Mixed methods Research: Integrating qualitative and quantitative strands

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Integration in MM research - Definitions

- Tashakkori and Teddlie (2021) define integration as

  "the incorporation of MM approaches or methods at one or more stages of research" (p. 400).

- Hitchcock and Onwuegbuzie (2022) define integration in mixed methods research as

  "the optimal mixing, combining, blending, amalgamating, incorporating, joining, linking, merging, consolidating, or unifying of research approaches, methodologies, philosophies, methods, techniques, concepts, language, modes, disciplines, fields, and/or teams within a single study" (p. 3).

Benefits and Challenges of Integration in MM Research

- Challenges of integration
  - Sacrificing rigor of individual methods while accounting for different assumptions (Bazeley, 2012; Bryman, 2007)
  - Lack of guidance (Zhou & Wu, 2022)

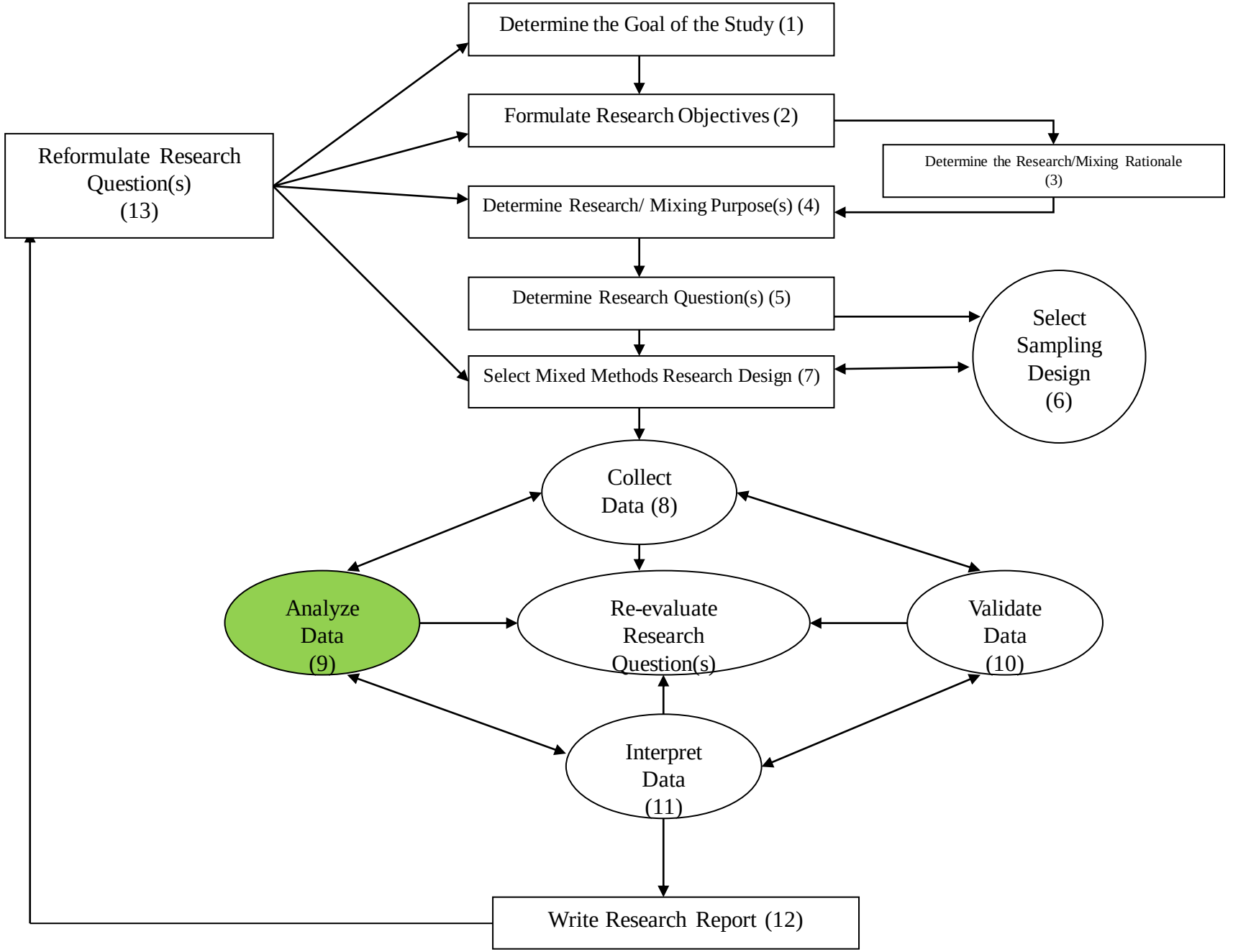
- Benefits of integration
  - Initiate new understandings
  - Build stronger conclusions
  - Gain a more complete picture of underlying mechanisms (Bazeley & Kemp, 2012)

The important questions…

- Is integration necessary?
  - Yes! For a study to be considered mixed methods research, integration must occur.
- When can I integrate?
  - Integration can occur at any step of the research process.
- How much should I integrate?
  - Some methodologist suggest integrating at all stages (Woolley, 2009) whereas others suggest integrating when “there is intention to mix or integrate” (Creamer, 2018, p. 12).
- How do I integrate?
  - We will discuss how to integrate at the analysis stage. Resources are provided for more information on integration at other stages.

Steps in Mixed Research Studies

- Building on the works of Onwuegbuzie and Teddlie (2003), Kromrey, Onwuegbuzie, and Hogarty (2006), and Onwuegbuzie and Leech (2005), Collins, Onwuegbuzie, and Sutton (2006) created distinct elements that comprise 13 steps in the mixed research process, presented on the next slide.



Collins, Onwuegbuzie, and Sutton (2006)

Study and Research Question

- Imagine a workshop being conducted for people working in the medical field. The workshop focuses on insurance practices and reluctance for people to obtain medical assistance and medical insurance.
- Focus groups are conducted for participants from the workshop and for other medical providers who could not attend (control group).
- This study utilized a convergent parallel design.
- One of the research questions is

  To what degree does attendance at the workshop increase participants' concern about clients' privacy concerns?

  In other words -

  To what degree does attendance at the workshop increase the number of times a keyword is used?

Integration of Analysis

- A mixed analysis

  "involves the use of quantitative and qualitative analytical techniques that are utilized either concurrently or sequentially, sometime after the data collection process, from which interpretations are made either in a parallel, integrated, or iterative manner" (Onwuegbuzie, Slate, Leech, & Collins, 2007, p. 5).

- Start with one type of data, convert it the other type, then conduct analysis

NUMBERS ➡ WORDS ➡ ANALYSIS

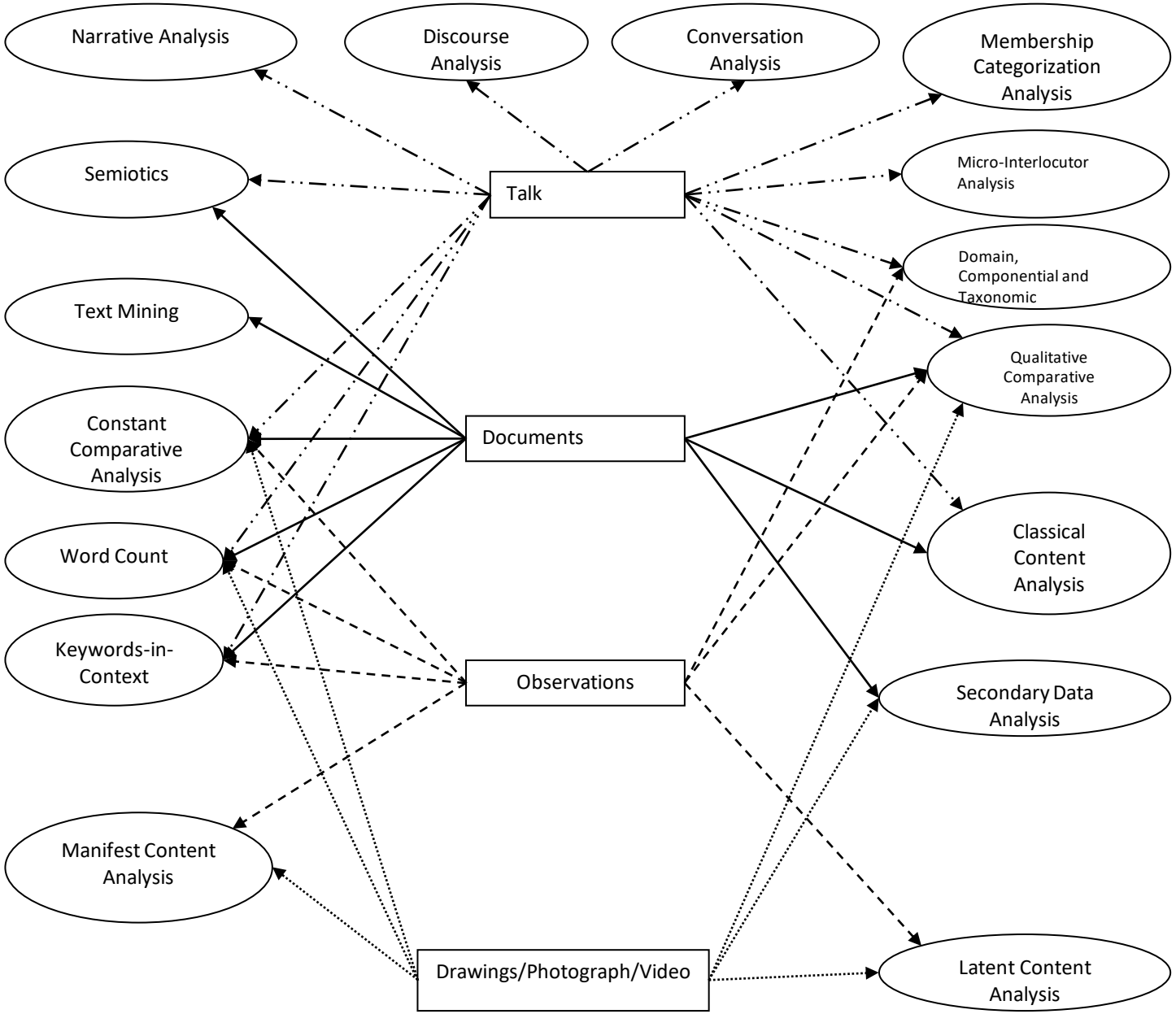
WORDS ➡ NUMBERS ➡ ANALYSIS

Quantitizing Qualitative Data

WORDS ⇨ NUMBERS

- Quantitizing data is when “qualitative ‘themes’ are numerically represented, in scores, scales, or clusters, in order more fully to describe and/or interpret a target phenomenon” (Sandelowski, 2001, p. 231).

- In essence, counting prevalence of codes, observations, words, or themes



Leech, N. L., & Onwuegbuzie, A. J. (2008). Qualitative data analysis: A compendium of techniques for school psychology research and beyond. *School Psychology Quarterly*, *23*, 587-604. https://doi.org/10.1037/1045-3830.23.4.587

Relationship Between Type of Qualitative Data Analysis Technique and Talk Being the Source of Data

Source of Data	Type of Qualitative Technique
Talk	Conversation Analysis Discourse Analysis Narrative Analysis Semiotics Qualitative Comparative Analysis Constant Comparison Analysis Keywords-in-Context Word Count Membership Categorization Analysis Domain Analysis Taxonomic Analysis Componential Analysis Classical Content Analysis Micro-interlocutor Analysis

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Table 2. Most Common Qualitative Analyses

Type of Analysis	Short Description of Analysis
Constant Comparison Analysis	Systematically reducing data to codes, then developing themes from the codes.
Classical content analysis	Counting the number of codes.
Word count	Counting the total number of words used or the number of times a particular word is used.
Keywords-in-context	Identifying keywords and utilizing the surrounding words to understand the underlying meaning of the keyword.
Domain analysis	Utilizing the relationships between symbols and referents to identify domains.
Taxonomic analysis	Creating a system of classification that inventories the domains into a flowchart or diagram to help the researcher understand the relationships among the domains.
Componential analysis	Using matrices and/or tables to discover the differences among the subcomponents of domains.
Membership categorization analysis	Utilizing the role that interpretations play in making descriptions and the consequences of selecting a particular category (e.g., baby, sister, brother, mother, father = family).

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The Data

Response to "Why do some people not participate in public insurance programs?"

Pride gets in the way for some. Some don't wish to be seen applying for public insurance. Privacy is an issue with them. Cultural barriers may apply for some people. Some are not familiar with the process of applying. They find the forms complex and hard to understand. Some people do not have telephones or access to newspapers, so they may not be informed about programs that are available to them. We, the government, may not advertise appropriately.

Keywords/Word Count

Pride gets in the way for some. Some don't wish to be seen applying for public insurance. Privacy is an issue with them. Cultural barriers may apply for some people. Some are not familiar with the process of applying. They find the forms complex and hard to understand. Some people do not have telephones or access to newspapers, so they may not be informed about programs that are available to them. We, the government, may not advertise appropriately.

Constant Comparison and Classical Content Analysis – Chunking the Data

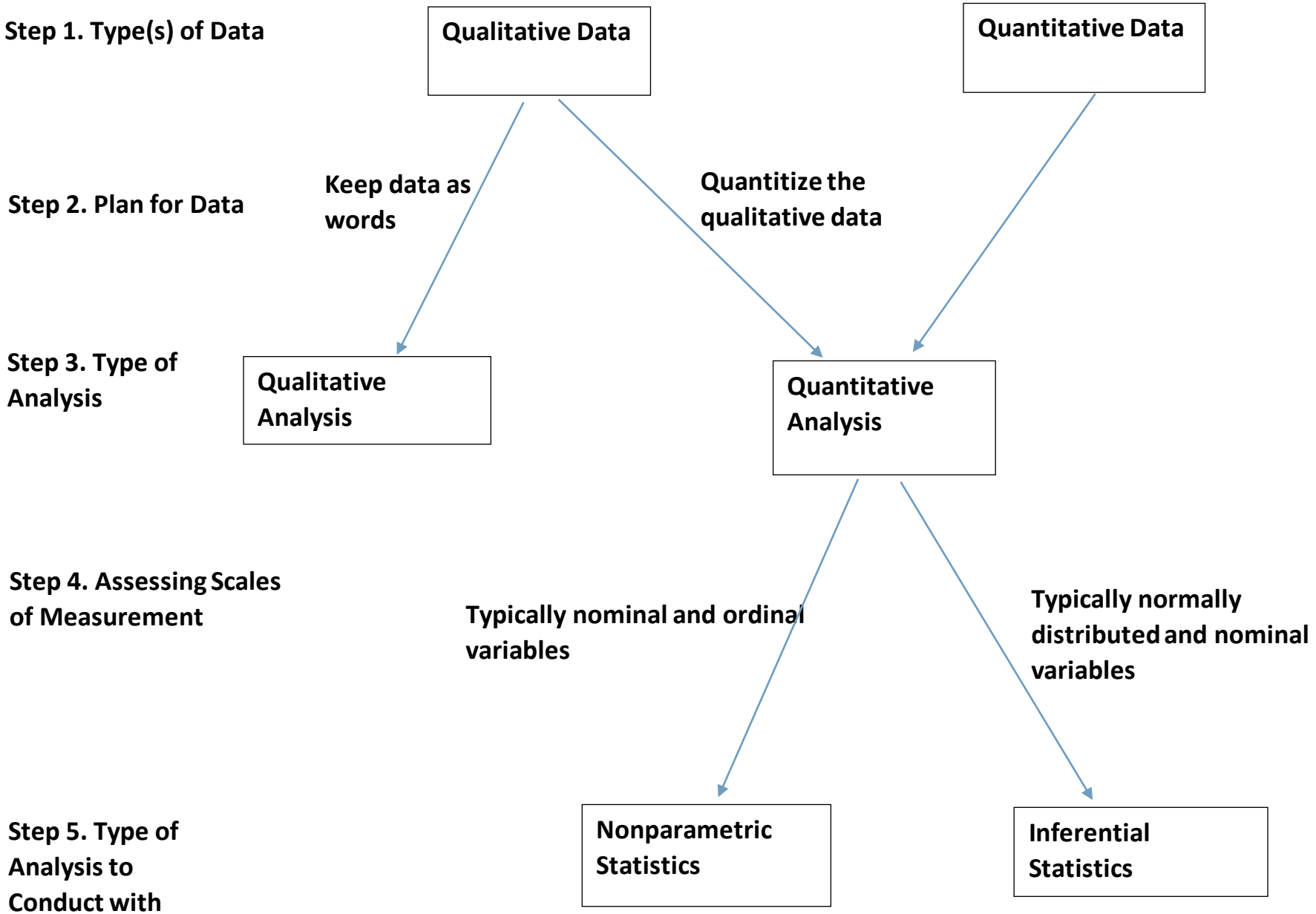
Pride gets in the way for some. Some don't wish to be seen applying for public insurance. Privacy is an issue with them. Cultural barriers may apply for some people. Some are not familiar with the process of applying. They find the forms complex and hard to understand. Some people do not have telephones or access to newspapers, so they may not be informed about programs that are available to them. We, the government, may not advertise appropriately.

Constant Comparison Analysis

Chunks	Codes For Each Chunk
Pride gets in the way	Pride
Some don't wish to be seen applying for public insurance	Pride
Privacy is an issue	Privacy
Cultural barriers	Cultural barriers
not familiar with the process of applying	Not familiar with process
the forms complex	Complex forms
hard to understand	Hard forms
people do not have telephones	people do not have telephones
access to newspapers	people do not have newspapers
may not be informed about programs that are available	Not familiar with process
the government, may not advertise appropriately	Not familiar with process

Classical Content Analysis

Code	Number of Times Used
Pride/Privacy	3
Cultural barriers	1
Not familiar with the process	3
Complex forms	1
Hard forms	1
People do not have telephones	1
People do not have newspapers	1



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ExampleData.sav [DataSet2] - IBM SPSS Statistics Data Editor

File Edit View Data Transform Analyze Graphs Utilities Extensions Window

	Group	WorkshopTaken	LevelOfUnderstanding	Keyword	CodeFrequency	WordCountOverall
1	1	1	1	3	4	256
2	1	0	0	1	5	240
3	1	1	1	5	6	268
4	1	0	0	0	7	36
5	1	1	1	1	2	295
6	2	0	0	1	6	259
7	2	1	1	3	4	274
8	2	0	0	0	8	258
9	2	1	1	2	3	162
10	2	0	0	0	5	258
11	3	1	0	5	2	252
12	3	0	0	1	7	268
13	3	1	1	6	4	234
14	3	0	0	0	6	245
15	3	1	1	4	2	288

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Descriptive Statistics

	N	Minimum	Maximum	Mean	Std. Deviation	Skewness		Kurtosis	
	Statistic	Statistic	Statistic	Statistic	Statistic	Statistic	Std. Error	Statistic	Std. Error
Focus group - 1, 2, or 3	15	1	3	2.00	.845	.000	.580	-1.615	1.121
Workshop taken - yes or no	15	0	1	.53	.516	-.149	.580	-2.308	1.121
Understanding level - 0 or 1	15	0	1	.47	.516	.149	.580	-2.308	1.121
Number of times keyword used by participant	15	0	6	2.13	2.066	.637	.580	-.985	1.121
Number of times the code was used	15	2	8	4.73	1.944	-.038	.580	-1.065	1.121
Overall number of words used	15	36	295	239.53	63.931	-2.681	.580	7.877	1.121
Valid N (listwise)	15								

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T-Test

Group Statistics

	Workshop taken - yes or no	N	Mean	Std. Deviation	Std. Error Mean
Number of times keyword used by participant	no	7	.43	.535	.202
	yes	8	3.63	1.685	.596

Independent Samples Test

		Levene's Test for Equality of Variances		t-test for Equality of Means						
									95% Confidence Interval of the Difference	
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	Lower	Upper
Number of times keyword used by participant	Equal variances assumed	7.948	.014	-4.793	13	.000	-3.196	.667	-4.637	-1.756
	Equal variances not assumed			-5.081	8.570	.001	-3.196	.629	-4.630	-1.762

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Results

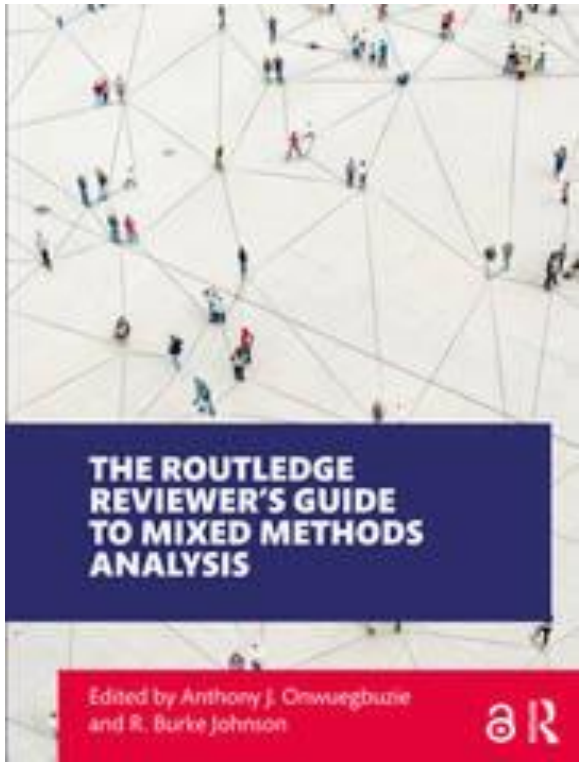
To understand whether attendance at the workshop increased participants' concern about clients' privacy concerns, keywords from the qualitative data from the focus groups were counted and combined with the variable of whether they attended the workshop or not.

A *t* test was conducted to assess if there was a statistically significant difference between those who attended the workshop and those who did not on the number of keywords used in the focus group, t (8.57) = -5.08, p = .001, d = 1.29. Those who participated in the workshop used the keyword statistically significantly more (M = 3.63, SD = 1.69) than participants who did not attend the workshop (M = .43, SD = .54).

Final Thoughts – The Importance of Integration

- Other ways to integrate
- Common pitfalls/errors
- Controversy and ongoing thinking about integration in the field

Recommended Books



Questions and Answers

Thank you!