * I needed data of firms in this industry about their competitive strategies.
  - * Analysis:
    - 1- Cluster analysis (groups of firms based on strategic variables).
    - 2- ANOVA (financial performance differences between firms?).

- But … **I had some problems**:
  - I did not find databases (secondary data) with strategic information about construction firms. **<u>Then, I used a survey</u>**.
  - Which strategic and competitive variables are important in this industry? How do firms compete? (**I <u>needed to build the questionnaire</u>**).
  - But I did not find literature on strategic groups and competitive strategy in this industry. **<u>What could I do</u>?**

## 1.- First experiences

- **Solution:** interviews with managers in this industry and a case study.
- This qualitative part was conducted before the quantitative part.

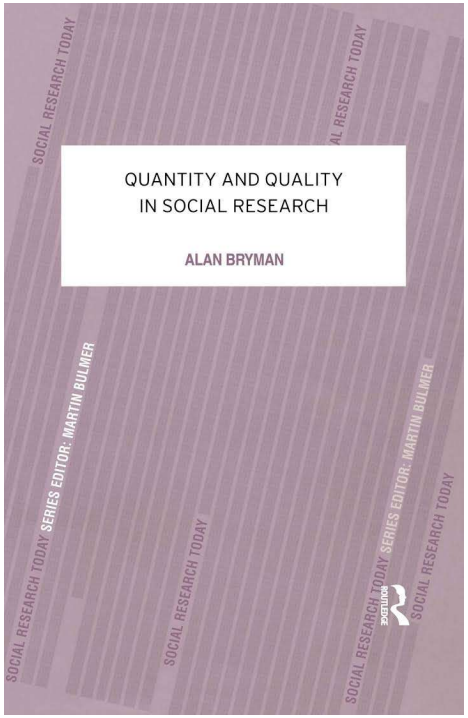
- I did not know specific literature on mixed methods research.

- In my doctoral dissertation, the combination of quantitative and qualitative methods was **emergent** (not deliberate at the beginning).

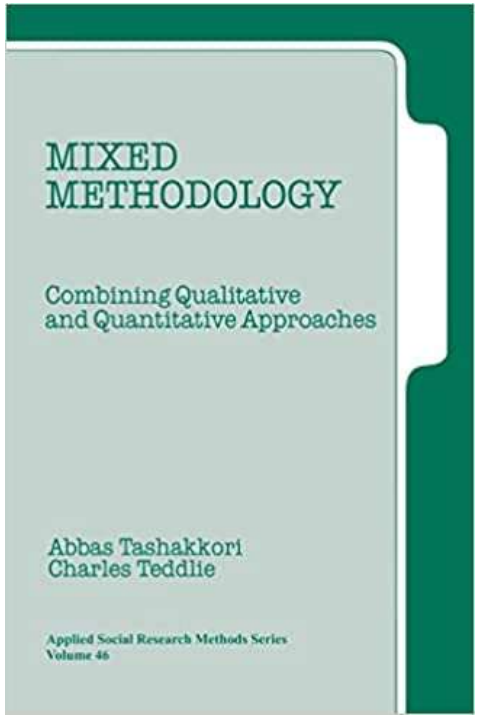
- In other research works, the use of mixed methods has been planned.

# 2.- Definition, purposes and basic designs

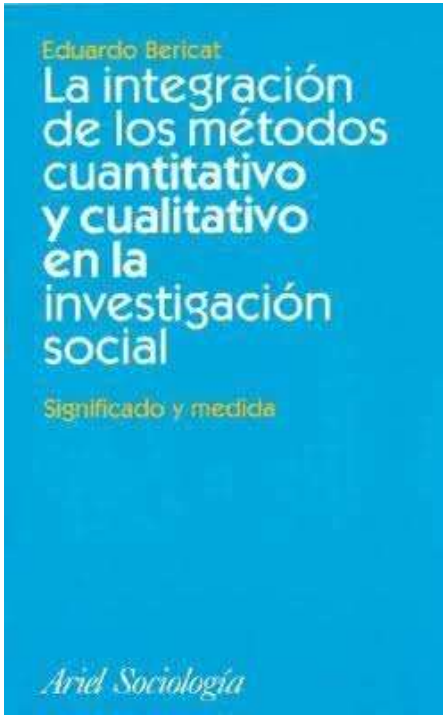
- Low attention on mixed methods in business research.
- Great acceptance in other fields (education, health sciences).
  - **Books and chapters** about mixed methods.




1988




1998




1998

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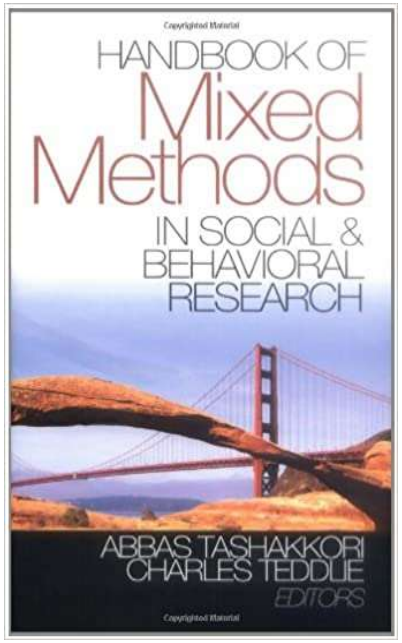
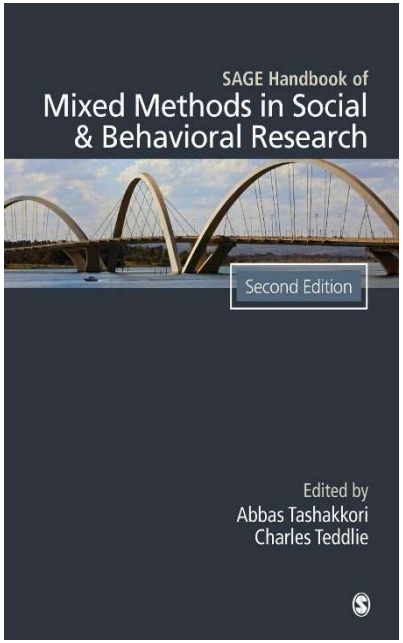
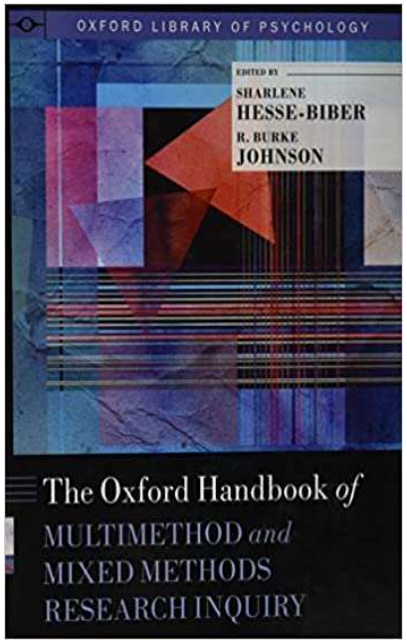


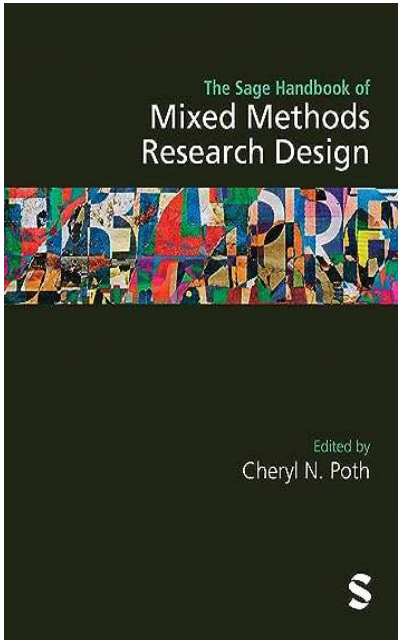

2003




2010




2015




2023

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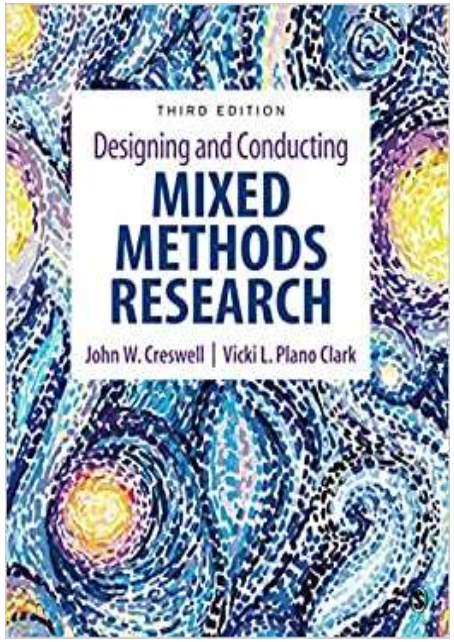
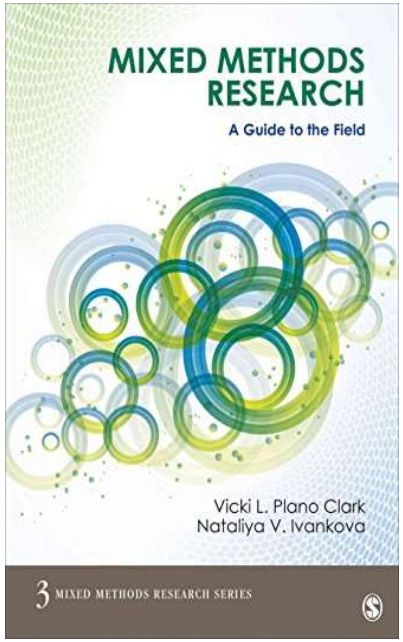
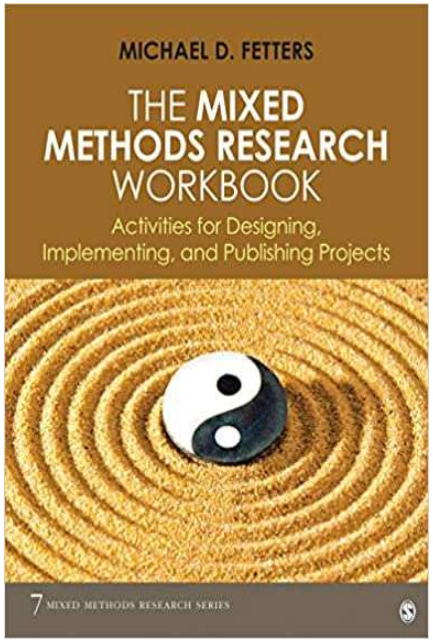


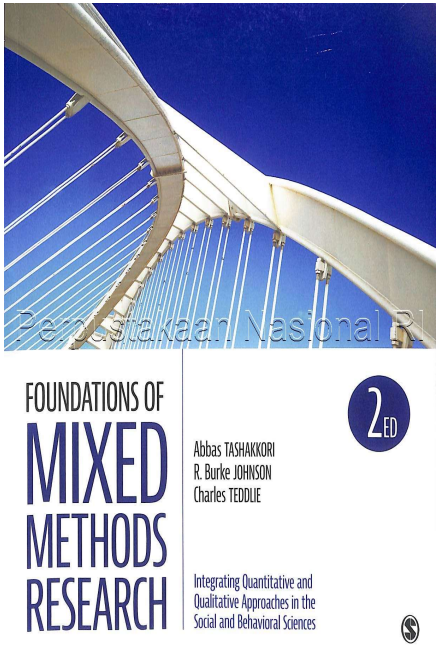

**2007, 2011, 2018**




**2016**




**2020**




**2021**

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  - **Books and chapters** about mixed methods.
  - Publication of many **mixed methods studies**.
  - Use of the term **"*mixed methods*" in title** of articles; use of literature in **references**.
  - Courses / seminars on mixed methods in **training of researchers**.
  - Publication of the ***Journal of Mixed Methods Research*** *(JMMR)* (Sage, 2007).


https://journals.sagepub.com/home/mmr

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  - ***Mixed Methods International Research Association*** *(MMIRA)* (2013).

MMIRA Mixed Methods International Research Association

https://mmira.wildapricot.org/

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**Mixed methods as the third methodological approach**

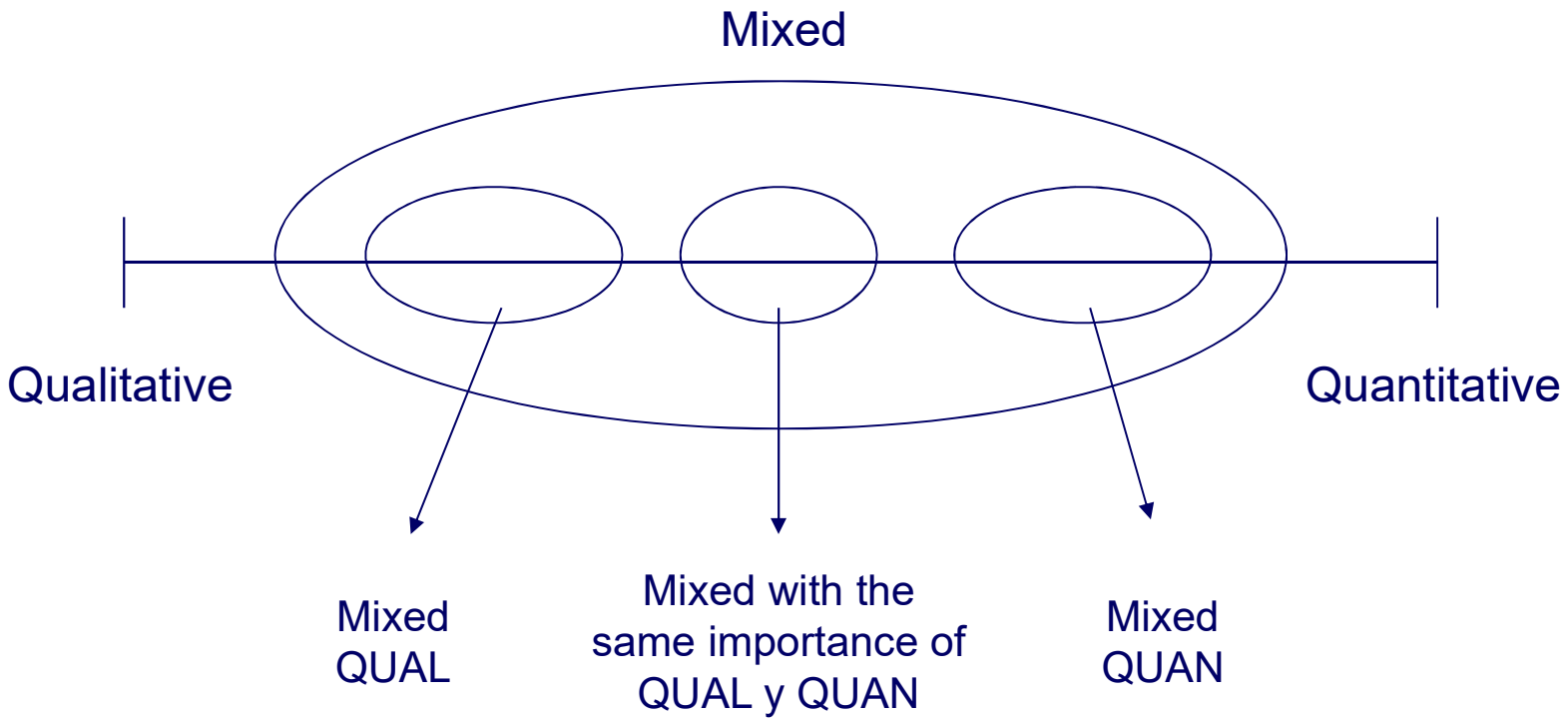
## 2.- Definition, purposes and basic designs

*** Definition:**

- "In mixed methods research, the researcher collects and analyzes data, **integrates** the results, and makes inferences in a study using **quantitative and qualitative methods**" (Tashakkori & Creswell, 2007, JMMR).

- "Mixed methods research in the type of research in which a researcher or team of researchers **combines elements of qualitative and quantitative research** approaches (e.g., use of qualitative and quantitative viewpoints, data collection, analysis, inference techniques) for the **purposes** of breadth and depth of **understanding** and corroboration" (Johnson, Onwuegbuzie & Turner, 2007, JMMR).

## 2.- Definition, purposes and basic designs



## 2.- Definition, purposes and basic designs

*** Research methods used by Sharma & Vredenburg (1998, SMJ) in their study about environmental strategy and firm capabilities:**

**("Proactive corporate environmental strategy and the development of competitively valuable organizational capabilities")**

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- Identification of several capabilities.
- 2 hypotheses.

II – Test of hypotheses (quantitative part):

- Survey (responses from 99 firms).
- Regression analysis.

QUAL → QUAN

## 2.- Definition, purposes and basic designs

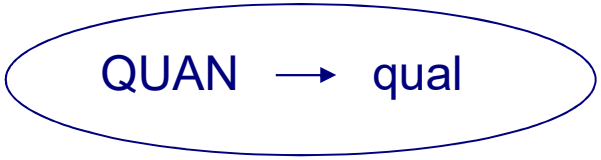
*** Research methods used by Kapoor & Klueter (2015, AMJ) in their study about R&D and radical technologies in the pharmaceutical industry.**

**("Decoding the adaptability-rigidity puzzle: evidence from pharmaceutical incumbents' pursuit of gene therapy and monoclonal antibodies")**

### P. 1188: 'EXPLANATORY SEQUENTIAL DESIGN'

* Quantitative part:
  - Secondary data (patents, alliances, R&D activities, …).
  - Logistic regression to test 4 hypotheses.

* Qualitative part:
  - Interviews with 14 professionals in this industry.
  - Corroboration and explanation of quantitative findings (for each hypothesis).



## 2.- Definition, purposes and basic designs

*** Research methods recommended by Rouse & Daellenbach (1999, SMJ) to identify resources that are sources of competitive advantage?**

**("Rethinking research methods for the resource-based perspective: isolating sources of sustainable competitive advantage")**

### P. 489: METHODOLOGY

I – Four-step firm selection process: quantitative part.

1.- Selection of one industry (performance data of firms).

2.- To cluster firms by strategic groups using strategic variables.

3.- To compare performance of firms within strategic groups.

4.- To select firms in each group that are high and low performers.

II – Qualitative part: to analyze high and low performers using in-depth fieldwork.

QUAN → QUAL

## 2.- Definition, purposes and basic designs

*** Research methods used by McCrudden y McTigue (2019, JMMR):**

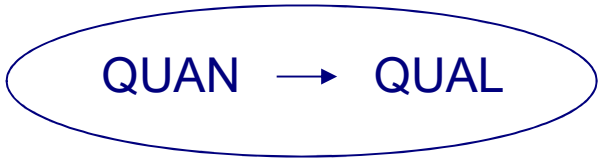
("Implementing integration in an explanatory sequential mixed methods study of belief bias about climate change with high school students")

I – Quantitative part:

- Experimental design (scales; 62 students).
- Statistical analysis.

II – Qualitative part:

- Interviews. 8 students; extreme-case sampling based on QUAN part:
  4 students with low belief bias; 4 students with high belief bias.
- Explanation of quantitative findings.

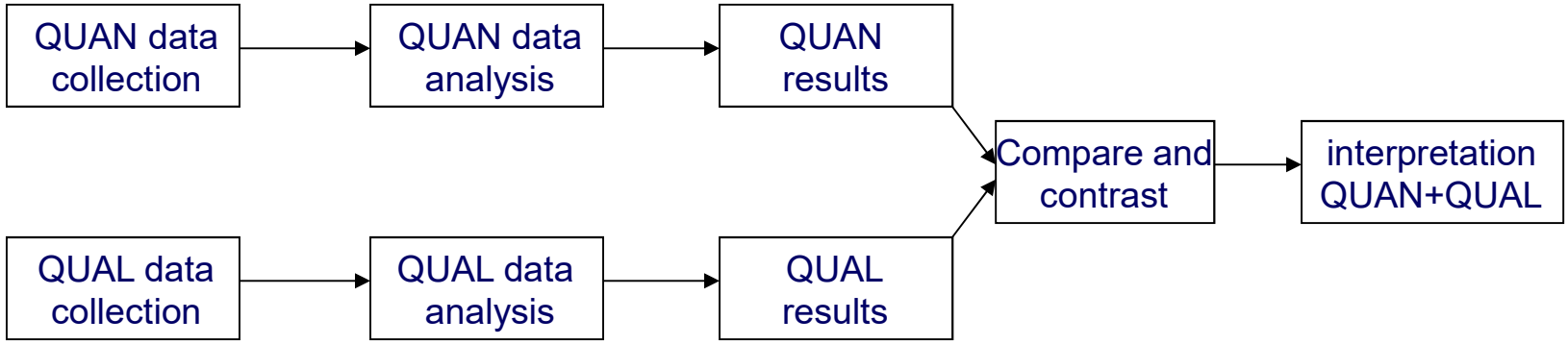


## 2.- Definition, purposes and basic designs

* **Main advantage**: better understanding of research problems.

* **Purposes / reasons for conducting mixed studies:**

- *Triangulation:* analysis of the same question/topic using QUAN and QUAL methods.




* Birkinshaw (1997, SMJ):
  - Entrepreneurship in multinational firms: characteristics of subsidiary initiatives.
  - QUAL (interviews) and QUAN (survey).

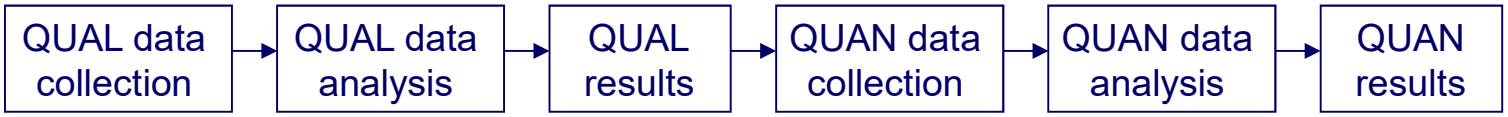
Birkinshaw, J. (1997). Entrepreneurship in multinational corporations: The characteristics of subsidiary initiatives. *Strategic Management Journal,* 18(3), 207-229.

## 2.- Definition, purposes and basic designs

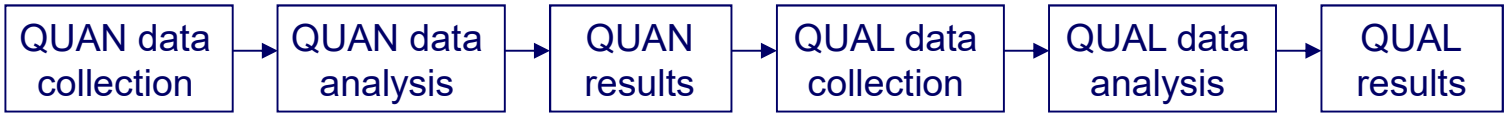
* **Main advantage**: better understanding of research problems.

* **Purposes / reasons for conducting mixed studies:**

  - *Development:* the use of a first method helps implement the second method.




* Sharma & Vredenburg (1998, SMJ):
  - 1. QUAL: cases study.
  - 2. QUAN: survey, regression analysis.



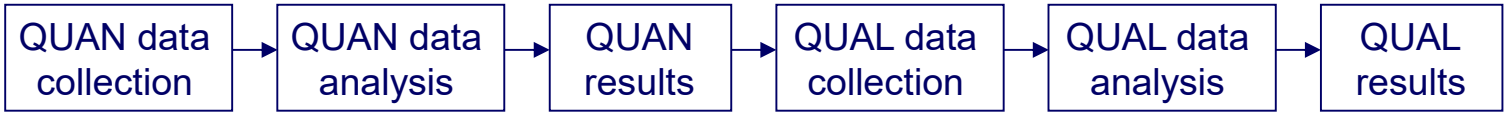

* Rouse & Daellenbach (1999, SMJ):
  - 1. QUAN: selection of firms.
  - 2. QUAL: qualitative study of high and low performers.

## 2.- Definition, purposes and basic designs

* **Main advantage**: better understanding of research problems.

* **Purposes / reasons for conducting mixed studies:**

  - *Complementarity:* the use of a second method help understand and clarify the results of the first method (explanatory design).




* Kapoor & Klueter (2015, AMJ):
  - 1. QUAN: secondary data; statistical analysis.
  - 2. QUAL: interviews.

## 2.- Definition, purposes and basic designs

* **Main advantage**: better understanding of research problems.

* **Purposes / reasons for conducting mixed studies:**

- *Expansion:* analysis of different aspects of a topic using different methods.

* Birkinshaw et al. (2006, SMJ):
  - Multinational firms: location of headquarters.
  - QUAN: survey (reasons for locating headquarters in other country).
  - QUAL: interviews (process used).

Birkinshaw, J. et al. (2006). Why do some multinational corporations relocate their headquarters overseas? *Strategic Management Journal,* 27, 681-700.

## 2.- Definition, purposes and basic designs

**- Designs based on two characteristics:**

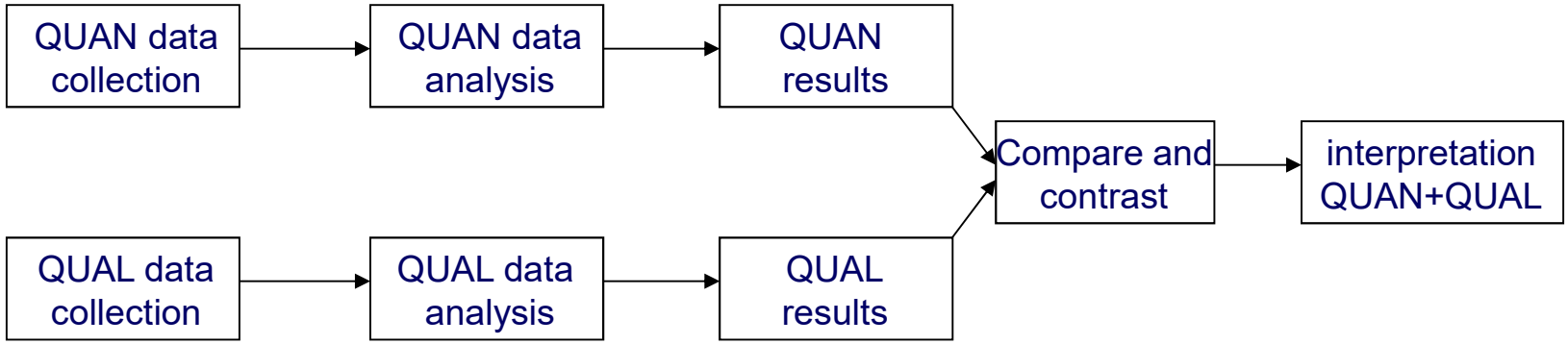
- Priority of methods (equal status of the two methods; or a dominant method).
- Implementation of data collection (simultaneous or sequential).

| PRIORITY | IMPLEMENTATION: Simultaneous | IMPLEMENTATION: Sequential |
|---|---|---|
| Equal | QUAL + QUAN | QUAL → QUAN<br>QUAN → QUAL |
| Different | QUAL + quan<br>QUAN + qual | qual → QUAN<br>QUAL → quan<br>quan → QUAL<br>QUAN → qual |

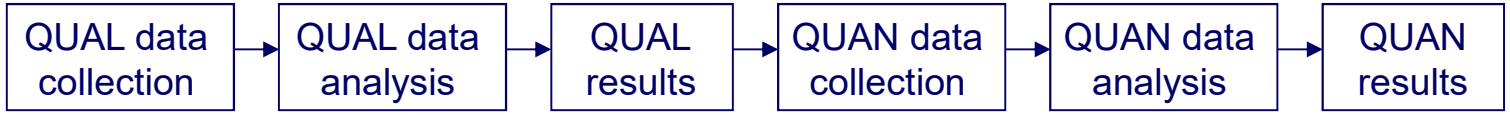
# 2.- Definition, purposes and basic designs

## - Basic / core mixed methods designs:

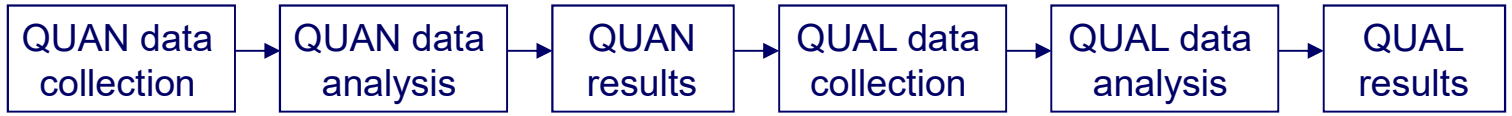
### 1- Convergent design:




### 2- Sequential exploratory design (Sharma & Vredenburg, 1998):




### 3- Sequential explanatory design (Kapoor & Klueter, 2015; Rouse & Daellenbach, 1999):



## 3.- Integration and quality in mixed methods

*** Key characteristic of mixed methods studies: "integration" of methods**


Through integration of methods, we can increase the added value and contribution of the study. Synergy:
- Better understanding of the topic (than a monomethod study).
- The whole is greater than the sum of its QUAN and QUAL parts.

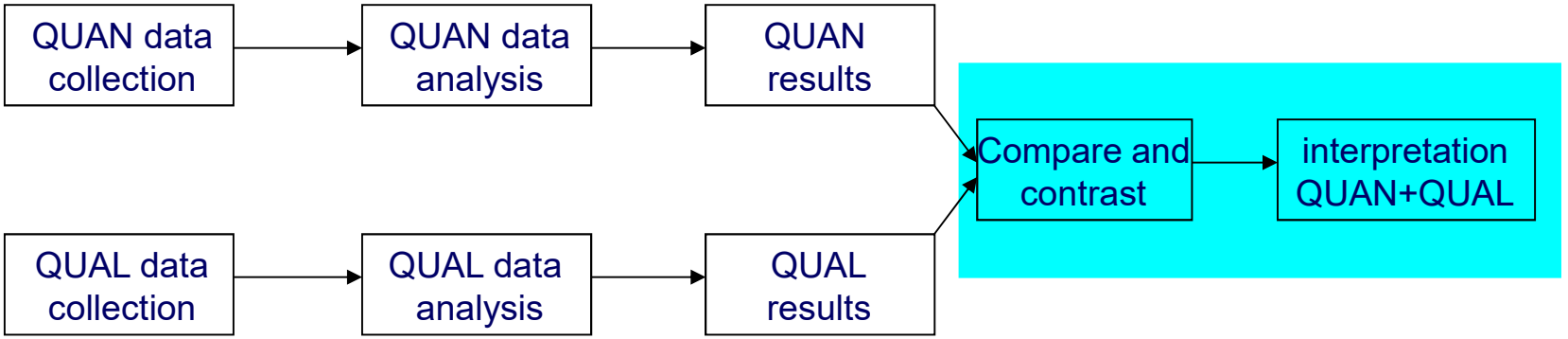
*** Important: planning of two main aspects of integration:**

- **Type of integration:** "how" integration is implemented.
  - Merging: convergent designs (e.g., purposes of triangulation and expansion).
  - Building: sequential designs (exploratory and explanatory designs).
  - Connecting: sequential designs for identifying QUAL sample from QUAN part.

- **Point of integration:** "where" integration is implemented.
  - In some element of methods: sampling, data collection, data analysis.
  - In the final stage of results and the last interpretation of these findings.

# 3.- Integration and quality in mixed methods

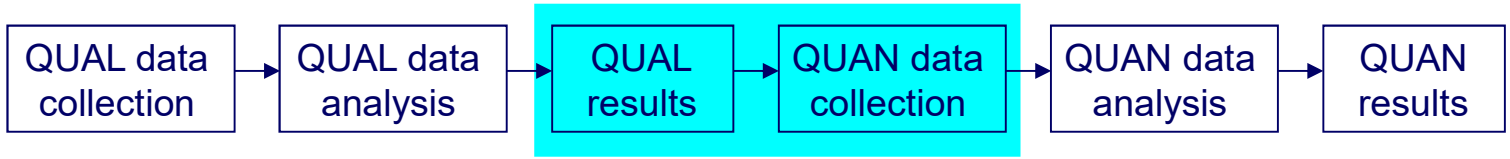
## - Convergent design:




Integration through **merging**,
in the last stage of intepretation of results

# 3.- Integration and quality in mixed methods

**- Sequential exploratory design:**

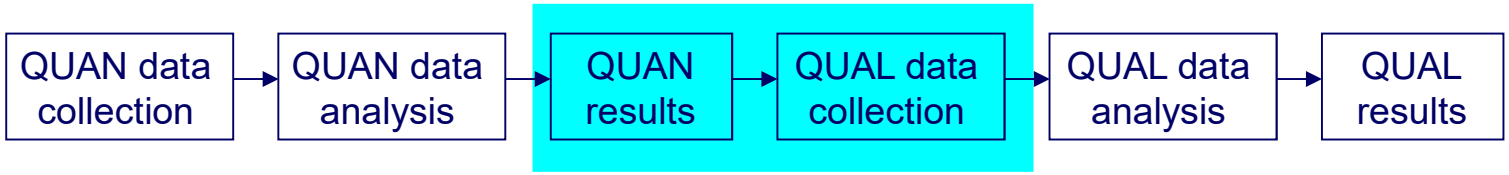



Integration through **building**,
in the phase of QUAN data collection
using information from QUAL results

Sharma and Vredenburg (1998)

# 3.- Integration and quality in mixed methods

## - Sequential explanatory design:

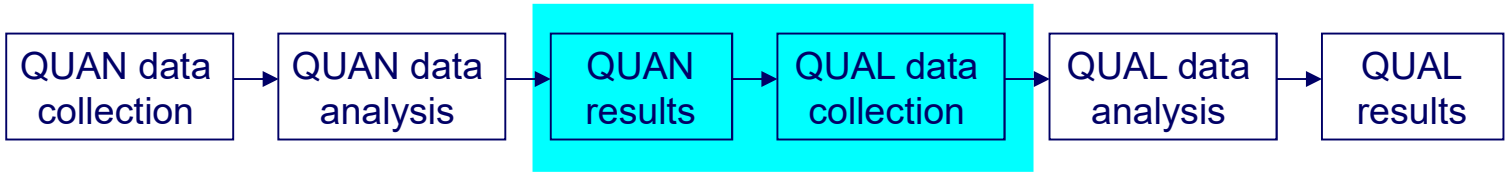



Integration through **building**,
in the phase of QUAL data collection
using information from QUAN results

- Explanation of QUAN results through QUAL methods
  (Kapoor & Klueter, 2015)

# 3.- Integration and quality in mixed methods

## - Sequential explanatory design:




Integration through **connecting**,
in the phase of QUAL data collection
using information from QUAN results

- The QUAN part helps identify specific firms, and then they are studied with QUAL methods (e.g., to analyze sources of competitive advantage). (Rouse & Daellenbach, 1999).

## 3.- Integration and quality in mixed methods

*** Quality in mixed methods studies. 2 important aspects:**

**1- "*Methodological*" quality: rigor in the design and implementation of the study.**

- Quality of the quantitative part.
- Quality of the qualitative part.
- Quality of the integration and combination of both parts:
    - Justify the use of a mixed methods study (reasons, purposes).
    - Justify the use of a specific design and rigor in implementation.

**2- "*Report*" quality: transparency in the presentation / report of the study.**

- Transparency and complete information of the quantitative part.
- Transparency and complete information of the qualitative part.
- Transparency and complete information of the mixed study and its integration.
    - Important: - Structure (sections) of studies.
    - Use of joint displays (procedural diagrams / figures / tables).

# 3.- Integration and quality in mixed methods

*** Structure of mixed methods studies with exploratory sequential design:**

| *Sharma & Vredenburg (1998, SMJ)* | *López, Molina & Claver (2008, CEDE)* |
|---|---|
| - Introduction | - Introduction<br>- Background and theoretical ideas |
| - QUAL exploratory study:<br>  - Data collection<br>  - Data analysis | - Methods:<br>  - QUAL methods:<br>  - Data collection<br>  - Data analysis<br>  - QUAN methods:<br>  - Data collection<br>  - Data analysis |
| - QUAL results | |
| - QUAN methods:<br>  - Data collection<br>  - Data analysis | |
| - QUAN results | - Results:<br>  - QUAL results<br>  - QUAN results |
| - Discussion and implications | - Conclusions and implications |

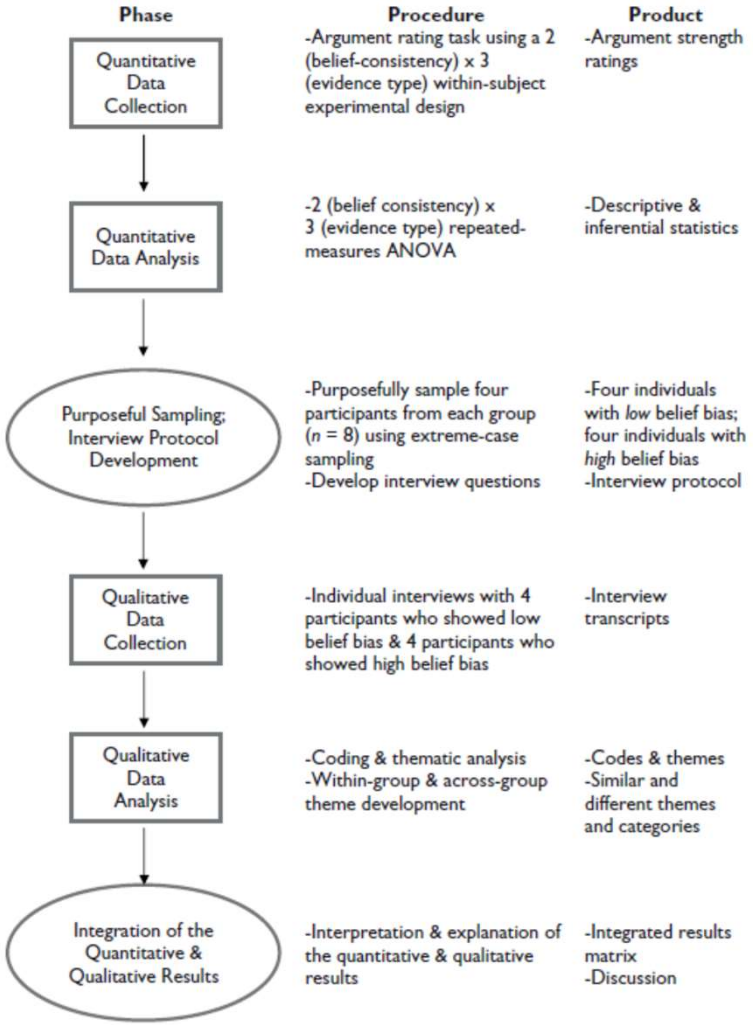
## * Diagrams / figures / tables to represent the design, main parts and integration of mixed methods studies *(joint displays)*:

*Diagram of the mixed methds study by Sharma & Vredenburg (1998, SMJ)*

| | Procedures | Products |
|---|---|---|
| QUAL data collection | - Interviews with managers of seven firms in one industry.<br>- Documents of these firms. | - Transcription of interviews<br>- Texts of documents |
| QUAL data analysis | - Thematic and comparative analysis. Categories and emergent concepts. | - Identification of several types of environmental strategies.<br>- Development of theory about relationships between environmental strategies, organizational capabilities and peformance. (2 hypotheses) |
| QUAN data collection | - Survey through questionnaire sent to 99 firms | - Scoring by each firm to the items of the questionnaire |
| QUAN data analysis | - Regression analysis | - Results confirm the hypotheses examined in the study. |

## * Diagrams / figures / tables to represent the design, main parts and integration of mixed methods studies *(joint displays)*:

*Diagram in McCrudden y McTigue (2019, JMMR, p. 385)*



*** Report of the integration:**

**- Through narrative (description in the text).**

Example: Kapoor & Klueter (2015).

In pages 1192-1197 (Results), these authors describe the 4 hypotheses, indicating statistical results together with information from interviews.

**- Other alternative: joint display using a table (matrix of integrated results)**

In the study by Kapoor & Klueter (2015), the authors could have used this table:

| | QUAN Results | QUAL Results | Main conclusions |
|---|---|---|---|
| Hypothesis 1 | | | |
| Hypothesis 2 | | | |
| Hypothesis 3 | | | |
| Hypothesis 4 | | | |

## * Report of the integration:

*Integrated results matrix (joint display) used by McCrudden y McTigue (2019, JMMR, p. 395)*

**Table 3.** Integrated Results Matrix.

| | Quantitative results | | | | Qualitative results | | |
|---|---|---|---|---|---|---|---|
| Group | Evidence type | Belief-consistent arguments, *M* (*SD*) | Belief-inconsistent arguments, *M* (*SD*) | Summary | Exemplar quote | Summary | Meta-inference |
| More-objective | Temperature<br>Sea level<br>Glacier | 4.70 (1.06)<br>5.10 (1.10)<br>4.50 (1.35) | 4.60 (0.97)<br>5.10 (1.37)<br>4.50 (1.35) | Strength ratings for belief-consistent and belief-inconsistent arguments did not differ. | P1: "They are both pretty much the same argument; they are just saying opposite things. [The argument for climate change] is saying that they are changing and [the argument against climate change is saying that it] isn't, but it's over the same period of time, and it's just a different glacier doing a different thing. So each of them is only showing one example of a glacier; it doesn't count for the whole world." | Evaluated arguments based on the quantity of evidence independently of whether the arguments were belief-consistent | Holding a belief did not necessarily lead to biased reasoning; rather, biased reasoning occurred when individuals applied a more critical standard of evaluation to belief-inconsistent arguments. |
| Less-objective | Temperature<br>Sea level<br>Glacier | 6.00 (1.94)<br>5.20 (1.81)<br>5.30 (1.77) | 4.20 (2.86)<br>3.80 (1.75)<br>3.00 (1.76) | Belief-consistent arguments rated higher than belief-inconsistent arguments. | P32: "Because [the argument against climate change] is not really proof that humans are not contributing to climate change; one glacier doesn't really count for all the glaciers around the world. But [the argument for climate change] is stronger proof that something is being done to the places around the world . . . I think there must have been something happening to make the glacier shrink; it's kind of unlikely for the glacier to shrink by itself." | Evaluated arguments based on whether they were consistent with their beliefs (more critical of belief-inconsistent arguments) | |

# 4.- CONCLUSIONS

* ***Some important decisions and aspects in mixed methods:***

- Determine if a mixed methods approach is:
  - **Appropriate and justified:** research question/problem; mixed methods purposes.
  - **Feasible**: time, resources, research skills.

- Identify an **adequate design**:
  - Priority / importance of QUAN and QUAL: same or different emphasis.
  - Implementation of data collection: simultaneous or sequential.

- **"Integration"** of methods: added value / synergies.

- Important a previous **plan and design**; but also **flexibility (emergent designs)**.

# 4.- CONCLUSIONS

* **Important:** - to know the main literature on mixed methods research.
- to read mixed methods studies published.

* **Journals** (where we can read and publish mixed methods studies?)**:**
  - **Business journals** (strategy, human resources, finance, marketing, operations, entrepreneurship, innovation, sustainability, …)

  - **Methodological journals:**
    - In Management: Organizational Research Methods.
    - Multidisciplinary: Journal of Mixed Methods Research,
      International Journal of Multiple Research Approaches,
      International Journal of Social Research Methodology,
      Field Methods, …

# 4.- CONCLUSIONS


* **Organizational Research Methods** (Sage):

  - Special Issue on “Mixed Methods”.

    Vol. 20(2), 2017.

# 4.- CONCLUSIONS


* **Journal of Mixed Methods Research** (Sage):
  - Multidisciplinary journal.
  - Two types of articles**:**
    - Methodological articles about mixed methods research.
    - Empirical works that use mixed methods designs (with emphasis on how the use of mixed methods help advance the topic studied)

## * ***The relevance of research methods:***

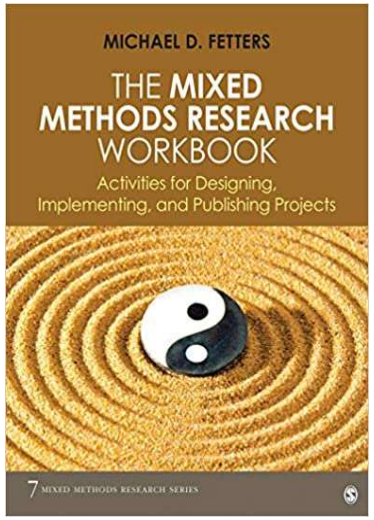
*** Which method is better? QUAN, QUAL, Mixed?**

RESEARCH QUESTION → research method

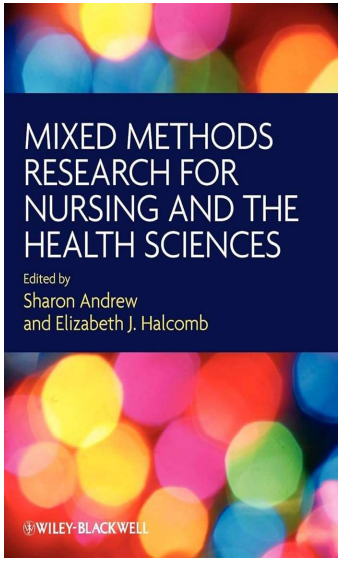
RESEARCH QUESTION → RESEARCH METHOD

- Importance of improving our **knowledge and skills about research methods**, widening our **methodological toolkit (diversity)** in order to (Edwards, 2008):
  - Increase the rigor of our research works.
  - Use several ways to answer our research questions.
  - Identify new research questions.

- **Mixed methods research** can play a relevant role as this methodological approach combines and integrates several and diverse methods.


**Michael Fetters**




**"The increased popularity of mixed methods research is due to the gradual acceptance of qualitative approaches, and the tacit recognition that the voices of participants, their context and the complexity of their narratives can add substantially to the understanding of research problems based on trends, frequencies and statistical relationships"**

(Creswell, Fetters, Plano Clark y Morales, 2009, p. 161-162)

# References

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**Webcast Lecture - CARMA**

**September 20th, 2024**

# MIXED METHODS RESEARCH:

## INTEGRATING QUALITATIVE AND QUANTITATIVE METHODS

Thanks for
your attention

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