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Estructura de la Metodología Mixta

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Parte de la explicación

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DOI: **<https://dx.doi.org/10.25528/141>** (páginas 96-108)

¿ En qué consiste ?

La investigación con métodos mixtos es un enfoque de investigación que combina aspectos cualitativos y Métodos cuantitativos para realizar una investigación.

En la literatura científica es posible encontrar otras palabras denominadas MMR como

- “multiple methods”,
- “multistrategy”,
- “combined method”,
- “quantitative and qualitative”
- “mixed methods”

Metodología cuantitativa

Metodología cualitativa



Los resultados se integran

¿ En qué consiste ?

Debe haber al menos dos componentes metodológicos, uno cuantitativo y otro uno cualitativo.

Ambos componentes deben referirse al menos a una investigación específica pregunta/objetivo, un diseño de investigación o las técnicas para recopilar y analizar datos.

3 preguntas de investigación

1 Cuantitativa (C)
1 Cualitativa (Q)
1 Como C explica Q

¿ En qué consiste ?

Método mixto implica combinar e integrar diferentes metodologías para resolver un problema complejo.

Por ejemplo, se pueden emplear metodologías de forma secuencial, como primero se realiza una serie de entrevistas con una población en particular, seguida de un cuestionario con una población similar.

Finalmente, ambos conjuntos de datos se integran para resolver el problema y comprender cómo una metodología ayuda a explicar los resultados del otro.

- Mixed Methods in Social and Behavioral research (Tashakkori & Teddlie, 2010)
- Research Design (Creswell, 2014)
- A Concise Introduction to Mixed Methods Research (Creswell, 2015)
- Designing and Conducting Mixed Methods Research (Creswell & Plano, 2018)

Table 5 Notation in MMR. Mixed Methods Approaches. Source: author. Adapted from Morse (1991) and Creswell and Plano (2018, pp. 62–63).

Approach	Use	Meaning
+	QUAL+quan	Qualitative data have more weight than quantitative data and are collected in parallel (simultaneous).
	QUAN+qual	Quantitative data have more weight than qualitative data and are collected in parallel (simultaneous).
→	QUAL→quan	Qualitative data have more weight than quantitative data and data are collected one before another (sequential).
	QUAN→qual	Quantitative data have more weight than qualitative data and data are collected one before another (sequential).
()	(QUAN+qual)	The methods are intersected within a larger intervention design
→←	[QUAN → QUAL → QUAN → QUAL → ...	The methods implement a recursive process
[]	QUAN→[QUAL+quan]→QUAL	A core mixed methods design is used within a study
=	QUAL→quan = explain qualitative results	The intent for mixing or integrating methods

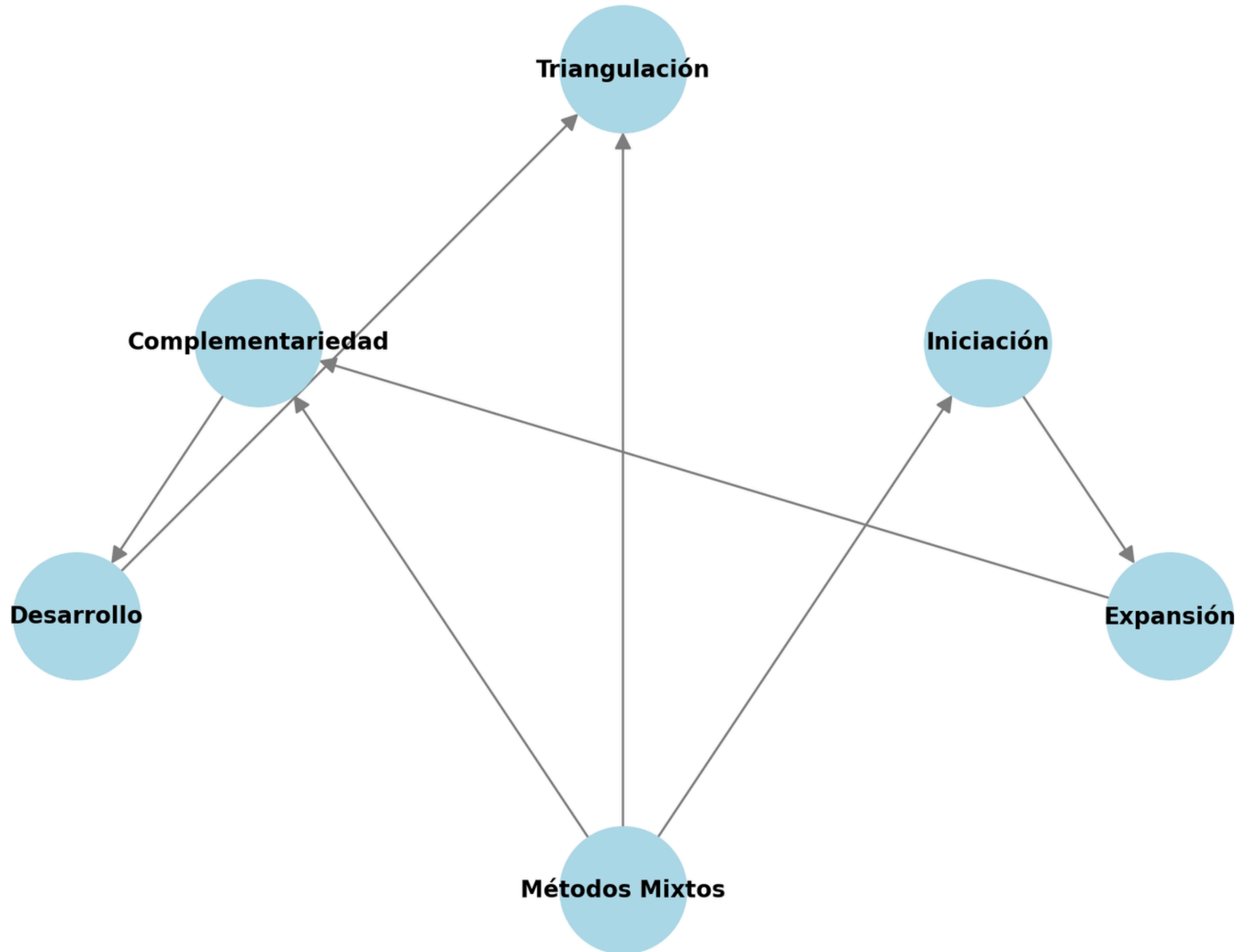
Morse, J. [Janice]. (1991). Approaches to qualitative-quantitative methodological triangulation. *Nursing Research*, 40(2), 1203123. <https://doi.org/10.1097/00006199-199103000-00014>

Creswell, J. W. [John Ward], & Plano, V. L. [Vicki L.] (2018). *Designing and conducting mixed methods research* (3rd ed.). Sage.

Tipos de aplicación

Table 6 Mixed methods evaluation designs used to report findings and their definitions. Source: author.		
Term	Definition	Author
Triangulation	Combining different methods and checking the consistency of the findings.	(Creswell & Plano, 2018; Fidel, 2008; Fielding, 2010; Glogowska, 2011; Jeanty & Hibel, 2011; Lopez-Fernandez & Molina-Azorín, 2011; Ngulube, 2010; H. Powell et al., 2008; Schifferdecker & Reed, 2009)
Complementarity	Two research strategies provide different findings. The results from one method clarify the other method.	(Molina-Azorín, 2009; Ngulube, 2010; H. Powell et al., 2008; Schifferdecker & Reed, 2009)
Initiation	Discovering paradoxes and contradictions that lead to the research question[s] being reframed.	(Ngulube, 2010; H. Powell et al., 2008; Schifferdecker & Reed, 2009)
Development	Using the results from one method to inform the other method.	(Molina-Azorín, 2009; Ngulube, 2010; H. Powell et al., 2008; Schifferdecker & Reed, 2009)
Expansion	Seeking to expand the range of the study using different methods for different research components.	(Ngulube, 2010; H. Powell et al., 2008; Schifferdecker & Reed, 2009)

Modelo Complejo de Métodos Mixtos



Tipos de diseño

Table 7 Basic and advanced design methods. Source: author. Adapted from Creswell (2015, pp. 35–46) and Suleman & Hopper (2015).	
Basic MMR designs	
Convergent design	QUAL & QUAN components are collected concurrently and contribute equally in answering a single research question. May involve collecting close-ended questions (QUAN) and open-ended surveys (QUAL).
Explanatory design	QUAN data are collected before QUAL. QUAL is collected to explain QUAN results. Unequal weighting of QUAL and QUAN components and a sequential approach to data collection. Usually involve summary of QUAL and QUAN results.
Exploratory design	QUAL data are collected and analyzed before QUAN. Involve summary of QUAL and QUAN results. QUAN involves assessing variables to determine of the QUAL hypothesis.
Embedded design	Enhance a traditional QUAN or QUAL design. QUAL and QUAN have unequal weighting. The researcher determines whether timing of the components should be one or the other or sequential.
Advanced MMR designs	
Intervention design	Consists of embedding data with an experimental trial. The researchers gather data (qualitative or quantitative) before, during, or after an experiment.
Transformative design	The researcher includes a social framework around a basic design. It is also called social justice design.
Multistage Evaluation design	Refers to longitudinal studies, where many stages of research would be involved, using multiple mixed methods.

Diseños generales

Convergent Design

Explanatory Design

Exploratory Design

Embedded Design

Diseños específicos

Intervention Design

Transformative Design

Multistage Evaluation Design

Beneficios de la MMR

Como resultado, concluyeron que la MMR tiene un valor agregado “como la capacidad de triangular y corroborar fuentes de datos, reducir el sesgo e iluminar nuevas perspectivas mediante el uso de múltiples métodos” (Hendren et al., 2018).

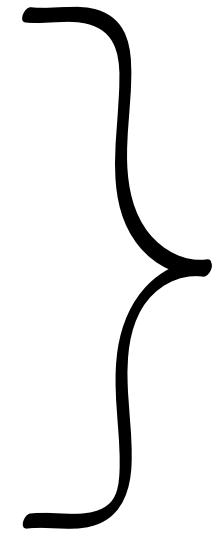
Mckim, estudió el valor de la MMR entre estudiantes de posgrado utilizando un diseño secuencial explicativo donde predominaba la fase cuantitativa (QUAN-qual). Utilizando grupos focales y encuestas entre todas las metodologías utilizadas, descubrió que los estudiantes de posgrado sentían que la MMR permitía una comprensión mejor y más rigurosa de un fenómeno complejo (2017).

A través de datos cualitativos es posible obtener resultados que la estadística revela. Además, los datos de los grupos focales surgen con poca orientación por parte del investigador y permiten la recopilación de datos en tres niveles de análisis: respuestas discretas e individuales a las preguntas y la recopilación de datos en el nivel de análisis individual .

¿ Qué implicaciones tiene un método mixto ?

En un proyecto suele haber especialistas de las 3 áreas:

Especialista cualitativo
Especialista cuantitativo
Especialista en métodos mixtos



Cada especialista conoce la metodología adecuada para un problema concreto

Cualitativo - método observacional
Cuestionarios con muestras aleatorias



¿ cómo integramos esto?

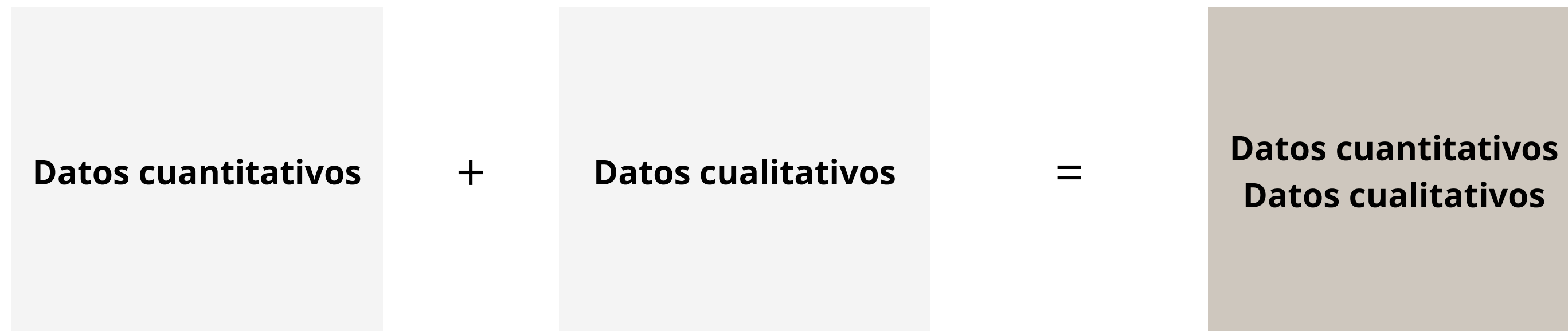
El especialista en métodos mixtos se encarga de “juntar” las metodologías correspondientes que le sirvan para resolver el problema de investigación

Joint Display

"Joint display" es la integración y presentación visual de datos cuantitativos y cualitativos para facilitar su comparación, análisis e interpretación.

Panel de visualización conjunta

Según el estudio encontraremos varios en la literatura



Pillar Integration Process

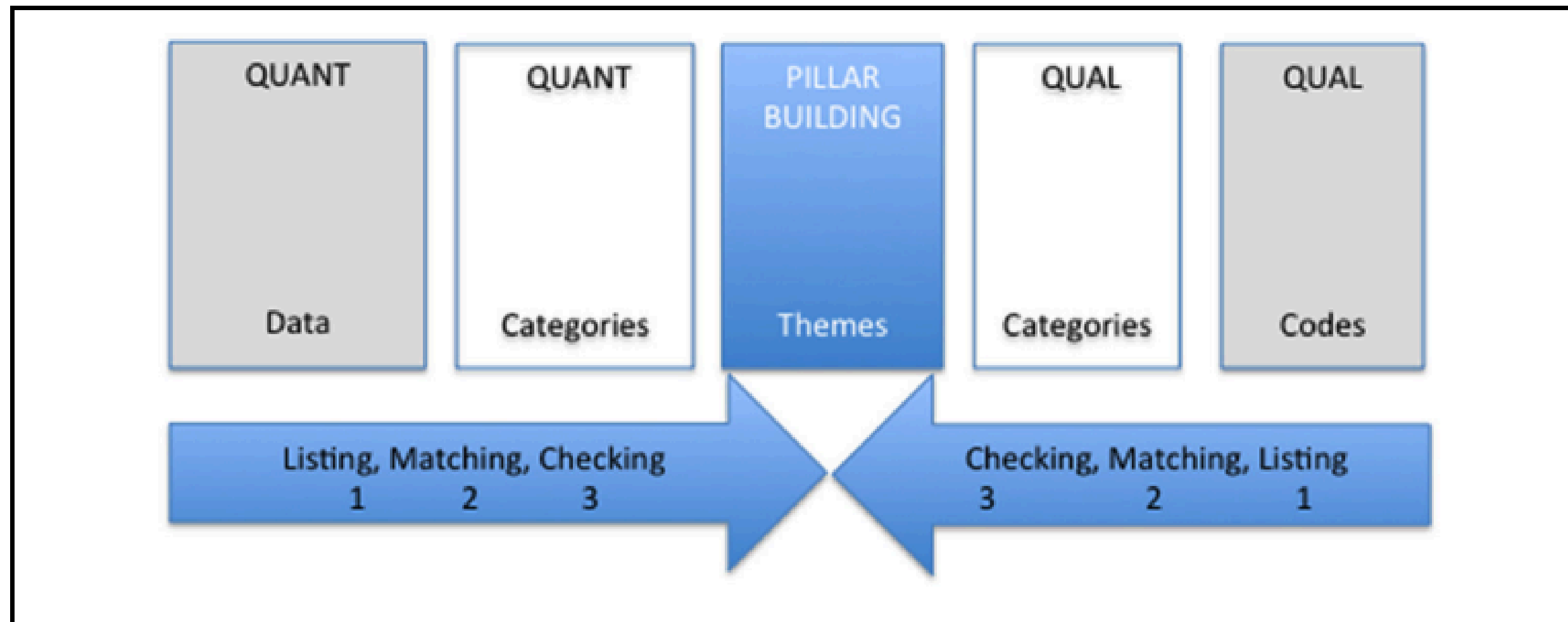




Figure 2. A generic diagrammatic representation of the Pillar Integration Process to demonstrate column headings and direction of integration.

Pillar Integration Process

Table 4. Excerpt of the Pillar Integration Process Stage 4: Pillar Building in a Mixed Methods Evidence Synthesis.

Case: Mixed Methods Systematic Review

QUANT data	QUANT categories	Pillar building themes	QUAL categories	QUAL codes
				
3	Believe decision is evidence based	Formal codified knowledge	“You can always find a paper to support your idea”	7
5	Practice by guideline present		“Orthopedic journals hold the most powerful position”	7
17	There is more agreement when more evidence exists		“There is complexity of surgeon appraisal of patients, various explicit things come into the judgement”	8
19	Independent peer-reviewed papers are preferred	Socialization and association with colleagues		
22, 24	Guidelines		“Orthopedics is a learnt craft”	7
5	Supervisor prevented use of evidence		“There is a professional community with distinct norms that are resilient, embedded and retain control”	7
9	What my mentor taught me		“Negotiating relationships with other professionals and maintaining professional networks”	8
9	It burns fewer bridges with colleagues		“Clinicians play a role as experts they are assigned and adopt the roles”	10
9, 12	Do what others are doing			
19	From meeting and conferences with colleagues			

Johnson, R. E. [Rebecca E.], Grove, A. L. [Amy L.], & Clarke, A. [Alienn]. (2019). Pillar Integration Process: A Joint Display Technique to Integrate Data in Mixed Methods Research. *Journal of Mixed Methods Research*, 13(3), 3013320. <https://doi.org/10.1177/1558689817743108>

Figure 4. A joint display from a mixed methods intervention design that presents qualitatively derived implementation practices with quantitative screening rate results.

Table 5. Qualitative Assessment of Quality Improvement Implementation (Intervention Practices)

Practice	Team Structure	Leadership	Engagement	Psychological Safety	Intra-communication	Inter-communication	CRC Screening Rates	
							Baseline (%)	12-Month Follow-up (%)
P2 ^a	Strong	Moderate	Strong	Strong	Strong	Moderate	14	30
P7	Strong	Weak	Moderate	Weak	Moderate	Weak	53	73
P8 ^a	Strong	Moderate	Strong	Moderate	Moderate	Weak	37	52
P10 ^a	Strong	Moderate	Moderate	Moderate	Strong	Strong	71	33
P11	Weak	Weak	Moderate	Weak	Moderate	NA	54	66
P15	Moderate	Weak	Moderate	Weak	Moderate	Weak	50	67
P16 ^a	Strong	Strong	Strong	Strong	Strong	Weak	43	48
P17	–	–	–	–	–	–	41	10
P19 ^a	Strong	Strong	Strong	Strong	Strong	NA	52	44
P21	–	–	–	–	–	–	38	56
P22 ^a	Strong	Weak	Moderate	Moderate	Moderate	Weak	47	71
P23 ^a	Strong	Moderate	Strong	Strong	Strong	Weak	92	86

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Integrating Quantitative and Qualitative Results in Health Science Mixed Methods Research Through Joint Displays

Timothy C. Guetterman, Michael D. Feters and John W. Creswell

The Annals of Family Medicine November 2015, 13 (6) 554-561; DOI: <https://doi.org/10.1370/afm.1865>

Table 3. Terms for integration strategies.

Term	Definition	Example
Merging	Bringing qualitative and quantitative data or results together to compare or relate and generate meta-inferences	Compare the results of a qualitative grounded theory model to the results of a structural equation model Examine qualitative themes for groups who experienced different outcomes in an intervention
Connecting	Using the results of one strand of research to inform the sampling of the other strand	Based on a path model of quantitative data, identify a sample specific individuals or sites who are likely to be most informative in explaining significance or non-significance
Building	Using the results of one strand of research to inform the data collection approach of the other strand	Based on the results of thematic analysis, develop an instrument

Note: for more information on integration, see Fetters, Curry, and Creswell (2013)



Visuals in joint displays to represent integration in mixed methods research: A methodological review

Timothy C. Guetterman, Sergi Fàbregues, Rae Sakakibara

Methods in Psychology - Volume 5, December 2021

<https://doi.org/10.1016/j.metip.2021.100080>

Table 38 Integration of all datasets using an adopted version from Johnson et al. (2019)

Qualitative results		Integration	Quantitative results	
Focus Group	Interviews	Pillar building themes	Questionnaire	YouTube metrics
				
<ul style="list-style-type: none"> • Device strategy • Search strategy 	<ul style="list-style-type: none"> • Search strategy 	The search strategy (information seeking vs information need)	<ul style="list-style-type: none"> • Device strategy • Search strategy 	<ul style="list-style-type: none"> • Traffic source
<ul style="list-style-type: none"> • YouTube elements 	<ul style="list-style-type: none"> • Content improvements • Video watching habits • Language preference • Subtitles use 	The content of the educational video	<ul style="list-style-type: none"> • Subtitles in native language • The description • The title of the video • The length of the video 	<ul style="list-style-type: none"> • Geographical areas • Subtitle use
<ul style="list-style-type: none"> • Educational video definition 	<ul style="list-style-type: none"> • Educational video definition 	Patterns of video usage according to previous definitions	<ul style="list-style-type: none"> • Audio quality • Educational video with examples • Quality content • Speaker is competent 	<ul style="list-style-type: none"> • Sharing services
<ul style="list-style-type: none"> • Interaction with videos 	<ul style="list-style-type: none"> • Interactions with videos • Social Networking sites 	Reasons to interact with a video	<ul style="list-style-type: none"> • Asking a question in comments • Note-taking & pausing the video • Sharing with peers 	<ul style="list-style-type: none"> • Watch time
<ul style="list-style-type: none"> • Motivations to use educational videos 	<ul style="list-style-type: none"> • Decisions on click • Motivations consuming videos • Language preference • Length preference 	Motivations and reasons to watch an educational video	<ul style="list-style-type: none"> • Videos preferred language • Watching a video before an exam • Watching a video to complete an assignment 	<ul style="list-style-type: none"> • Targeted audience

Joint Displays - Pillar building

Durante la reocopilación de datos

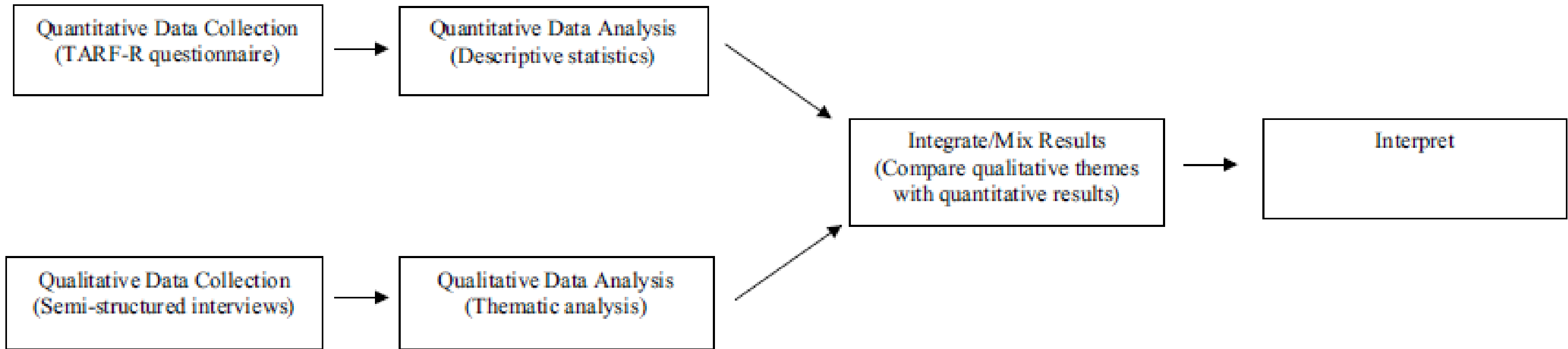


Table 1 TARF-R scores of all participants

Scales/Subscales	Participant				Maximum possible score	Mean (SD)
	1	2	3	4		
Total acceptability	112	109	99	111	119	107.75 (5.97)
Reasonableness	21	21	21	21	21	7.00 (0.00)
Willingness	21	20	20	21	21	6.83 (0.19)
Side-effects [#]	17	18	17	20	21	6.00 (0.47)
Effectiveness	21	19	21	17	21	6.50 (0.64)
Disruption/time [#]	18	20	12	18	21	5.67 (1.15)
Affordability	14	11	8	14	14	5.88 (1.44)
Severity ^{#*}	11	14	12	8	14	5.63 (1.25)
Understanding [*]	6	6	6	7	7	6.25 (0.50)

[#]Includes items that are reverse coded so that a higher score is indicative of a more favorable rating

^{*}Not included in total acceptability score

Muestra el grado de alineación entre algunas medidas cuantitativas con, elementos del cuestionario cerrado y pautas de la entrevista abierta.

Home > Journal of Autism and Developmental Disorders > Article

Evaluating the Social Validity of the Early Start Denver Model: A Convergent Mixed Methods Study

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Original Paper | Published: 06 July 2017
Volume 47, pages 2899–2910, (2017) [Cite this article](#)

Emily Ogilvie; Matthew T. McCrudden (2017) - Evaluating the Social Validity of the Early Start Denver Model: A Convergent Mixed Methods Study. *Journal of Autism and Developmental Disorders*, 47

Durante la recopilación de datos

Muestra la conexión entre temas/categorías cualitativas y factores/elementos para una medida cuantitativa Kumar et al. (2019)

R. Kumar et al.

Contemporary Educational Psychology 57 (2019) 87–105

Table 4

Examples of quantitative survey items and scales development based on quotes and themes from qualitative data analysis.

Themes and quotations from qualitative study	Corresponding level 1 factors with survey item in the quantitative study
<p>Theme: Perceptions of teachers as prejudiced and culturally insensitive vs. respectful and culturally responsive</p> <p>Quotes</p> <p>“They should talk to you with some respect that we talk to them with. Some teachers don’t have any respect for you even though you wouldn’t disrespect.”</p> <p>“We have like our own whole caste system going on that the teachers have like completely no idea about.”</p> <p>Female 1: “They don’t say anything about it (political issues). Anytime someone tries bring it, “it’s inappropriate. It’s too political. Shouldn’t talk about that here. It’s not for school.”</p> <p>Female 2: “See both sides. Don’t make it that you’re talking about one side and not the other. Like all the teachers...”</p>	<p>Factor: Promoting cultural openness and positive intergroup relationships</p> <p>Survey items</p> <ol style="list-style-type: none">1. Listen with an open mind to what students in the different groups are saying.2. Help students in each of the groups understand how students from the other group feel.
<p>Theme: Intergroup relationship in school</p> <p>Quotes</p> <p>“Well I also like it because it’s a very diverse school, you see. Because we have lots of people from different backgrounds, some people, like income levels, color of skin, like countries. So, I think you get the, it’s a very nice school because you get the many ideas that lots of people have. And then you can also like share your ideas and your opinions.”</p> <p>“They call us boater. So that they are better than us. We can’t speak English like. We [are] all students. What is the difference? We don’t know English, they don’t know Arabic, right? They think we are dumb.”</p> <p>Male: “There’s like some kids that are like so like the White kids are so like racist against Chaldeans.”Female: “Yea they hate Chaldean. Like literally I don’t use the word hate but they hate Chaldeans like look at you differently.”</p>	<p>Factor: Promoting cultural openness and positive intergroup relationships</p> <p>Survey Items</p> <ol style="list-style-type: none">1. Help students in each of the groups understand how students from the other group feel.2. Help all students understand that there are differences in the way students from different ethnic groups talk/ behave3. Help students from the ethnic groups that are in conflict reach a compromise (give in a little).
<p>Theme: Culturally responsive and inclusive classroom curriculum</p> <p>Quotes</p> <p>“We just read a book, <i>Habibi</i>, and it was about a girl and she was Lebanese and she had to move to America...and like that is how it is with us.”</p> <p>Interviewer: “Do teachers every like in History or in English do you ever read literature from your background?”</p> <p>Female 1: “No”.</p> <p>Interviewer: “Any history lessons from your background?”</p> <p>Female 2: “Nope. Never. Like I can’t remember like I can’t think of one.”</p> <p>Female 1: “Nope. I know it would be like a joke to us if they did. Like we would just start laughing cause it’s so rare they did.”</p> <p>Female 2: “Well, they don’t really teach us about cultures...they just teach us history.”</p> <p>“You basically don’t learn nothing about the achievements that Black people made.”</p>	<p>Factor: Providing culturally inclusive and responsive curriculum</p> <p>Survey Items</p> <ol style="list-style-type: none">1. Make sure that the culture and contributions of different ethnic groups are regularly included in social studies and language arts/music and art/math and science.2. Have bulletin boards and pictures in classrooms that include all the cultures represented in your school.

Categorías cualitativas

Categorías cuantitativas

Kumar, R., Karabenick, S. A., Warnke, J. H., Hany, S., & Seay, N. (2019). Culturally inclusive and responsive curricular learning environments (Circles): An exploratory sequential mixed-methods approach. *Contemporary Educational Psychology*, 57, 87–105. <https://doi.org/10.1016/j.cedpsych.2018.10.005>

Durante el análisis de datos - Matriz de resultados cuantitativa

Table 3

Qualitative groups and dependent measure means and standard deviations.

Qualitative group	Pitcairn Narrowing	Pitcairn Broadening	Honduras Narrowing	Honduras Broadening	Familiarity
<i>n</i>	6	2	3	3	7
Dependent measures	<i>M (SD)</i>	<i>M (SD)</i>	<i>M (SD)</i>	<i>M (SD)</i>	<i>M (SD)</i>
Reading time: Pitcairn information	.372 (.05)	.394 (.06)	.250 (.03)	.371 (.07)	.390 (.05)
Reading time: Honduras information	.240 (.01)	.361 (.03)	.340 (.02)	.384 (.08)	.411 (.03)
Recall: Pitcairn information	.432 (.03)	.538 (.15)	.030 (.03)	.272 (.25)	.160 (.11)
Recall: Honduras information	.058 (.08)	.289 (.09)	.513 (.09)	.346 (.19)	.176 (.10)

Note: reading time is reported as seconds per word for each sentence type. A ratio closer to zero is equated with faster reading time. Recall is reported as the proportion of idea units recalled for each sentence type. A larger number is indicative of greater recall.

Yuxtaponer hallazgos estadísticos para buscar individuos que difieren sistemáticamente del grupo para determinar si se debe proceder con análisis de datos posteriores y cómo hacerlo.

Integración de ambos tipos de datos durante el análisis de datos

Table 1
Joint Display of Quantitative and Qualitative Results

Quantitative			Qualitative		Analytical integration
Variable	β	p	Theme 1: Cultural socialization		
			Undocumented	Documented	
Cultural socialization How important is it for parents of your ethnic group to: (a) teach children about the history and traditions of your ethnic group; (b) to help their children feel connected to others in your ethnic group; (c) to make sure their children maintain your ethnic group's values and beliefs?	.18*	.055	<p>"To not forget their roots, never. They should know where they come from, to say they have their feet well planted on earth. Uh or like the phrase, too, that they can touch the sky, but without getting their feet off earth. They should always have respect for their origins, for something. Like me, I'm very proud of being Mexican. And the fact that we live in another country, we always have to represent where we come from very well. We should never deny who we are ... feel proud of not having green eyes, or blue eyes ... feeling always proud of where we come from, and everything we're worth, and what our country is worth, and all of that."</p>	<p>"I think that they feel proud of their roots. I had the opportunity to take them to Mexico, they've been to school over there, and I feel that it is very different from other people who have not had that experience. Many don't value their language, or they're embarrassed to speak it, and since they don't want to speak Spanish anymore, as a teacher, I've seen many kids of Latino parents who don't know how to speak Spanish. Or they know very little, and they're embarrassed."</p>	<ul style="list-style-type: none"> • No convergence across quantitative and qualitative findings. • In quantitative results, undocumented parents reported transmitting more cultural socialization than documented parents. • In interviews, both groups reported engaging in cultural socialization. • Documented parents relied more on trips to their native country alongside teachings about their culture, language, and traditions. • Undocumented parents reported transmitting their culture through teaching about their heritage, celebrating traditions, speaking the language, and sharing anecdotes from their own childhood.
Quantitative			Qualitative		Analytical integration
Variable	β	p	Theme 2: Targeted discrimination		
			Undocumented	Documented	
Preparation for bias How important is it for parents of your ethnic group to: (a) make their children aware of the stereotypes about your ethnic group; (b) to teach children about racial problems in society; (c) to explain instances of discrimination to their children when they see it; (d) to prepare children in your ethnic group to cope with discrimination?	.09	.333	<p>"I see a lot of kids that are very racist ... they will call the others wetbacks and go back where you came from ... I always tell them that when someone says something to you don't say anything back, it's better for them to say 'well okay it's fine, that's your opinion you have that opinion we don't have the same opinion, everyone has their own opinion,' ... and if someone does something to you ... you don't do anything back."</p>	<p>"Nobody should bully them or tell them you're this, no, and whoever does, don't listen to them, always be alert, if someone at school say something, don't be afraid, defend yourself well, because we're all equal no matter where we come from, we are equal. The same way those people have the same rights here in the United States, the same with other kids, we all have the same rights."</p>	<ul style="list-style-type: none"> • Convergence across quantitative and qualitative findings. • Both undocumented and documented parents transmitted preparation for bias messages in interviews. • Undocumented parents asked children to avoid discussions and to ignore discrimination. • Documented parents encouraged children to defend themselves.

Variables cuantitativas

Resultados cualitativos

Lecturas básicas

Boté-Vericad, Juan-José. (2022). Integrating mixed methods to analyse information behaviour in the use of educational videos in higher education. [Doctoral dissertation, Universität Hildesheim]. Hildok. DOI: <https://dx.doi.org/10.25528/141> (páginas 96-108)

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