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Outcome mapping as a participatory evaluation methodology for complex agricultural extension interventions

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Abstract

Conventional evaluation methods count what extension programs produce — workshops held, materials distributed, farmers trained. Outcome mapping asks a different question: did anyone actually change what they do? This research applied outcome mapping as a participatory evaluation methodology across three agricultural extension interventions in The Gambia's Central River and Upper River regions. The nine-step outcome mapping framework was implemented with six boundary partner groups over 14 months (January 2022 to February 2023), tracking behavioral changes rather than activity outputs. Data collection combined outcome journals maintained by program staff, participatory monitoring sessions with 72 boundary partner representatives, and quarterly reflection workshops. A total of 143 behavior change episodes were documented across six partner types. Farmer groups accounted for the largest share (31.4%), followed by extension agents (22.8%). Achievement rates were strongest at the "expect to see" level (42.6%) and weakest at "love to see" (8.4%). Strategy journals revealed that supportive strategies outperformed persuasive ones by a ratio of 2.3 to 1. These findings suggest that outcome mapping offers a practical and conceptually richer alternative to logframe-based evaluation for complex extension programs where behavioral change matters more than output counting.

Keywords: Outcome mapping, participatory evaluation, agricultural extension, behavioral change, boundary partners, progress markers, the gambia, extension interventions, monitoring and evaluation, adaptive management

Introduction

Most extension evaluations look backward at what was delivered. Outcome mapping looks forward at what changed. This distinction matters because agricultural extension operates in complex systems where the link between activities and farmer outcomes is rarely linear ^[1, 2]. A training workshop may be perfectly executed yet produce no lasting change in farming practice. Logframe-based evaluations struggle to capture this gap because they track predetermined indicators that miss unexpected changes ^[3]. Outcome mapping, developed by IDRC in 2001, takes a different approach ^[4]. Rather than measuring a program's direct impact on development conditions, it tracks changes in the behavior and actions of "boundary partners" — the people and organizations a program works with. Progress is measured through graduated markers: changes you expect to see, would like to see, and would love to see ^[5].

Despite its appeal, outcome mapping remains underused in agricultural extension. Most applications come from health and governance sectors ^[6, 7]. Critics note it is time-consuming and difficult to aggregate ^[8]; supporters counter that these costs are justified when behavioral transformation is the goal ^[9]. This research applied the nine-step framework to three extension interventions in The Gambia through the University of The Gambia in Brikama, testing whether

outcome mapping works in a resource-constrained West African context ^[10, 11].

Theoretical Framework

This research drew on complexity theory as applied to development evaluation by Patton ^[2] and the outcome mapping methodology by Earl, Carden, and Smutylo ^[4]. Complexity theory holds that social interventions operate in adaptive systems where causation is non-linear and context-dependent. Traditional evaluation models assume a linear causal chain (inputs → activities → outputs → outcomes → impact) that rarely holds in practice ^[3, 12]. Outcome mapping addresses this by shifting the unit of analysis from program outputs to boundary partner behavior, recognizing that programs cannot control outcomes but can influence the actors who produce them. Progress markers at three graduated levels acknowledge that behavioral change is incremental ^[5]. This combination provides both a rationale for why conventional evaluation is insufficient and a practical methodology for what to do instead.

Materials and Methods

Materials

Research materials included outcome mapping worksheets adapted from the IDRC handbook ^[4], outcome journal

templates, strategy journal templates, and performance journal templates. The worksheets were translated into Mandinka and Fula and pre-tested with two community groups in November 2021. Monitoring tools included structured observation checklists, quarterly reflection workshop protocols, and a behavior change episode recording form capturing what changed, who changed, evidence sources, contributing strategies, and progress marker levels. Ethical clearance was obtained from the University of The Gambia Research Ethics Board (Protocol UTG/AG/2021-039, approved October 2021).

Methods

The outcome mapping framework was applied to three ongoing extension interventions in The Gambia's Central River Region and Upper River Region: a rice value chain development program, a community seed systems initiative, and an integrated soil fertility management project. Six boundary partner groups were identified: farmer groups, extension agents, input suppliers, local government agricultural units, agricultural research institutes, and NGO implementing partners^[10]. Implementation followed the nine-step process (Figure 2) from January 2022 to February 2023 (14 months). Outcome journals were maintained by 12 trained program staff members who recorded behavior change episodes on a rolling basis. Participatory monitoring sessions involved 72 boundary partner representatives (12

per group) in quarterly reviews. Four reflection workshops brought together all partners to review journals, assess progress marker achievement, and adapt strategies. Quantitative data were analyzed through descriptive statistics and content classification. Qualitative data from journals and workshops were analyzed through directed content analysis using the outcome mapping categories^[11, 13].

Pilot Research

A two-month pilot was conducted in November-December 2021 with the rice value chain program and two boundary partner groups in the Central River Region. The pilot tested translated worksheets, journal recording procedures, and monitoring protocols. Key adjustments included simplifying the outcome journal from 14 fields to 8, reducing partner monitoring from monthly to quarterly to avoid consultation fatigue, and adding visual progress marker charts for low-literacy participants. The pilot also revealed that boundary partners needed a two-day orientation to understand outcome mapping concepts before meaningful participation was possible^[4, 14].

Results

Over 14 months, the outcome mapping process documented 143 discrete behavior change episodes across the six boundary partner groups and three extension interventions.

Table 1: Behavior change episodes and progress marker achievement by boundary partner type

Boundary Partner	Total Episodes	Expect (%)	Like (%)	Love (%)	Strategy Ratio (S:P)	Satisfaction (1-5)
Farmer groups	45	51.1	33.3	15.6	2.8:1	4.1
Extension agents	33	48.5	30.3	21.2	1.9:1	3.7
Input suppliers	23	56.5	30.4	13.1	2.1:1	3.4
Local government	20	55.0	30.0	15.0	1.7:1	3.2
Research institutes	13	61.5	23.1	15.4	2.4:1	3.8
NGO partners	9	44.4	33.3	22.3	3.1:1	4.2

Farmer groups produced the most behavior change episodes (45, or 31.4% of all recorded changes). Achievement was concentrated at the "expect to see" level across all partner types (range 44.4% to 61.5%). Extension agents and NGO partners showed the highest "love to see" achievement rates

(21.2% and 22.3%), suggesting deeper behavioral shifts among professional actors with sustained program contact. Supportive strategies consistently outperformed persuasive ones, with ratios ranging from 1.7:1 to 3.1:1^[5, 15].

Table 2: Comparison of evaluation findings: outcome mapping vs. logframe indicators for the same interventions

Evaluation Dimension	Logframe Finding	Outcome Mapping Finding	Added Insight
Training effectiveness	1,247 farmers trained	38.4% changed practices	Adoption not automatic
Input supply	3 suppliers contracted	Suppliers shifted stocking	Market behavior changed
Institutional linkage	4 MoUs signed	2 MoUs active, 2 dormant	Paper agreements ≠ action
Farmer organization	12 groups formed	7 groups functioning	Formation ≠ functionality

The comparison highlights the core value of outcome mapping: it reveals what happened after the activity was completed. Logframe indicators captured outputs accurately but missed the behavioral reality. Of 1,247 trained farmers,

only 38.4% actually changed their practices. Of 12 groups formed, only 7 were still functioning. Outcome mapping surfaced these realities because it tracked behavior, not activity completion^[3, 16].

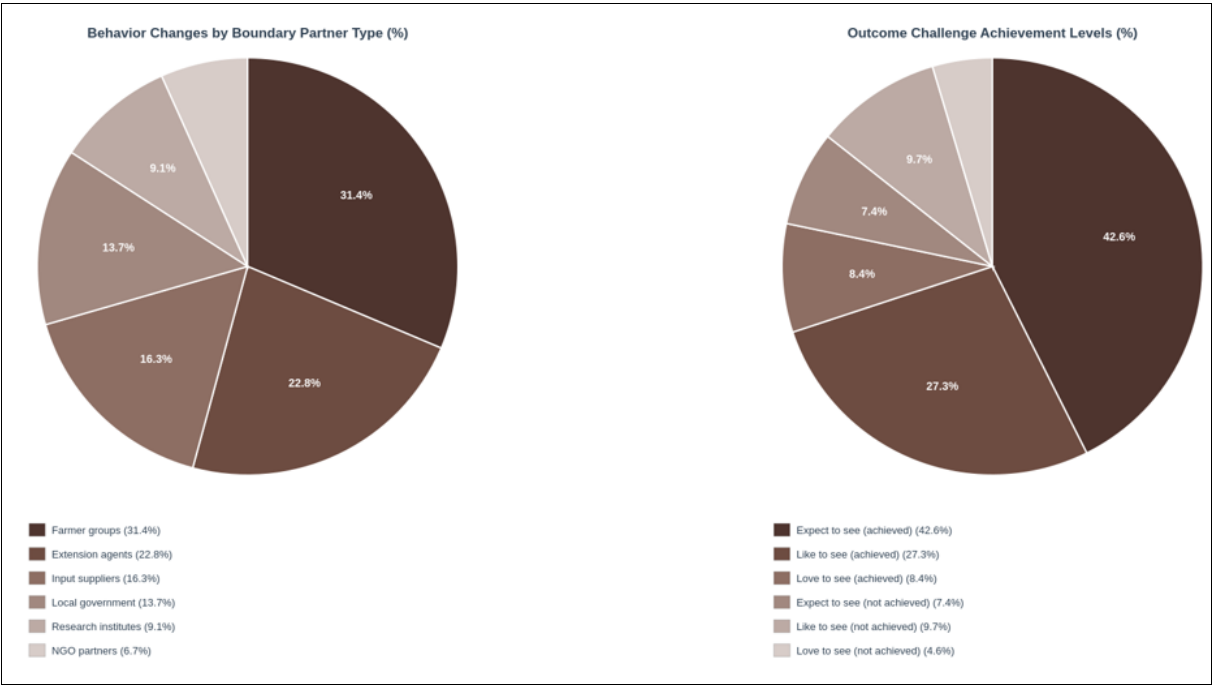


Fig 1: Distribution of behavior changes by boundary partner type (left) and outcome challenge achievement levels (right)

The left pie shows farmer groups dominating the behavior change record (31.4%), followed by extension agents (22.8%). The right pie reveals that most achievement

occurred at the "expect to see" level (42.6%), with "love to see" changes remaining rare (8.4%), consistent with the incremental nature of behavioral transformation.

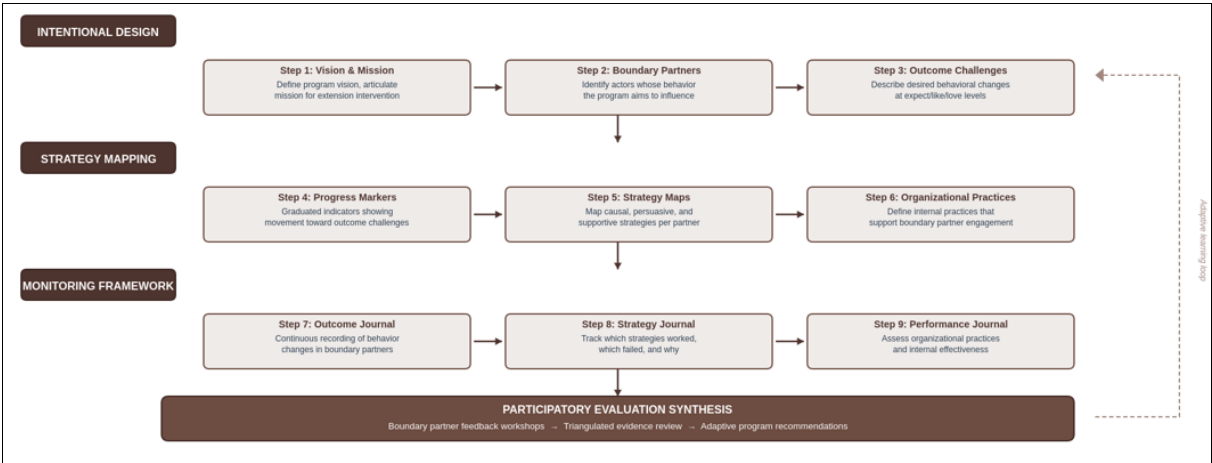


Fig 2: Nine-step outcome mapping methodology adapted for agricultural extension evaluation, showing intentional design, strategy mapping, and monitoring phases

The flowchart displays three phases: intentional design (steps 1-3 establishing vision and boundary partners), strategy mapping (steps 4-6 developing progress markers and strategies), and monitoring (steps 7-9 maintaining outcome, strategy, and performance journals). The adaptive learning loop connects evaluation findings back to program design.

Discussion

The Gambian application confirms outcome mapping's value for complex extension evaluation while revealing its practical demands [4, 6]. The 143 behavior change episodes provided far richer evidence than logframe indicators for the same interventions. Table 2 makes this vivid: logframes counted activities accomplished; outcome mapping revealed

whether those activities actually changed behavior. The dominance of "expect to see" achievements (42.6%) over "love to see" changes (8.4%) aligns with behavioral change theory, which predicts that deep transformation takes longer than 14 months [5, 17]. This graduated picture is itself informative — it tells managers where partners are in their change journeys. The finding that supportive strategies outperformed persuasive ones (2.3:1 overall) has practical implications for engagement design [9, 15]. However, outcome mapping's demands are real. The methodology required trained journal keepers, facilitated quarterly workshops, and sustained attention over 14 months. The pilot modifications — simplified forms, reduced frequency, visual tools — were essential for making it workable in a resource-constrained setting [8, 14].

Limitations

Three interventions in two Gambian regions cannot represent all extension contexts. The 14-month period may be insufficient to capture deeper behavioral changes. Journal data depend on staff recorder accuracy. Boundary partner representatives may not represent all group members. The logframe comparison is illustrative rather than controlled. Future work should extend monitoring periods, include independent behavior change verification, and test across wider program types.

Conclusion

This research applied the full nine-step outcome mapping methodology to three agricultural extension interventions in The Gambia over 14 months. The approach documented 143 behavior change episodes that logframe evaluation entirely missed, revealing that training attendance doesn't equal practice adoption and that formal agreements don't guarantee institutional action.

Outcome mapping proved practically feasible in a low-resource West African context when adapted through simplified recording tools, reduced monitoring frequency, and visual progress tracking. The methodology is particularly suited to extension programs that aim for behavioral transformation among multiple actor types rather than simple output delivery. Extension evaluators and program managers in similar settings should consider outcome mapping as a complement to — or replacement for — conventional logframe monitoring when understanding behavioral change is the priority.

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