EvalForward
Evaluation for Food Security, Agriculture & Rural Development

How are mixed methods used in programme and project evaluation?

Summary of the EvalForward discussion

SEPTEMBER/OCTOBER 2023

Jean Providence Nzabonimpa started a discussion on EvalForward aimed at gathering experience and lessons on the real-life use of mixed methods in evaluation. He drafted this summary based on the 27 contributions received, a selection of publications and reports shared by participants, and his own methodological reflections. The full discussion is available at: www.evalforward.org/discussions/mixed-methods

Contents

1. Overview of mixed methods

Programme or project evaluations do not happen in a vacuum. They are surrounded by and conducted within the specific human, social, cultural, economic, political, and environmental context of the evaluand. These contextual aspects can profoundly influence evaluation and its design and methods, hence mixed methods in specific evaluations. The merits of mixed methods are widely recognized, even in quantitative methodological circles: "impact evaluations conducted in isolation from other sources of information are vulnerable in terms of both their technical quality and their policy relevance" (Gertler *et al.,* 2016).

Most contributors to the discussion agreed that the use of mixed methods was an approach to collecting and analysing data, integrating findings, and drawing inferences using both quantitative and qualitative methods in a single study (Tashakkori and Creswell, 2007). According to Greene, Caracelli and Graham (1989), the mixed-methods repertoire of tools has increased dramatically, along with recommendations for its use. One participant (Gordon Wanzare) underscored the complicated nature of the evaluand, highlighting the complexity of unknowns. In addition to the dictates of evaluation questions, other contributors (Margrieth Nazarit Cortés) acknowledged the influence of the evaluator's academic and professional background as a factor driving the use (and misuse) of mixed methods in evaluation. Mixed methods bridge such a gap by facilitating researcher or evaluator triangulation, rarely mentioned in evaluation. A "number cruncher", for instance, should ideally work with a qualitative researcher to complement each other, to combine mutual strengths to offset gaps in their academic training or professional practice, not to mention their worldviews. Anecdotally, this appears to be a given, but in practice, it seems to be lacking in mixed-methods evaluation.

2. Purpose and rationale for using mixed methods in evaluation

Against this backdrop, how do evaluators justify their use of mixed methods? The framework for the integrated design and implementation of qualitative and quantitative methods was lacking in both the discussions and the examples shared by contributors. Most contributors focused on the purpose and rationale of mixed methods in evaluation rather than focusing on real-life conduct of such evaluation.

The rationale for the used of mixed methods is not in question:

A good plumber uses several tools as and when necessary, and doesn't ask what type of plumbing requires only one tool. (Olivier Cossée)

Most contributors recognized the added value of mixed methods in evaluation. However, most focused on data triangulation rather than evaluator or researcher, theory or methodological triangulation, overlooking the fact that the mixed-methods approach is used for other purposes. For example, Greene, Caracelli and Graham (1989) identifies five purposes for using mixed methods: triangulation, complementarity, development, initiation, and expansion. Each purpose calls for specific mixed-methods design and implementation. One contributor (Margrieth Nazarit Cortés) reiterated the typologies of triangulation and added environmental and interdisciplinary triangulation, which somewhat replicated evaluator triangulation. As reflected in the discussions, **one of the overarching purposes of mixed methods, misused in evaluation, is *triangulation***. By using different methods to measure different concepts, or aspects of the same concept, we achieve different outcomes (Morgan, 2019), rarely the same. In this case, there is no triangulation, but convergence in a convergent parallel design where equal priority is accorded to both methodological strands (Nzabonimpa, 2018). Note that sometimes divergence is, and can be, achieved. Some mixed-methods scholars – and in many, but not all, instances I agree with them (Nzabonimpa, 2018) – have listed various reasons to rid mixed methods of the term "triangulation" (Fetters and Molina-Azorin, 2017; Morgan, 2019). It is overused and misused where other mixed methods purposes are appropriate.

Contributors agreed that mixed methods were a powerful methodological approach to undertaking evaluation from multiple angles. They underscored that qualitative indicators in addition to quantitative ones, when combined in a single intervention, called for mixed methods. At the same time, some contributors (Cristian Maneiro) also labelled mixed methods a cliché, irrelevantly used without genuine and sound interrogation of its merits and demerits in various evaluative contexts. One contributor opined: "*All evaluation questions can be answered using a mixed-method approach*" (Jackie Avila) and another one (Vicente Planta) added that in his experience *"a mix of qualitative (first, to explore the reality) and quantitative (to deduce trends and magnitude)"* of events or change proved to be absolutely vital.

Furthermore, optimal decision-making requires evidence from various sources:

"I like what happens in the medical field, in hospitals, where, except in some emergency situations, a patient will go through triage, clinical assessment and historical review by the doctor, laboratory examination, radiology, etc., then the doctor triangulates these information sources to arrive at a diagnosis, prognosis and treatment/management plan." (Gordon Wanzare)

Evaluators are not short of cases illustrating the rationale of using mixed methods. One contributor (Lal Manavado) discussed the construction of a bridge, intended to enable the residents of an island to drive to work in a town on the mainland. It was hoped that the tolls from this commute would cover the building and running expenses of the bridge. When the bridge was completed, the islanders used it to move off the island and settle near their workplaces, using their old homes as summer houses. The planners did not envisage the islanders relocating to the mainland.

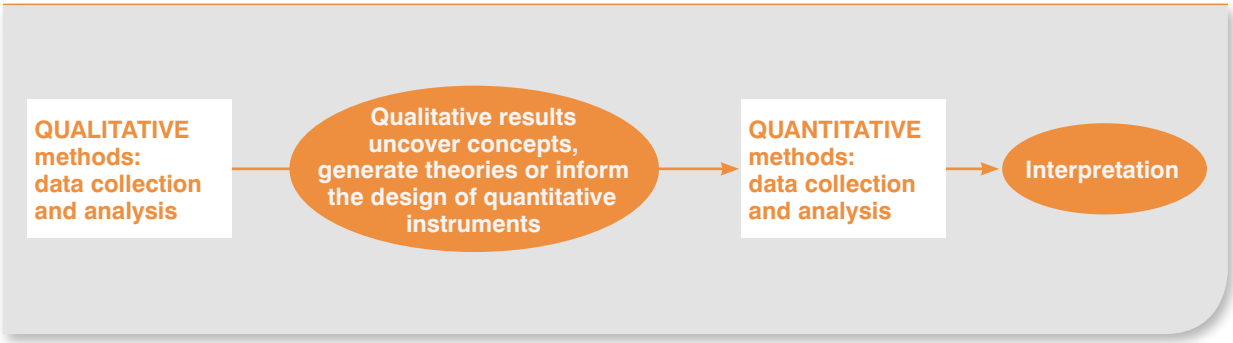
3. Mixed-methods evaluation designs

In the rich and insightful exchanges among evaluation practitioners, it is worth noting one omission undermining mixed methods in both theory and practice: **there was no mention of the epistemological, ontological, axiological or methodological underpinnings of mixed methods** (possibly a topic for another discussion). While reiterating that the use of mixed methods was a cliché, in a discussion aimed at uncovering actual mixed-method practices, one contributor did not mince his words:

"Applying mixed methods in evaluations is easier said than done. The main challenge is misaligned expectations and/or understanding of mixed methods between commissioners of evaluations and those assigned to conduct evaluations." (Joseph Toindepi)

Informed by the context, the nature of the evaluand and, possibly, the evaluation questions, some evaluators find themselves required to use mixed methods in evaluation with unclear reasons for doing so. Three common mixed-method designs were mentioned and are depicted below:

Figure 1. **The exploratory mixed-method design**



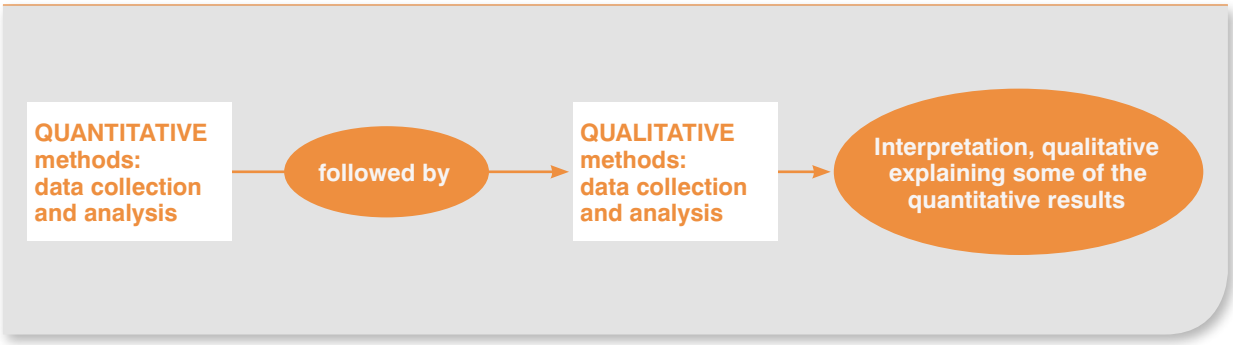
Source: Adapted from Creswell and Plano Clark, 2011

In accordance with existing typologies of mixed methods, a few contributors stated that qualitative work must precede quantitative measurement. They argued that no one can measure what they do not know and understand, hence the prerequisite qualitative understanding of the object of measurement. Qualitative methods are, therefore, an entry point to developing quantitative measurements. In the words of Denzin (2012), this design is justified: the "meaning of an event cannot be given in advance of experience" and qualitative methods help uncover experience.

"It makes no sense to quantify something without first qualifying it. If my wife visits a furniture shop and texts me: 'Honey, I found this marvellous thing for the kitchen, it costs USD 500 and it's 2 metres long and 1.5 metres wide. Do you agree?' I wouldn't know what to answer, because in spite of all the numbers she has given me, I have no idea what she is talking about, qualitatively. Does she mean a table, a cupboard or a carpet?". (Olivier Cossée)

Gertler et al. (2016) also argue for an estimation of the effects of reforms before they are implemented to help focus core impact evaluation questions, provide context and generate hypotheses before conducting a quantitative survey.

Figure 2. **The explanatory mixed-methods design**



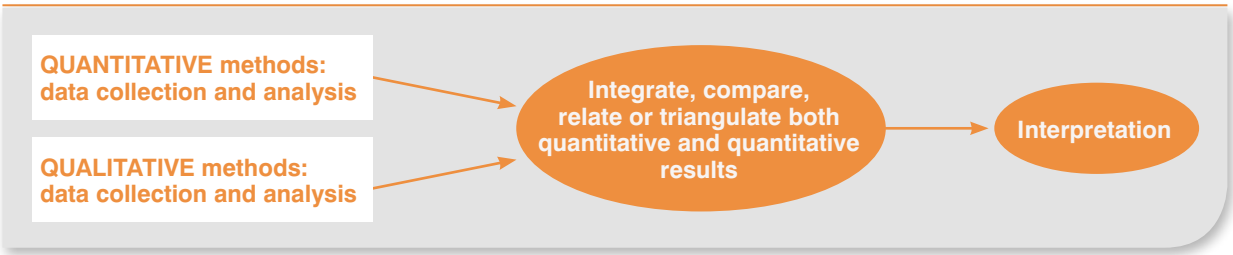
Source: Adapted from Creswell and Plano Clark, 2011

Unlike the exploratory mixed-method design, a couple of discussants indicated, after probing, that quantitative methods might be used, to a lesser extent, and precede qualitative methods to make sense of counterintuitive findings – in other words, explanatory mixed-methods design. Quantitative methods might add value by identifying outliers or specific respondents to be interviewed. The quantitative component prevails over the qualitative component.

"When you want to measure equity and equality, quantitative methods should prevail and be supported by qualitative methods to gain insights into the whys, and in case unexpected results were found or observed." (Malika Bounfour)

Gertler *et al.*, (2016) rightly suggests that qualitative methods can be used to interpret and explain the results of impact evaluations.

Figure 3. **The convergent parallel mixed-methods design**



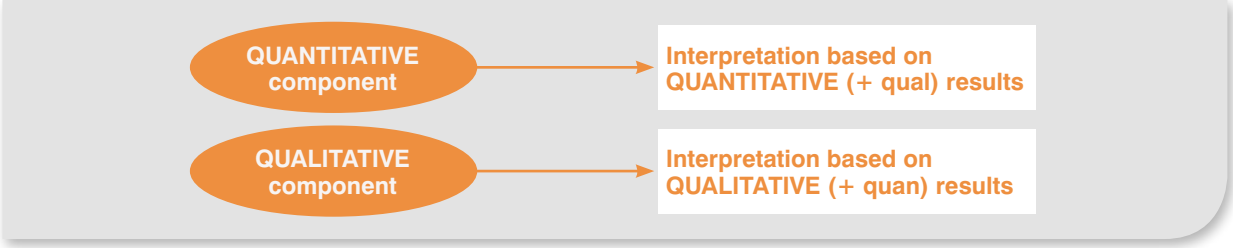
Source: Adapted from Creswell and Plano Clark, 2011

In convergent parallel mixed-methods evaluation design, both qualitative and quantitative methods take place simultaneously and in parallel, with both methodological strands assigned equal weight. According to Jackie Yiptong Avila, data are collected concurrently, as there is one deadline to meet and one report to submit. When well designed and implemented, data which are analysed separately, have their results integrated and interpreted together to draw inference or conclusions. Two contributions shared links to published evaluation reports where mixed methods were used. An example of mixed-methods evaluation where authors matched data-collection methods with evaluation questions was also shared.

There are other typologies of mixed-methods design that were not mentioned in the discussion. These include, but are not limited to, embedded, transformative and multiphase designs, as depicted below.

The embedded mixed-methods design: The priority component is complemented by secondary data and results from the less prioritized component, which depends on the main component to be meaningful. The quantitative may be designed as the main component with the qualitative embedded in it, and vice versa.

Figure 4: **The embedded mixed-methods design**



Source: Adapted from Creswell and Plano Clark, 2011

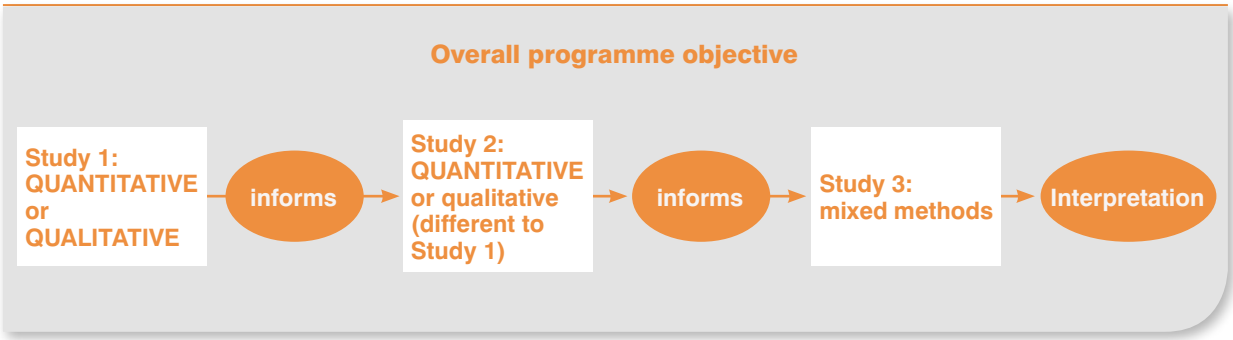
The transformative mixed-method design: This design uses other features of mixed methods, such as level of interaction, timing and mixing. Feminist and social justice researchers and evaluators may opt for this mixed-method design.

Figure 5. **The transformative mixed-methods design (not different from the explanatory design)**

Source: Adapted from Creswell and Plano Clark, 2011

The multiphase mixed-methods design: This design is an amalgamation of sequential and convergent mixed-methods designs, and it is designed for implementation over a period of time. This is somehow comparable to time-series or longitudinal research design.

Figure 6. **The multiphase mixed-method design (may combine explanatory and exploratory designs)**



Source: Adapted from Creswell and Plano Clark, 2011

Some of the key considerations in determining the type of mixed-methods design, which did not emerge clearly during the discussion, are (i) the level of interaction – both QUANTITATIVE and QUANTITATIVE being independent of or interacting with each other, (ii) weighting both strands – equally, QUANTITATIVE as priority, or QUALITATIVE as priority; (iii) the timing – whether both QUANTITATIVE and QUALITATIVE strands are concurrent, sequential (the most mentioned in the discussion) or in multiphase combination; and (iv) where, how and what to mix – whether during the design, data collection, data analysis and interpretation (Creswell and Plan Clark, 2011).

In alignment with others' concerns, Emilia Bretan said the current mixing of quantitative and qualitative methods was reductionist. This is considered logical and plausible in view of existing evidence. In mixed methods literature, 1+1 should equal 3 when QUANTITATIVE and QUALITATIVE are fully integrated (Fetters and Freshwater, 2015). In line with systems theory, the whole (that is, mixed methods) should be greater than the sum of its parts (that is, qualitative + quantitative methods) (Fetters and Freshwater, 2015). Another piece of evidence shows that qualitative data can be quantitized and quantitative data qualitized, as in Nzabonimpa (2018), thus blurring the traditional dichotomic categories and allowing both induction and deduction.

What 'mixed methods' means is combining approaches that can bring robustness to your design, different perspectives, angles to look at the same object. (Emilia Bretan)

Other types of qualitative data, such as pictures, maps, videos and so forth, were not mentioned, confining qualitative methods to interviews and focus-group discussions (FGDs). In other ambiguous instances, mixed-methods evaluation was equated to using more than one method, regardless of its paradigmatic origin. Another contributor, (Maria Pia Cebrian), shared a **"mixed-methods" publication** from a doctoral dissertation in Spanish, which was largely quantitative, using univariate, bivariate and multivariate analyses. This publication did not mention how document review was used and how the results thereof were integrated into the main quantitative methodological strand.

Gaps and strengths in mixed-methods design: In one contribution, (Jackie Yiptong Avila) literature or document review was categorized under "other", rather than being considered a qualitative to a greater extent, and a quantitative, to a lesser extent, method of data collection. Food for thought for evaluators who might incorrectly think document review is only qualitative. Few contributions discussed the embedded, multiphase, or transformative mixed-method designs. At the design stage, a question was raised: **who, between the evaluation commissioner and the evaluator, decides on or guides towards the best design and methods to achieve evaluation objectives and answer evaluation questions?** With monitoring and evaluation plans or terms of reference predetermined, evaluators often find themselves presented with a *fait accompli.* They respond to requests for proposals or design evaluations to prove their competence and skills to identify the best fit for the evaluation at hand, eventually agreeing with the commissioner the most promising and feasible evaluation design and methods. Unsound mixed-methods designs lead to what Gordon Wanzare termed "*data constipation*", silos that make no sense and do not chime.

In some other cases, as mentioned, triangulation as claimed by many contributors cannot be achieved as "*a non-independent, sequential mixed-methods strategy loses the capacity for triangulation. In this strategy, the methods are deliberately interactive, not independent, and they are applied singly over time so that they may or may not be measuring the same phenomenon*" (Green and McClintock, 1985, in Greene, Caracelli, and Graham, 1989). There is some methodological confusion of triangulation with other purposes of mixed methods, such as complementarity. In the case of the latter, mixed methods are used to measure overlaps, but also for different aspects of a concept, to elaborate, enhance or illustrate the results from the other (Greene, Caracelli and Graham, 1989).

The strengths of mixed methods in evaluation have been the advocacy for and recognition that such an approach provides a better and fuller picture of what works or needs to be improved in achieving programmatic outcomes and impact. One of the best mixed-methods examples is *A Mixed Method Evaluation in Action: Combining a Randomized Controlled Trial with an Ethnographic Study in India* (Gertler *et al.,* 2016). This example is inspirational, methodologically.

Sampling in mixed methods: For each methodological strand, a sample is drawn probabilistically for the quantitative methods and purposively for the qualitative methods. Some statements may perpetuate misconceptions that undermine correct sampling in mixed-method evaluation:

There is no correct or universally recognized method for calculating a sample size for purposeful sampling, whereas in quantitative surveys, there are formulas to determine the sample size with the desired reliability level of the estimates. (Jackie Avila)

The sample size is determined based on the evaluation objectives to be achieved and questions to be answered (for example, generalizability, validity and so on for quantitative methods; credibility, trustworthiness, confirmability and so on for qualitative methods – where each methodological strand is considered separately from the other). Also, the logistical and financial resources available influence sampling and sample size. Note that there are provisions for and typologies of integrated, mixed-method sampling (Onwuegbuzie and Collins, 2007) and it is the researcher and evaluator's responsibility to determine the best fit for each evaluation context.

However, instances of mixed-methods sampling in the discussion were confined to standalone probability and non-probability sampling strategies. Jacqueline Yiptong Avila provided a link to a great resource when it comes to sampling. The webpage is rich, but mixed-methods sampling is not catered for. Of course, mixed methods can fall back on probability or non-probability sampling or both (preferred), but it was not clear how to sample for mixed-methods evaluation.

4. Mixed-method data collection

Mixed-method data collection was linked to the survey questionnaire as the main instrument for collecting quantitative data, and interviews and FGDs for collecting qualitative data. These two sets of data-collection methods were mentioned as if they were the only methods available in the evaluator's repertoire. Evidence was provided as to why FGDs were used in one evaluation: survey results showed the proportion of farmers reporting that they could not buy expensive fertilizers, as well as the geographical scope of the issue, while qualitative interviews revealed why and how farmers could not afford fertilizers (Jackie Yiptong Avila). The absence of why, when, what, how, from whom and where mixed-methods data were collected leaves the reader with no clarity nor guidance on the nature and design of the mixed methods, whether sequential, concurrent and so forth.

5. Mixed-method data analysis

In most cases, data analyses are performed separately, while others bring data analysis from either methodological strand to corroborate trends or results emanating from the other component. One "mixed-method" article mentioned several analyses: univariate, bivariate and multivariate analyses, as well as surveys with open and closed questions, review and analysis of secondary data sources, and in-depth interviews. The article is a good example of how selective or biased researchers or evaluators can be according to their academic background. The article is largely quantitative, with no mention of how qualitative data were processed. Jacqueline Yiptong Avila exemplified how data were analysed separately in the concurrent mixed-method design, using statistical techniques such as descriptives and inferential analyses, including weighting the quantitative data, while content and thematic analyses were used for the qualitative data. But how? While evaluating a rural youth entrepreneurship development programme, Gordon Wanzare used social network analysis followed by in-depth interviews.

Not many instances of data analysis were shared. This confirms existing evidence that few evaluations perform integrated data analyses – a gap to fill (Greene, Caracelli and Graham, 1989). Apart from a few examples, most of the contributions are more theoretical and hypothetical than practical, lived experiences. Real-life, practical hints and tricks on how mixed-method data analyses are conducted remained scarce – apart from one. In India, according to Gertler *et al.* (2016), a Randomised Control Trial (RCT) found no significant impact and an ethnographic study conducted for two years after the end of the RCT identified less tangible, unexpected impacts and negative factors that affected the intervention. Other positive impacts were found: improved dispute resolution for service delivery, greater women's participation in village development activities, and better functional village governments in target communities (Gertler *et al.,* 2016).

6. Mixed-methods results discussion

Approaching the finishing line, data are analysed and the results are prepared. What next? How do evaluators interpret and discuss the results? Jacqueline Yiptong Avila rightly stated that results can be cross-referenced using results from the qualitative component, such as a document review or any other method used. The same contributor further showed that a finding from the qualitative component will be accompanied by the quantitative data from the survey. Acknowledging that qualitative and quantitative methods are implemented independently and data analysed separately, this publication shows how the results of both methods are converged and interpreted together to draw conclusions. Qualitative observations, views and opinions of the programme's targeted and reached populations are used to understand why certain results have or have not been achieved (Gertler *et al.,* 2016).

7. Mixed-method evaluation reporting

The evaluation design and methods mirror the quality of the report. But how? This may raise concerns about the lack of integrated mixed-methods reporting.

8. Innovations or alternatives to mixed methods

Innovations or alternatives to mixed methods mentioned by contributors include qualitative causal inference as an approach to proving cause and effect, either looking to the past or into the future (John Hoven). Gordon Wanzare rightly stated that being complexity aware does not mean using an array of methods; beyond traditional FGDs and key informant interviews, evaluators should embrace and leverage Big Data analysis, machine learning, and so on.

9. Concluding remarks

Mixed-methods evaluation is here to stay. On the one hand, there are innovative and revolutionary tools, including Big Data and small data, artificial intelligence, and machine learning, which have started to dictate how to gather, process and display data. On the other, there are methodological gaps to fill, and evaluators have a role to play in ensuring that mixed-methods evaluation is not merely mentioned, but used appropriately in both theory and practice. With this summary, it is hoped that mixed-methods evaluation practitioners will draw some lessons and learn some tricks to design mixed-methods evaluations accordingly.

Stay tuned and happy (re-)reading!