

Rapid Qualitative and Integrated Mixed Methods in Implementation Research Workshop

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Alison B. Hamilton, PhD, MPH

University of Washington
Behavioral Research Center for HIV

Rationales for mixed methods

Three main motivations (Morgan 2014):

1. To produce sequential contributions: use results from one method to contribute to the needs of another
2. To produce convergent findings across different methods that each address the same research question (triangulation, cross-validation): goal is similar results from methods with different strengths
3. To produce additional coverage: match strengths of each method to specific purpose and use each method to study separate part of overall question

***“The research design that you choose
must link your purposes to your procedures.”***

Mixed methods design options

- **Explanatory Sequential**
 - Phased
 - Begins with quantitative → qualitative
- **Exploratory Sequential**
 - Phased
 - Begins with qualitative → quantitative
- **Convergent Parallel**
 - aka concurrent
 - Quantitative and qualitative strands are equal
- **Advanced Designs**
 - Often concurrent data collection/analysis
 - Could be multistage

Planning for Integration:

Notation

1. Abbreviations: “Qual” & “Quan”
2. Symbols
 - + means *simultaneous*
 - → means *sequential*
3. Capitalization to reflect priorities (e.g., QUAN→qual)
4. Order to reflect timing (sequential)

(Morse, 1991)

What does “integrated” mean?

intentional collection of both quantitative and qualitative data and the combination of the strengths of each to answer research questions (Creswell et al., 2011)

Creswell, J. W., Klassen, A. C., Plano Clark, V. L., & Smith, K. C. (2011). Best practices for mixed methods research in the health sciences. *Bethesda (Maryland): National Institutes of Health*.

See also:

Bazeley, P. (2009). Integrating data analyses in mixed methods research. *Journal of Mixed Methods Research* 3 (3), 203-207.

Eastwood, J., Kemp, L., & Jalaludin, B. (2017). “Being Alone and Expectations Lost”: A Realist Theory of Neighbourhood Context, Stress, Depression and the Developmental Origins of Health and Disease. *International Journal of Integrated Care*, 17(5).

More on “integrated”
 combining or connecting: types of data
 are largely independent of one another

integrating or merging: types of data are
 either highly or largely dependent on one
 another

Difficult to “genuinely integrate findings”

van Velzen, J. H. (2018). Students' general knowledge of the learning process: A mixed methods study illustrating integrated data collection and data consolidation. *Journal of Mixed Methods Research*, 12(2), 182-203.

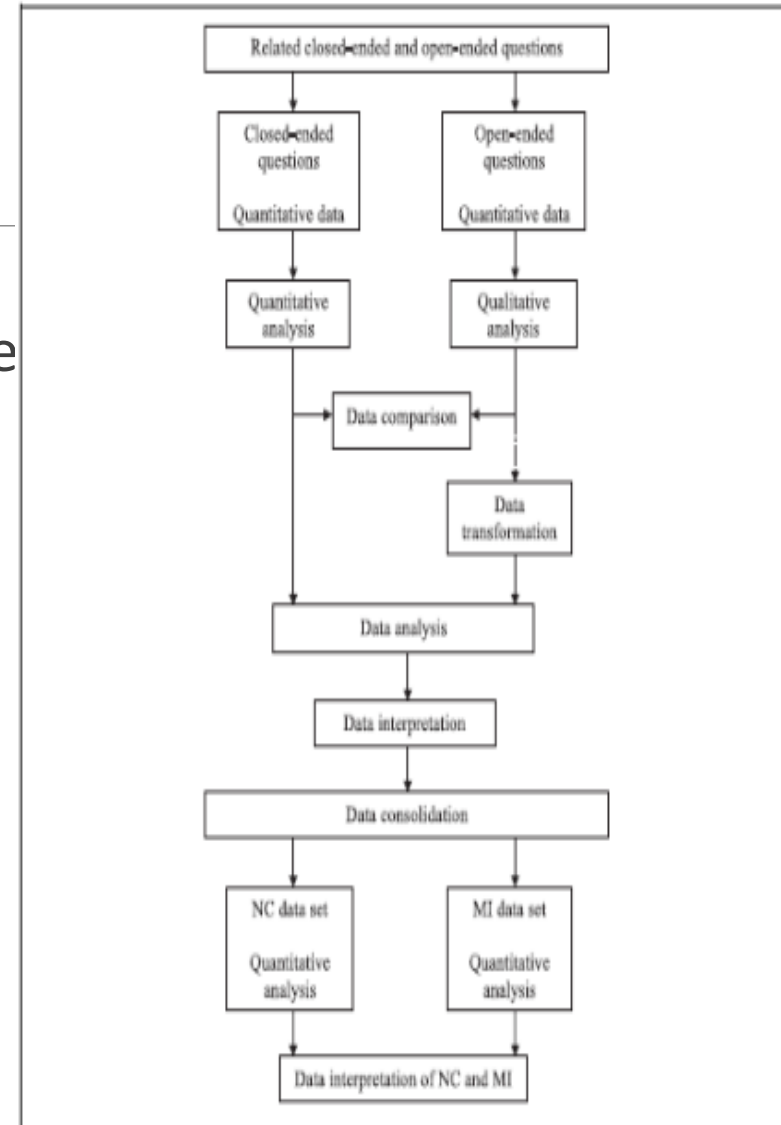
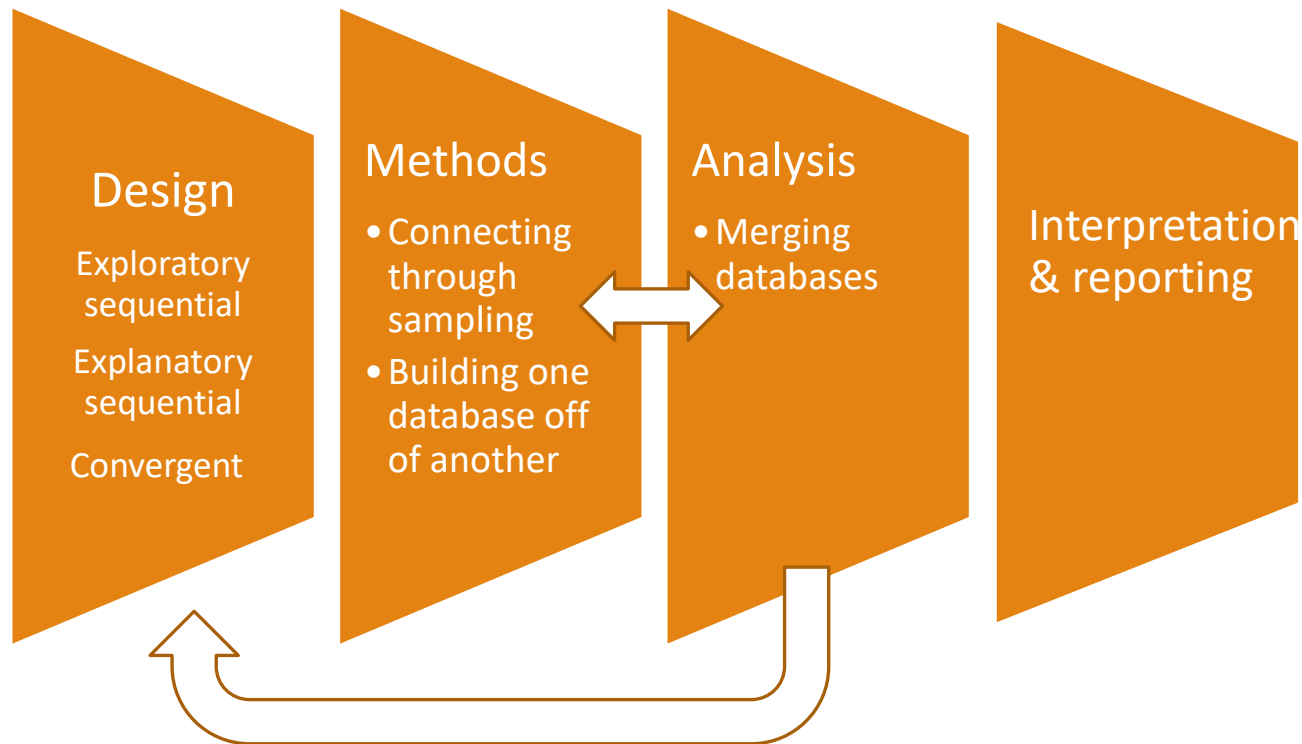


Figure 2. Mixed methods design for this study.

Integration can happen at and across many levels

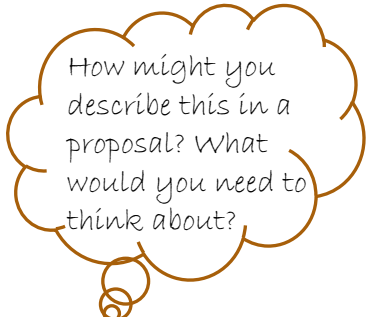


Achieving integration

Table 2: Integration through Methods

<i>Approach</i>	<i>Description</i>
Connecting	One database links to the other through sampling
Building	One database informs the data collection approach of the other
Merging	The two databases are brought together for analysis
Embedding	Data collection and analysis link at multiple points

“Embedding may involve any combination of connecting, building, or merging, but the hallmark is *recurrently linking qualitative data collection to quantitative data collection at multiple points.*”



How might you describe this in a proposal? What would you need to think about?

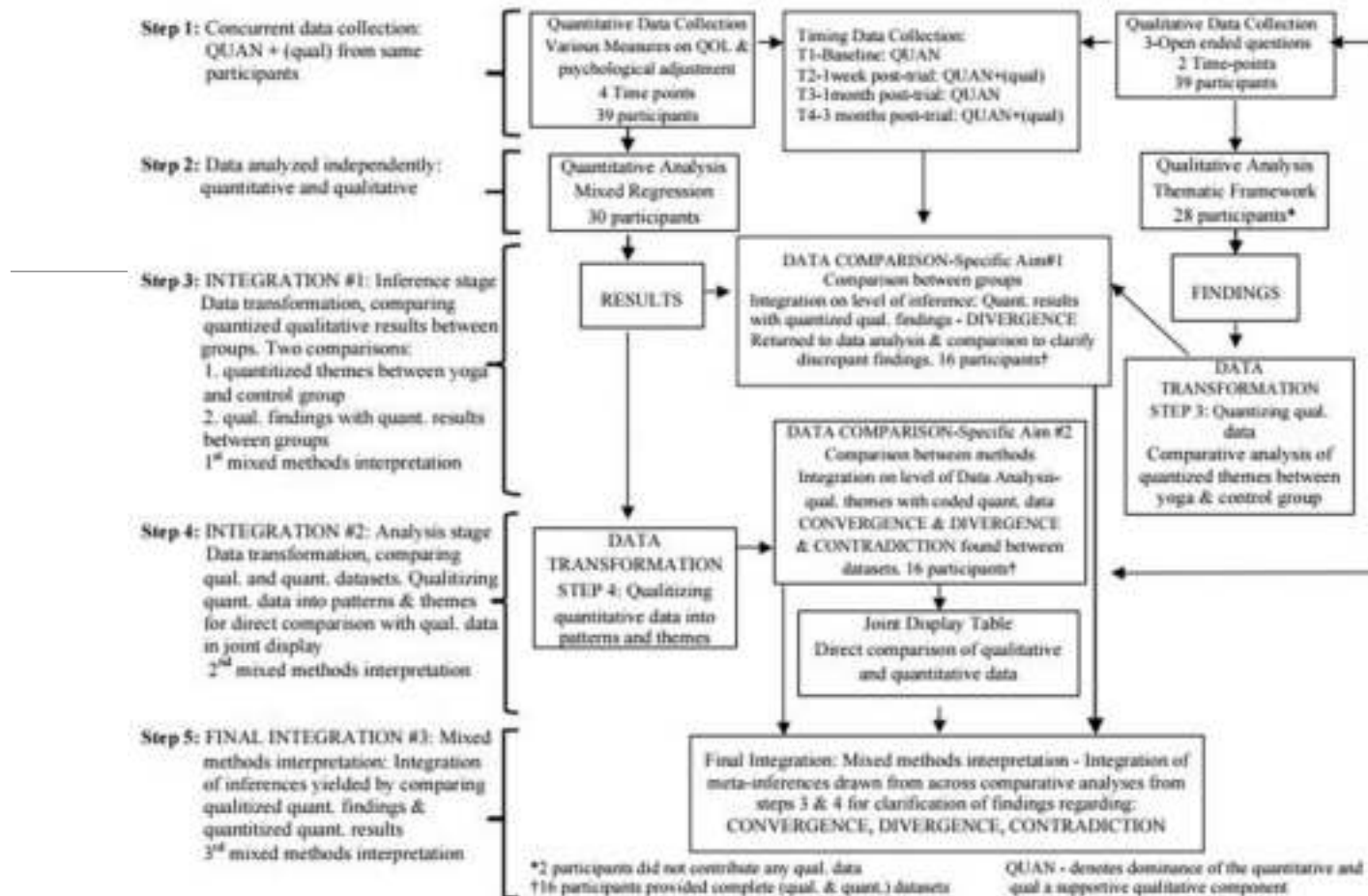


Figure 1. Embedded mixed methods design.

Leal I, Engebretson J, Cohen L, Fernandez-Esquer ME, Lopez G, Wangyal T, Chaoul A. An exploration of the effects of Tibetan yoga on patients' psychological well-being and experience of lymphoma: An experimental embedded mixed methods study. *Journal of mixed methods research*. 2018 Jan;12(1):31-54.

Ingredients for mixing

Mixed method studies require consideration of design elements and integration of design elements not found in either alone (see Aarons et al. 2012)

For *convergence*: need congruence in measures

For *complementarity*, expansion: need each approach to have potential for adding unique information

****Need to consider UP FRONT the degree and the way in which you intend for quantitative and qualitative measures (e.g., surveys, interview guides) overlap or diverge****

Preliminary considerations*

- Philosophy and theory
- Resources (e.g., time, financial resources, skills, team)
- Research problem
- Reasons for using mixed methods

More considerations

- Project timelines, sampling schemes, use of additional methods, analytic plans
 - Plan for the work of integrating findings EARLY, i.e., during the study design process
 - Allow time for integration and/or subsequent data collection phases (*is this reflected in your timeline?*)
 - Enlist the respondents in the reconciliation process (e.g., member checking)
 - Prepare for the possibility that different approaches may produce different or even conflicting results (*how are you going to deal with that?*) (see Wagner et al., 2012)

Integrating methods:
determining the goal of the study and
formulating research objectives

Specific aims example 1

(mix of methods throughout aim and sub-aims)

Using mixed methods, evaluate processes of and variations in care model implementation and effectiveness to strengthen the intervention and to:

- a. assess acceptability of the care model, and barriers and facilitators to its implementation
- b. understand how the project's strategies and tools affect care model implementation
- c. analyze the impact of individual care model components on treatment appropriateness

Specific aims example 2

(separate mixed methods aim)

Primary Implementation Aims

Aim 1. To facilitate implementation of an evidence-based intervention for HIV serodiscordant African American couples (Eban II) in 10 CBOs in California...

Aim 2. Using mixed quantitative and qualitative methods, to document the implementation process and identify barriers and facilitators to adoption, fidelity, and sustainability.

Specific aims example 3

We have designed a novel blended, culturally-congruent, evidence-informed care model, “Healing our Minds and Bodies” (HMB) to address patients’ trauma histories and barriers to care, and to prepare patients to engage in CVD risk reduction. Recognizing the need to ensure that PLWHIV receive CVD guideline-concordant care, we have also identified implementation strategies to prepare providers and clinics for addressing CVD risk among their HIV-positive patients. Therefore, using a hybrid type II effectiveness/implementation study design,¹⁵ the goal of this study is to increase both patient and organizational readiness to address trauma and CVD risk among PLWHIV. The Specific Aims are:

Primary Implementation Aims

- To assess and enhance organizational readiness for addressing trauma and CVD risk among ethnic minority PLWHIV; specifically, a phased approach will drive the use of implementation strategies designed to educate, monitor, and support providers and staff in adhering to CVD care guidelines.
- **Using mixed methods**, to (a) evaluate the use and effectiveness of implementation strategies over time, and (b) identify barriers and facilitators to organizational adoption of guidelines, provider adherence to guidelines, feasibility, and sustainability.

Primary Intervention Effectiveness Aim

- To evaluate the effect of HMB on cognitive-behavioral, emotional, and clinical outcomes among 260 African American and Latino PLWHIV.

Drawing on a multi-framework approach recently articulated by Damschroder and colleagues,¹⁶ we will use the Replicating Effective Programs (REP) framework¹⁷ to guide the use of implementation strategies and the tailoring of the HMB intervention within our participating implementation settings, and the Consolidated Framework for Implementation Research¹⁸ to guide the evaluation analyses.

Integrating methods: the importance of visuals

Do you know
your
constructs?

TCU Program Change Model

Strategic Planning

1. Program needs?
2. Functioning?
3. Organizational change?

Simpson DD. Organizational Readiness for Stage-Based Dynamics of Innovation Implementation. *Research on Social Work Practice*. 2009;19(Sep):541-551.

Adoption & Implementation Process

1. Training

- Relevance
- Accessible
- Accredited

2. Adoption

Decision

- Leadership
- Quality/Utility
- Adaptability

Action

- Capacity
- Satisfaction
- Resistance

3. Implementation

- Effectiveness
- Feasibility
- Sustainability

Motivation

Resources

Staff
Attributes

Program
Climate

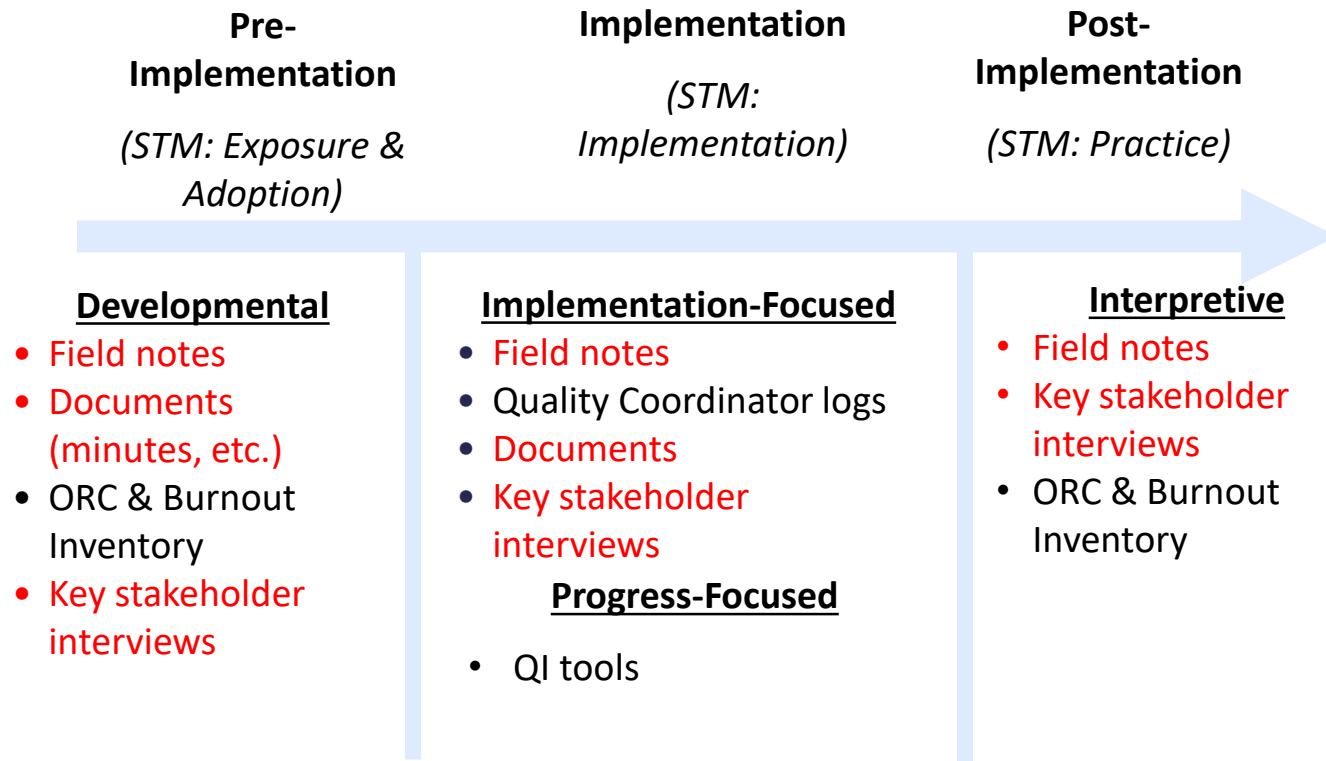
Costs

Organizational Readiness & Functioning

4. Practice Improvement

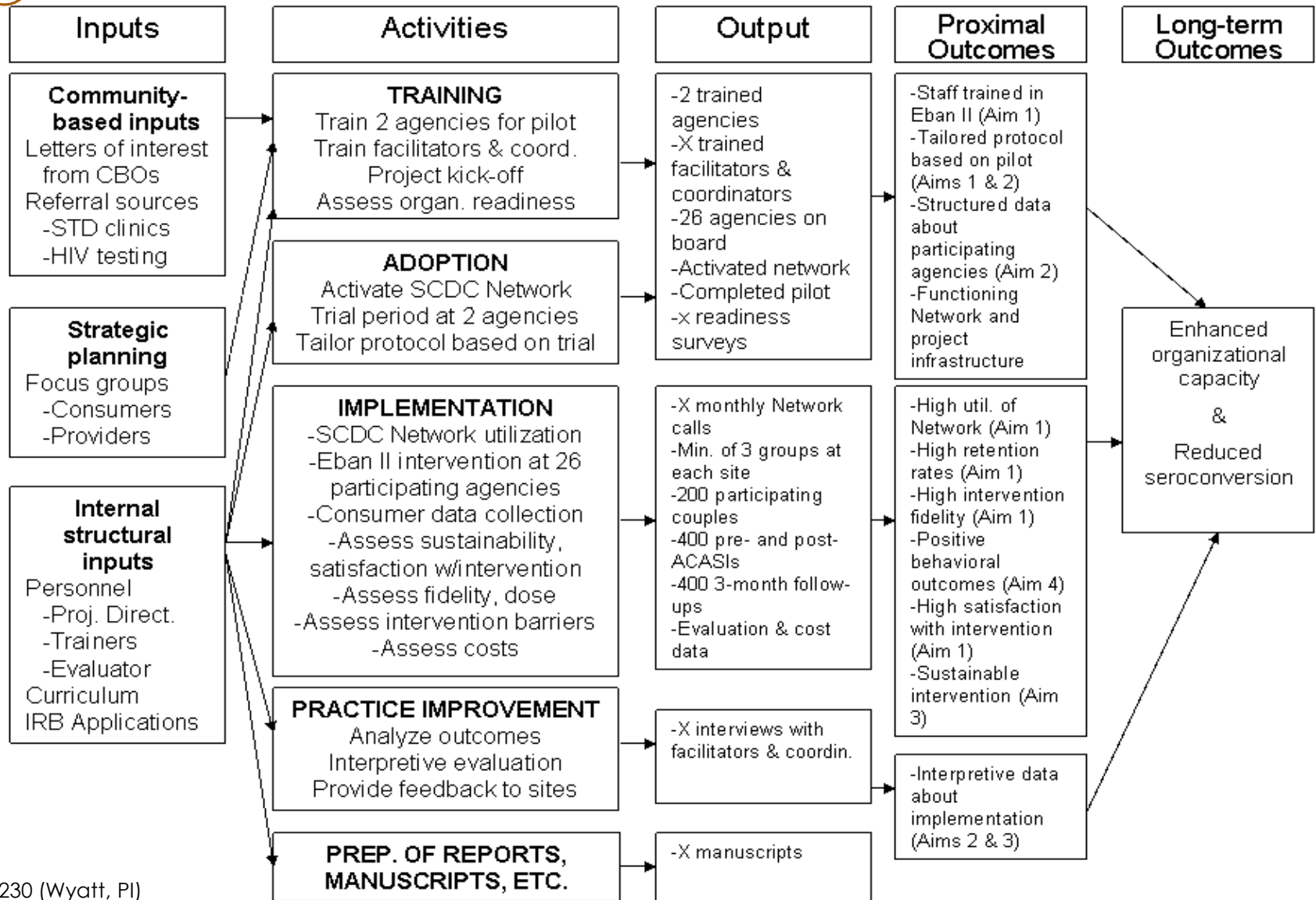
- Outcomes
- Services
- Budget

Lining up the Model with the Methods



Are you
changing
something?

Your mixed methods friend, the logic model (aka "program theory")



MH093230 (Wyatt, PI)

Hamilton AB, Mittman BS, Williams JK, Liu HH, Eccles AM, Hutchinson CS, Wyatt GE. Community-based implementation and effectiveness in a randomized trial of a risk reduction intervention for HIV-serodiscordant couples: study protocol. *Implement Sci.* 2014 Jun 20;9:79.

The logic model (cont.)

Resources/ Inputs	Activities	Outputs	Outcomes	Impact
What do you have available? <u>Possible “resources”:</u> Human Financial Organizational Community	What are you going to do?	What are the DIRECT PRODUCTS of your activities?	What are the SPECIFIC CHANGES that will be achieved? Short-term: within 1-3 years Long-term: within 4-6 years	What is the fundamental “big picture” change you are trying to achieve, in 7-10 years?


 Could have an “assumptions” column here

Integrating Methods:
Selecting your sample(s)
Explaining your design
Linking methods & measures

Selecting your sample(s)

Criterion sampling: purposeful sampling of cases on preconceived criteria (e.g., scores on a measure); intensity sampling

Random purposeful sampling: large pool of cases from which to sample for qual

Stratified purposeful sampling: cases vary on preselected parameters; “informationally representative”

Planning for mixing methods: aims & congruence of measures

Data types	Data source	Sample content
Semi-structured interviews	Clinicians, administrators, patients	Participation, level of implementation, satisfaction
Field notes	VISN coordinators	Group-level dynamics, implementation details
Patient kiosk self-assessments and research assessments	Patients	Demographics, service need and utilization, psychiatric symptoms
Administrative data	Electronic medical record	Visits, treatments
Organizational readiness surveys administrators & staff	Administrators & staff	Organizational climate, readiness for change, burnout
Activity logs	Quality coordinators (RNs)	Time spent by staff on clinical interventions

Planning for mixing methods: Lining up data sources

Table 3. Staff Measures

Domain of Inquiry	Measure	Sample
Background of staff	Staff Survey	All nonclerical staff
Attitudes toward EBPs	Evidence-Based Practices Attitudes Scale	All nonclerical staff
Burnout	Maslach Burnout Inventory	All nonclerical staff
Organizational climate	Survey of Organizational Functioning subscales	All nonclerical staff
Organizational features	Brief admin questionnaire	Agency reports, administrators
Expectations of intervention	Semi-structured interview	Key stakeholders
Daily challenges	Semi-structured interview	Key stakeholders
Barriers & facilitators to implementation	Semi-structured interview	Key stakeholders

Some key take-home points

- Integration is key to credible MMR
- Mixed methods are not always the 'right' option
 - Your questions/aims must necessitate 1+ method
- Integration must be intentional and assumed to be dynamic
 - Mixed methods studies aren't for the faint of heart and benefit from team efforts
- Integration can take place in a lot of different places and involve infinite data and methods combinations
- To be able to integrate and communicate your results, you need to think about integration and communication *from the beginning*
- Models can help you and your team conceptualize, design, execute, and communicate (and they are usually necessary for funding)
- Logic models and tables can help to visualize alignment

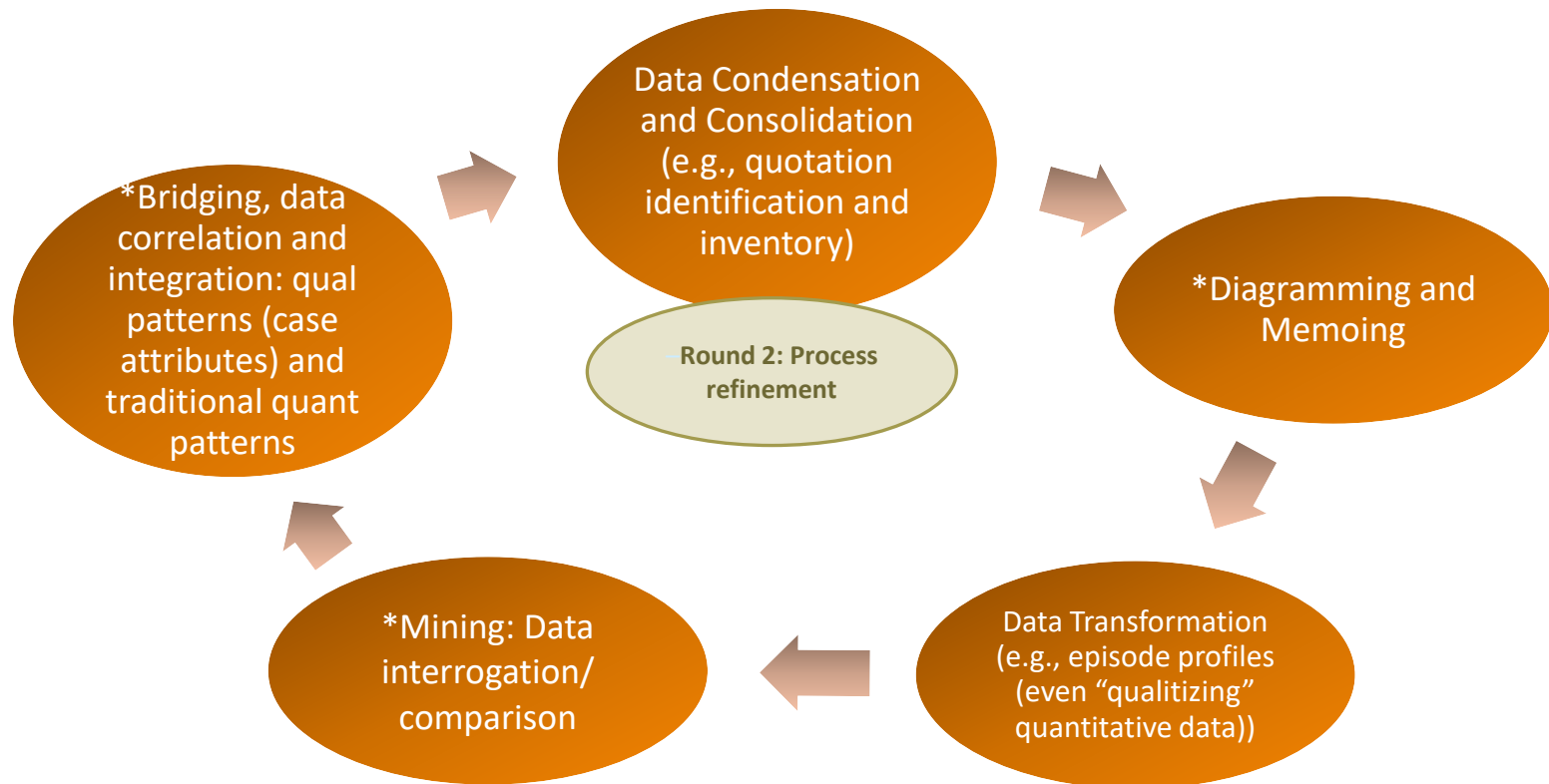
Two considerations

1. Will data sources be used equally or will one be dominant?
 - Depends on the research question, purpose, product
2. How much will data analyses inform one another during data analysis process?
 - Parallel mixed analysis: both sets of analysis occur separately, neither analysis builds on the other, results aren't compared or completed until analysis is completed
 - Sequential mixed analysis: data analyzed in a certain order
 - Concurrent mixed analysis: stages of analysis build on integration of data sets

Seven fundamental steps (Fetters workbook, ch 13)

1. Enter, clean, and address gaps or deficiencies in the data based on a data collection inventory
2. Frame the analysis in accordance with the study purpose
 - Independent data analysis, interactive data analysis
3. Discern patterns in the data
 - Spiraling, finding a common thread, back-and-forth exchanges
4. Use an organizational structuring to summarize initial findings
5. Check for inconsistencies, anomalies, or conflicting findings
6. Organize the findings for dissemination
7. Interpret the findings in writing up the results

Analytic options in a mixed methods study



See Onwuegbuzie & Teddlie 2003

Analytic options in a mixed methods study

Options (nonlinear):

1. Data condensation
2. Data display
3. Data transformation
4. Data correlation
5. Data consolidation
6. Data comparison
7. Data integration

Data condensation (this is where rapid fits in)

Reducing the dimensionality of the qualitative data (e.g., via exploratory thematic analysis, memoing) and quantitative data (e.g., via descriptive statistics, exploratory factor analysis, cluster analysis)

Joint display example: convergent findings

Table 1. Mixed Method Results Demonstrating Convergence of Findings

Method	Quantitative	Qualitative
Question	<i>Does SC implementation increase risk of turnover?</i>	<i>Does SC implementation increase risk of turnover?</i>
Answer	No: Home-based providers in the SC/M condition had a greater likelihood of staying with their agencies for a longer period of time.	No: Many of the providers reported satisfaction with the structure provided by the EBP. No: None of the providers interviewed reported leaving primarily because of their involvement in the EBP effectiveness trial.
Question	<i>Does fidelity monitoring increase risk of turnover?</i>	<i>Does fidelity monitoring increase risk of turnover?</i>
Answer	No: Home-based providers in the SC/M condition and SAU/M condition had a greater likelihood of staying with their agencies for a longer period of time.	No: Many of the providers reported satisfaction with the support they received from monitors.
Question	<i>Is SC implementation + fidelity monitoring associated with greatest risk of turnover?</i>	<i>Is SC implementation + fidelity monitoring associated with greatest risk of turnover?</i>
Answer	No: Home-based providers in the SC/M condition had a greater likelihood of staying with their agencies for a longer period of time.	No: Many of the providers reported satisfaction with the support they received from monitors/consultants.
Question	<i>Does lower perceived job autonomy increase risk of turnover?</i>	<i>Does lower perceived job autonomy increase risk of turnover?</i>
Answer	Yes: Lower perceived job autonomy was associated with turnover.	Yes: Some providers reported intentions to leave due to supervisor micromanagement but this was unrelated to the EBP.
Question	<i>Does higher turnover intention increase risk of turnover?</i>	<i>Does higher turnover intention increase risk of turnover?</i>
Answer	Yes: Higher turnover intention was associated with turnover.	Yes: Some providers who reported intentions to leave during focus groups resigned from their positions within the following year because they felt unsupported by their supervisor.

Note. EBP = evidence-based practice; SC/M = participating in SafeCare and receiving fidelity monitoring; SAU/M = services as usual and receiving fidelity monitoring.

Aarons GA, Fettes DL, Sommerfeld DH, Palinkas LA. Mixed methods for implementation research: application to evidence-based practice implementation and staff turnover in community-based organizations providing child welfare services. *Child Maltreat*. 2012 Feb;17(1):67-79.

Side-by-side data source comparison: Leal et al. (2018)

Table 2. Quantitative and Qualitative Data Collection Instruments.

Conceptual domain	Analytical categories	QUAN data source and time	QUAL data source and time	Corresponding qual content
Both facets of general anxiety: transient state and enduring (trait) presence of anxiety	Changes in current levels of anxiety	Spiegelberg State/Trait Anxiety Inventory (STAI) (T1-T4)	Narrative writings on: feelings about being diagnosed, impact on present and future, and changes in experiences over times collected at end of packet of surveys (T2, T4)	Accounts of experiences and changes in psychological, existential, and physical unease, anxiety, and stress
Affective components of depression	Depressive symptoms	Centers for Epidemiological Studies–Depression (CES-D) (T1-T4)	Narrative writings on: feelings about being diagnosed, impact on present and future, and changes in experiences over times collected at end of packet of surveys (T2, T4)	Descriptions of feelings of loss, sadness, despondency, hopelessness, and loneliness
Quality of sleep	Sleep disturbances and various dimensions of quality of sleep	Pittsburgh Sleep Quality Index (PSQI) (T1-T4)		Reports of problems sleeping and subsequent negative effects
Spiritual well-being	Spiritual well-being as reflected in three subdomains: meaning, peace, and faith	Functional Assessment of Chronic Illness Therapy–Spirituality (FACIT-Sp.) (T1-T4)		Descriptions of spiritual well-being through finding meaning, faith, and connecting with others
Meaning making	Finding benefit in the cancer experience in different domains	Finding Meaning in Cancer Scale (FMCS) (T1-T4)		Accounts of finding meaning and transforming the purpose of life by acceptance of cancer, oneself and others and reevaluating priorities

Note. T1 = baseline; T2 = 1-week postintervention; T3 = 1-month postintervention; T4 = 3-month postintervention.

Leal I, Engebretson J, Cohen L, Fernandez-Esquer ME, Lopez G, Wangyal T, Chaoul A. An exploration of the effects of Tibetan yoga on patients' psychological well-being and experience of lymphoma: An experimental embedded mixed methods study. *Journal of mixed methods research*. 2018 Jan;12(1):31-54.

Template for side-by-side joint display

Theme	Qualitative Interview Findings	Quantitative Results of Survey	Mixed Insights
Theme 1	Descriptive summary, codes, quotes, etc.	Summary of items/concepts related to theme	Summarize meta-inference – could be convergence, divergence, expansion
Theme 2			
Theme 3			
Theme 4			

Template for an explanation joint display

Quantitative Results		Qualitative Results		Mixed Insights
Construct A	Low score on instrument	Theme A Description	Supporting quotes	
	High score on instrument			
Construct B				

Template for statistics-by-themes joint display

Theme	Variable 1	Variable 2	Variable 3
Theme 1	Illustrative quotes Statistical results		
Theme 2			
Theme 3			
Theme 4			

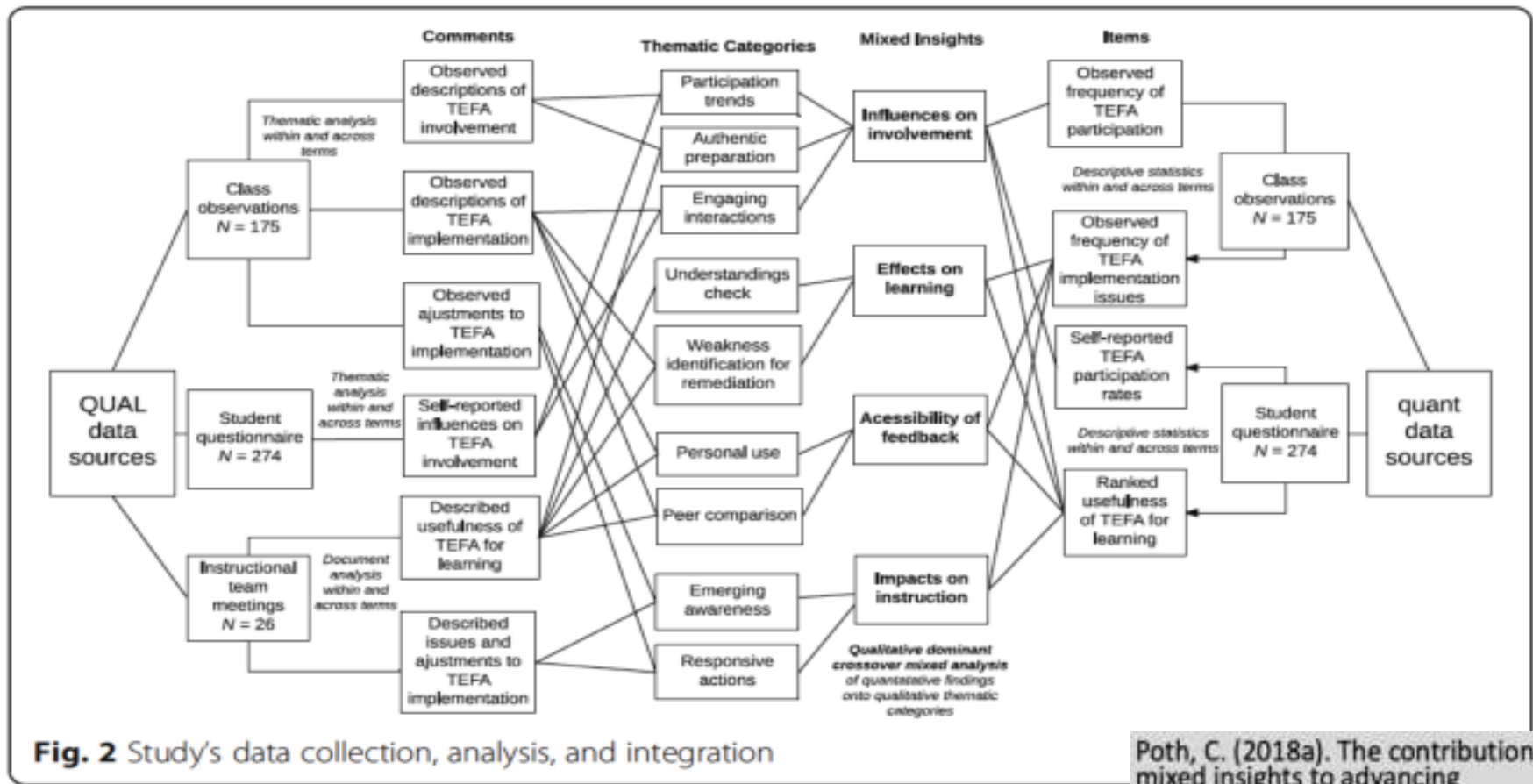
Table 2 Audience response systems joint display

Most Insights	Thematic Categories	% Fall 2013 (n=117)	% Winter 2014 (n=81)	% Fall 2014 (n=76)
Influences on involvement	Participation trends (user purchase rates)	72.6% ¹ High yet decreasing frequency	67.9% ¹ Lower and inconsistent use	75.0% ¹ Higher and consistent use
	Authentic preparation	81.4 "The questions were hard but good practice"	81.1 "made me think about exam items"	86.4 "I learned what questions to expect"
	Engaging interactions [*]	84.4 "It created more interaction"	66.7 "I wish I had more choices"	80.3 "I enjoyed these activities"
Effects on learning	Understanding check	94.4 "Fun way to confirm understanding"	90.0 "I thought I knew more"	97.0 "I was surprised at what I knew"
	Weakness identification for remediation	88.2 "Now I know what I did not know"	76.7 "I need to study more"	92.4 "I know what to study"
Accessibility of feedback	Personal use	94.4 "I like that no one knows my scores"	90.0 "I know quickly if I am right"	97.0 "Getting me right away"
	Peer comparison [*]	85.6 "want to know how class is doing"	68.3 "I know as much as others"	86.4 "I was lagging behind others"
Impact on instruction	Emerging awareness	Cost barrier yet participation independent "I learned as much from watching as if I had used one"	Ongoing resistance to purchase yet more often "I will not pay to participate"	Multiple platforms challenging "more expense needed"
	Response actions	Sought lower cost options & revised lecture content	Offered cost effective alternatives increased frequency of classroom use	Continued to explore options & seek content

Note: ¹ Denotes a statistically significant difference across terms ($p < .05$)

Poth (2018)

Integration both narratively and visually described



Qualitative themes and quantitative results were compared via a **qualitative dominant crossover mixed analysis** (Onwuegbuzie & Hitchcock, 2015). To do this, the case summaries were generated to represent the areas of convergence and divergence highlighted by the basic type of qualitative dominant crossover mixed analysis where the nine qualitative thematic categories were used as the organizational framework on which to integrate the quantitative findings. The integration across three instructional terms and two TEFA strategies revealed **four mixed insights**.

Poth, C. (2018a). The contributions of mixed insights to advancing technology-enhanced formative assessments within higher education learning environments. *International Journal of Educational Technology in Higher Education*, 15(9), 1-19. doi:10.1186/s41239-018-0090-5

Available at <https://educationaltechnologyjournal.springeropen.com/articles/10.1186/s41239-018-0090-5>

Quality checks

- ✓ Brevity, organization & readability
 - ✓ Clear title to indicate what is presented
 - ✓ A description in the text accompanies the display
- ✓ Thorough & useful (e.g., demonstrates integration)
 - ✓ Clearly identifies qualitative and quantitative data and source
 - ✓ Consistent with the stage of integration (e.g., planning, analysis, conclusion)
 - ✓ Consistent with the type of integration: merging, building, explaining
 - ✓ Parallel level of aggregation (e.g., themes to statistics)

Data transformation

Quantitative data are converted into narrative data that can be analyzed qualitatively (i.e., qualitized) and/or qualitative data are converted into numerical codes that can be represented statistically (i.e., quantitized)

- Qualitizing, e.g., narrative profile formation
 - Describe categories, typologies, clusters derived from quant data
- Quantitizing, e.g., presence/absence of theme
 - Reduce data into items, constructs, or variables with only 1 meaning

Data transformation

Qualitative comparative analysis (see De Block & Vis 2019):

- combines quantitative and qualitative research; “hybrid”
- uses Boolean and/or fuzzy-set algebra to treat cases as configurations of causal conditions and an outcome
- analyzes whether a given (combination of) condition(s) stand(s) in a subset or superset relationship to the outcome

Example of Holtrop et al. (2017)

- Thematic analysis would...not reveal how patterns and combinations of conditions might be tied to the outcome of “successful implementation of the registry,” and in what context→qualitative comparative analysis (QCA)
- Reviewed emergent codes, arrived on an initial set of likely explanatory variables (“conditions”), rescaled (“calibrated”) these conditions onto a 0.0 to 1.0 scale
- QCA revealed several formulas to successful registry implementation: importance of Resources and Leadership, Quality Improvement Mindset or a Key Person driving efforts (or both)

Good Reporting of A Mixed Methods Study (GRAMMS)

- (1) Describe the justification for using a mixed methods approach to the research question
- (2) Describe the design in terms of the purpose, priority and sequence of methods
- (3) Describe each method in terms of sampling, data collection and analysis
- (4) Describe where integration has occurred, how it has occurred and who has participated in it
- (5) Describe any limitation of one method associated with the present of the other method
- (6) Describe any insights gained from mixing or integrating methods

Checklist for MMR manuscripts

Table 1. Checklist of Mixed Methods Elements in a Submission for Advancing the Methodology of Mixed Methods Research

Manuscript item	Yes/No		Page number (if necessary, add cover page)
	Yes	No	
Title			
1. Does the title already indicate or subliminally indicate the methodological contribution of the article?	<input type="checkbox"/>	<input type="checkbox"/>	_____
Abstract			
2. Does the abstract include an overall statement indicating methodological findings or issues that will be addressed in the article?	<input type="checkbox"/>	<input type="checkbox"/>	_____
3. Does the abstract include the methodological theoretical contribution of the article in the field (research method research)?	<input type="checkbox"/>	<input type="checkbox"/>	_____
Main body of the article			
4. Does the article use a clear writing style with sufficient headers and sub-headers so that the reader can readily follow the flow and organization?	<input type="checkbox"/>	<input type="checkbox"/>	_____
5. Does the issue in the background paragraphs expand upon the methodological challenge or issue identified in the abstract?	<input type="checkbox"/>	<input type="checkbox"/>	_____
6. Does the background paragraph(s) include the definitions of relevant and relevant mixed methods research to support the methodological aim?	<input type="checkbox"/>	<input type="checkbox"/>	_____
7. Does the background include an explicit methodological aim?	<input type="checkbox"/>	<input type="checkbox"/>	_____
8. Does the body of the article contain a definition of the article's method and methodological goal(s), that will be achieved?	<input type="checkbox"/>	<input type="checkbox"/>	_____
9. In the body of article, are each of the methodological goals identified and addressed parsimoniously in the order specified?	<input type="checkbox"/>	<input type="checkbox"/>	_____
10. Does the article include a strategy to integrate the use of research in the topic, or include a diagram such as a figure or illustration?	<input type="checkbox"/>	<input type="checkbox"/>	_____
11. In the discussion, are the conclusions made in the work cited together so logically support the overarching methodological aim?	<input type="checkbox"/>	<input type="checkbox"/>	_____
12. Does the discussion section include a specific subsection? Contribution to the Field of Mixed Methods Research (that, however, does not include and assume its readers to articulate the article's overall contribution to mixed methods)?	<input type="checkbox"/>	<input type="checkbox"/>	_____
13. Does the article overall include a methodological illustration?	<input type="checkbox"/>	<input type="checkbox"/>	_____
14. Does the discussion section include recommendations for future mixed methods inquiry based on the paper's own contribution to the field?	<input type="checkbox"/>	<input type="checkbox"/>	_____
15. How does the journal fit into the journal's mission? (Journal of Psychological Research)	<input type="checkbox"/>	<input type="checkbox"/>	_____
Additional statements for empirical methodological articles only			
16. Does the background of the article include a statement of both the research question and purpose of the research study separately?	<input type="checkbox"/>	<input type="checkbox"/>	_____
17. Does the description of the methods include sufficient detail about the procedures used and ensure that in a logical order?	<input type="checkbox"/>	<input type="checkbox"/>	_____
18. Does the variables and study's procedural design of the data collection and analysis provide a clear figure?	<input type="checkbox"/>	<input type="checkbox"/>	_____
19. Does the summary include a table matrix to show the data, e.g., with clarity, to illustrate integration and interrelation of the qualitative and quantitative findings?	<input type="checkbox"/>	<input type="checkbox"/>	_____
20. Does the discussion include how the use of research methods approach addresses a growing understanding of the substance being compared to using a conventional approach?	<input type="checkbox"/>	<input type="checkbox"/>	_____

Adapted from Fetters and Molina-Azorin (2015) and Fetters and Molina-Azorin (2018)

Fetters, M. D., & Molina-Azorin, J. F. (2019). A Checklist of Mixed Methods Elements in a Submission for Advancing the Methodology of Mixed Methods Research. *Journal of Mixed Methods Research, 13*(4), 414–423. <https://doi.org/10.1177/1558689819875832>

Presenting mixed methods findings

Consider integration along a continuum of 'intensity'

sprinkling



weaving



fusing



**Lower
intensity**



**Higher
intensity**

How "loudly" are the methods talking to each other?

Inspired by Bazeley, P., & Kemp, L. (2012). Mosaics, Triangles, and DNA Metaphors for integrated analysis in mixed methods research. *Journal of Mixed Methods Research*, 6(1), 55-72.

Hamilton et al. 2013

- Goal: to develop a comprehensive understanding of the utilization and impact of supported employment

Challenges:

- “Discovering” the story
- Analysis
 - e.g., site-specific analyses
 - Where/what to “mix”
 - What gets lost in mixing (what stories can’t you tell?)

Hamilton et al. 2013

We conclude by stressing the importance of mixed methods and a multi-level evaluation that taps into multiple vantage points (Palinkas et al. 2011). Within each site, there were varying knowledge of SE, varying beliefs about competitive employment among patients with schizophrenia, and varying attitudes about what impact the project would and did have on this service. Had we limited our data collection to one strata (e.g., leaders), one time point (e.g., post-implementation), or one type (e.g., quantitative), we would have potentially misunderstood many dynamics and misfired with our implementation strategy at each site. Furthermore, had we relied on qualitative data only, we would not have been able to demonstrate that our QI approach positively impacted receipt of evidence-based care among patients with schizophrenia. By presenting an integrated set of methods and findings (O’Cathain, Murphy, and Nicholl 2008), we hope to have contributed to the growing emphasis in implementation science (Yano et al. 2012) on elucidating the intricacies of multilevel implementation studies.

Aarons et al. 2016

Mixed-Methods Integration

We followed recommendations for mixed-methods research designed to integrate qualitative and quantitative method philosophies, designs, strategies, analytic approaches, and interpretations (Aarons et al. [2012a](#); Greene [2006](#); Johnson et al. [2007](#); Tashakkori and Teddlie [2003](#)). Mixed-methods research is increasingly being recognized as critical for studies of innovation implementation in health and human service settings (Demakis et al. [2000](#); Greenhalgh et al. [2010](#); Palinkas et al. [2011](#); Soh et al. [2011](#); Stetler et al. [2006](#)). As such, we utilize two mixed-methods functions of convergence (i.e., determine whether the two methods support or provide corroboration across methods) and expansion (i.e., the degree to which one method provides new or additional insights into a given phenomenon or concern)."

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Table 7 Mixed method results demonstrating expansion of findings

Method	Quantitative	Qualitative
Question	<i>Is leadership similar across levels?</i>	<i>How does leadership differ across levels?</i>
Answer	In the outer context, decision makers could provide funding, policies, and support In the inner context, leaders role modeled, provided vision for the EBI, engaged staff in the EBI, and problem-solved	In the outer context, leaders set the stage by creating policies and supporting funding, and creating the necessary collaborations for sustainment In the inner context, leaders worked with day-to-day exigencies of engaging and supporting providers in delivering the EBI
Question	<i>What aspects of outer context leadership are related to sustainment?</i>	<i>What additional aspects of outer context leadership are evident in sustainment?</i>
Answer	Leadership Competence included a number of actions including: establish mission and vision, early planning for sustainment, continued planning for sustainment, developing and followed a realistic project plan, and using multiple strategies for project survival	Outer context leadership for sustainment was characterized as supportive, perseverant, and valuing EBIs and SC Outer context leadership took steps to institutionalize SC in the system through funding, system improvement plans, and proactive planning

Example: clear presentation, unique contribution



Table 1. Data Sources and Measures for the Advancing Care Together (ACT) Evaluation

Research Question	Primary Data Type	Description of Data	Data Collection Process
How do the ACT practices make the changes required to integrate care for patients?	Documents	Documents include grant applications, reports to TCEB, E-mail communications, innovative presentations, and documents from innovators (scheduling templates, educational materials).	Documents are collected throughout the study period and during observation visits. The Program Office and grantees share documents freely.
What factors enable and impede efforts to integrate care for patients, with particular attention to teamwork, information exchange, and shared decision making?	Online diaries	Members from each innovation team report their implementation experiences biweekly via an online journal that is shared with other members of their team and the evaluation team.	The evaluation team identified 5 to 7 people on each practice team, including practice managers, to post diary entries. Each team has a private online diary room. Diary keepers were asked to post every 2 weeks. Evaluators interact with diary keepers to encourage posting.
	Observation visits	Two-day visits with each innovation site to observe care delivery.	During visits, 2 to 3 evaluators observed the care delivery process by shadowing clinicians, clinical support staff, and nonclinical support staff. This included observing huddles and other team meetings.
	Interviews	Informal and semistructured interviews are conducted with the innovators, clinic members, and eventually patients.	The evaluation team has informal discussions with innovators during meetings convened by the Program Office. In addition, we conduct semistructured interviews with 8 to 10 practice members during observation visits.
	Survey	A survey was completed by each innovation team to collect information about each organization (eg, ownership, staffing patterns, turnover, paid characteristics).	The evaluation team distributed surveys to one person at each ACT innovation site who worked with members of the practice to complete the information. Information was returned to us and data reviewed. Questions were clarified with teams as needed.

**Clear, concise
description of data
sources & data
collection process**

**Unique contribution of
mixed methods**



The mixed-methods case comparison design we use in the ACT evaluation allows us to observe nuances across diverse practices and illustrate the dynamic ways practices integrate evidenced-based integration strategies. These early findings would be obscured in traditional study designs. In ACT, we couple real-time qualitative data collection (through diaries, interviews, observation visits) to understand how implementation occurs and quantitative methods (through data tracking) to assess impact. Rigorous comparative case studies that employ a repeated time series design to assess outcomes may be better aligned with the goal of informing subsequent dissemination or scale-up efforts than RCTs.^{4,57-60}

Example: clear presentation, unique contribution

TABLE 2: Sequence of data collection.

Time 1 (baseline)		Time 2 (18 months later)	
14 agencies		13 agencies	
Qualitative data		Qualitative data	
Observations		Observations	
24 hours at each agency		At least 8 hours at each agency	
Semistructured interviews		Semistructured interviews	
Direct service providers	(n = 110)	Direct service providers	(n = 93)
Support staff	(n = 41)	Support staff	(n = 30)
Upper level administrators	(n = 39)	Upper level administrators	(n = 27)
		Quantitative data	
		Attitudes towards evidence-based practices	(n = 34)
		Transformational leadership	(n = 38)
		Demoralizing climate	(n = 38)

Clear, concise description of sequence of MM data collection

Created instrumental case studies

Through this analysis, we identified four agencies that best illustrated each of the profiles and exemplified the patterns manifest across the entire dataset. These four agencies served as instrumental case studies providing insight and context into conditions that promoted or hindered EBP implementation [24]. The interviews and observation notes from the remaining agencies were then reexamined to ensure that conclusions from the case studies could be generalized across sites. Table 3 summarizes agency characteristics.

According to the Consolidated Framework for Implementation Research, the three major components that predict an organization's readiness for implementation are leadership engagement, availability of resources, and access to information and knowledge. We used multiple methods to examine how these three factors shaped organizational climate and prepared providers for the implementation of new practices in publicly funded agencies in NM. Our mixed-method approach used quantitative data to examine and validate our qualitatively derived organizational typology. In keeping with previous studies [14, 30, 31] and our qualitative findings, the survey results suggested that the presence of strong leadership and adequate financial resources affect provider attitudes toward EBPs and facilitate implementation of these innovations.

Draws on framework, clear description of how they mixed qual and quant

Thank you!

