

Enhancing Disaster Relief Efficiency: Integrating the Model for Collaborative Evaluations as a Tool for Quality Management Practices

¹Liliana Rodríguez-Campos and ²Anh Tran

¹Department of Educational and Psychological Studies, University of South Florida, USA

²Office of Decision Support, University of South Florida, USA

Abstract

This study explores the integration of the Model for Collaborative Evaluations (MCE) as a tool for quality management practices to enhance the effectiveness of disaster relief organizations. Drawing from existing literature and practical scenarios, the paper presents a framework demonstrating how the alignment of collaborative evaluation with systematic quality tools promotes stakeholder engagement, operational transparency, and adaptive responsiveness. Specifically, it illustrates how the six interactive components of the MCE (Identify the Situation, Clarify the Expectations, Establish a Collective Commitment, Ensure Open Communication, Encourage Effective Practices, and Follow Specific Guidelines) can be strategically adapted to disaster contexts to guide evaluation design, implementation, and use. The MCE bridges theoretical principles and practical applications, offering a structured yet holistic strategy for continuous improvement in humanitarian settings. This integration strengthens the evaluator's ability to assess the evaluand jointly with selected collaboration members (CMs), fostering collective ownership of findings and actions. Key recommendations are provided to guide organizations in implementing this integrated approach for improved relief outcomes.

Keywords: Collaborative Evaluation, Quality Management, Disaster Relief, Stakeholder Engagement

INTRODUCTION

Disaster relief operations demand rapid, coordinated responses under complex and uncertain conditions. However, organizations often face challenges in communication, resource management, and responsiveness. Despite advances in logistics and technology, many relief efforts still suffer from inefficiencies that limit their effectiveness. To address these concerns, this paper proposes that the Model for Collaborative Evaluations (MCE) can be used as a tool for quality management. While collaborative evaluation promotes thoughtful decision-making and shared accountability, quality management practices offer tools for systematic monitoring and continuous improvement. Integrating these approaches provides a pathway for enhancing both the process and outcomes of disaster interventions.

Global emergencies such as the COVID-19 pandemic, major hurricanes, and earthquakes have illuminated the shortcomings in coordination and responsiveness among relief agencies. These crises demonstrate the urgent need for evaluation models that are not only systematic but also collaborative. Ein, Plouffe, and Liu (2023) highlighted how frontline responders often experience operational and psychological stressors during disasters, reinforcing the need for structured yet adaptive frameworks. Without timely stakeholder feedback and adaptable frameworks, relief efforts risk

inefficiency, misallocation of resources, and erosion of public trust. Thus, the integration of collaborative and quality-based approaches addresses both the operational and ethical dimensions of disaster response. This paper showcases the MCE as a guiding framework to ensure stakeholder involvement at every phase of disaster intervention.

LITERATURE REVIEW

The MCE, conceptualized by Rodríguez-Campos and Rincones-Gómez, is rooted in principles of shared responsibility, open communication, and mutual respect (see Figure 1).

This work further elaborates the operational dimensions of power-sharing in collaborative contexts (Rodríguez-Campos & Rincones-Gómez, 2023). Its six components offer a comprehensive blueprint for collaborative evaluation: Identify the Situation, Clarify the Expectations, Establish a Collective Commitment, Ensure Open Communication, Encourage Effective Practices, and Follow Specific Guidelines.

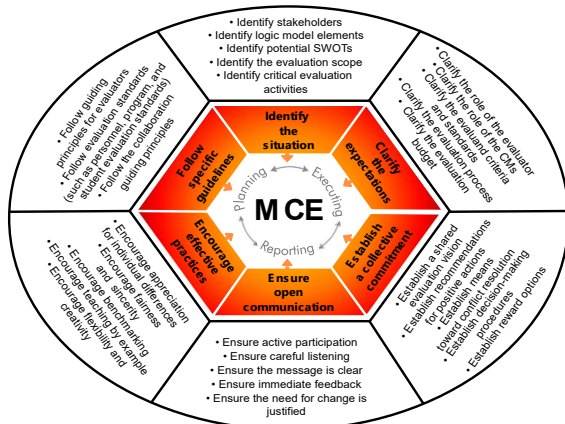


Figure 1. The Model for Collaborative Evaluations. Reprinted from Collaborative Evaluations Step-by-Step (p. 14), by L. Rodríguez-Campos & R. Rincones-Gómez (2nd ed.), 2013, Stanford, CA: Stanford University Press. Copyright 2013 by Liliana Rodríguez-Campos and Rigoberto Rincones-Gómez. Reprinted with permission.

Each component includes subcomponents, such as “Clarify the Role of the Evaluator” and “Establish a Shared Evaluation Vision,” which are essential when designing disaster-focused evaluations. Parallely, quality management systems (QMS), particularly those based on ISO 9001, emphasize customer focus, evidence-based decisions, and continual improvement. Similar principles are echoed in project management guidelines; for instance, the Project Management Institute (2017) outlines quality management standards that stress planning, assurance, and control, reinforcing alignment between evaluation and execution. Common quality tools include the Plan-Do-Check-Act (PDCA) cycle for iterative improvement, SWOT analysis for strategic assessment, and Pareto charts for identifying key problem areas.

Both the collaborative evaluation framework and quality management practices have demonstrated success in sectors such as healthcare and education (Fetterman et al., 2018; Ma et al., 2022). However, their integration within disaster relief remains underexplored. Recent studies point toward recurring gaps in aid distribution and stakeholder alignment that a combined approach might address. Baidoo (2018), for example, notes persistent procedural inefficiencies in humanitarian coordination efforts, suggesting that more engagement is crucial for continuous learning during crisis operations.

Collaborative evaluation leverages digital facilitation tools to enable remote and real-time stakeholder engagement. Studies by Chen et al. (2021) and Thomas and Jang (2020) have shown that integrating virtual collaboration platforms (such as shared online

dashboards or communication apps) can substantially increase transparency, involvement, and the speed of evaluative feedback during emergency responses. This aligns with broader trends in the humanitarian sector to use ICT (information and communication technology) for coordination. Additionally, applying collaborative evaluation in disaster contexts resonates with the emphasis on culturally responsive evaluation, as highlighted by Frierson, Hood, and Hughes (2010). Incorporating local cultural contexts and values into the evaluation process has been found to enhance the utility and balance of evaluations, ensuring that relief efforts are sensitive to the affected communities’ norms and needs.

The foundational emphasis of the MCE on shared engagement also mirrors a shift toward networked governance models in emergency management. Scholars like Bryson, Crosby, and Bloomberg (2014) observe that effective disaster response increasingly relies on multi-sector networks and inter-agency collaboration, rather than isolated hierarchical control. A collaborative evaluation framework naturally complements this trend by structuring how diverse stakeholders (government agencies, NGOs, community groups, etc.) can jointly assess and improve their collective action. In a similar vein, Nolt and Callahan (2023) propose blending evaluation with agile project management practices to support adaptive cycles crucial for fast-changing crisis scenarios. Agile methods, which emphasize iterative planning and flexibility, align well with the real-time learning orientation of the MCE. Together, these insights from the literature suggest that integrating collaborative evaluation with quality management is not only conceptually coherent but also responsive to contemporary trends in disaster relief management. By bridging stakeholder involvement with rigorous quality tools, the integrated approach proposes a more resilient and responsive disaster relief system.

The MCE, particularly its first component “Identify the Situation”, incorporates essential elements from project management that are highly applicable to quality management practices. This includes tools such as the Work Breakdown Structure (WBS), network diagrams, and milestone charts, which are used to schedule, sequence, and allocate evaluation activities. These practices offer clear parallels to project planning and contingency design and are already embedded in the MCE as described by Rodríguez-Campos and Rincones-Gómez (2013). For example, the use of critical path analysis and slack time management during the evaluation planning phase allows CMs to anticipate delays and adjust resource allocation proactively.

While more specialized evaluation frameworks can be created for quality management, the MCE stands out as a comprehensive and versatile tool. Its embedded logic of structured planning, stakeholder coordination, and adaptive response makes it especially well-suited for deployment across various sectors, including humanitarian emergencies.

METHODOLOGY

Given the conceptual nature of this study and the absence of proprietary field data, a scenario based on documented disaster response cases and relevant literature was developed to illustrate the application of the MCE. The scenario envisions a severe hurricane striking a mid-sized coastal city, triggering a multi-agency relief operation. Stakeholders in this scenario include local nonprofits and community groups, municipal emergency management authorities, national and international aid organizations, healthcare providers, and the affected residents. Each stakeholder group brings different resources, expertise, and priorities to the response effort.

Within this simulated case, the MCE guides stakeholder engagement and joint goal-setting from the outset. In practice, this means all key parties engage in an initial evaluation planning session to identify the situation (e.g., the hurricane's impacts and urgent needs) and clarify expectations (e.g., what successful relief should look like, such as restoration of services within certain timeframes or balanced distribution of aid). Through facilitated dialogue, they establish a collective commitment to a shared relief mission and agree on roles, thus operationalizing the first three components of MCE. Throughout the response, an emphasis is placed on open communication: regular briefings and cross-sector meetings are scheduled (even virtually, using a shared online platform) to ensure transparency in decision-making.

Quality management tools are employed in the collaborative effort to introduce systematic monitoring and improvement cycles into the relief operation. For instance, a cause-and-effect diagram (Ishikawa "fishbone" diagram) is adapted from project management guides (Project Management Institute, 2017) to brainstorm potential causes of logistical bottlenecks in delivering supplies. Similarly, a set of key performance indicators (KPIs), such as average emergency shelter setup time and number of people served per day, is established, and a simple dashboard is created to track these metrics in real time. The Plan-Do-Check-Act (PDCA) cycle underpins this process: Plan by identifying needs and setting targets (informed by the collaborative planning sessions), Do by implementing relief activities, Check by using the KPIs and feedback from field teams to assess progress daily, and Act by

adjusting operations to address any shortfalls or inefficiencies identified.

The methodology follows a constructivist evaluation paradigm, recognizing that in a complex disaster environment, stakeholders' perceptions and learning are crucial to shaping an effective response. To simulate continuous learning, the scenario includes periodic "after-action review" meetings every few days of the response. In these reviews, frontline workers, volunteers, and community representatives share observations about what is working and what is not. Their input is treated as evaluative data. For example, if community feedback indicates that certain neighborhoods are not receiving timely aid, the collaboration team (evaluators and key stakeholders) flags this as a critical issue. A quality tool like a Pareto chart might then be used to identify the most common causes of delay (e.g., impassable roads, miscommunication, or insufficient vehicles). This information feeds back into decision-making: the logistics coordinators and community liaisons convene (often facilitated by the collaborative evaluator) to develop a targeted solution, such as re-routing deliveries or reallocating trucks to the affected area.

Throughout the response in this scenario, iterative learning loops are established. Surveys and quick interviews provide continual feedback from both aid recipients and field personnel. These loops ensure that the evaluation is not a one-time event, but a real-time co-evaluation process embedded in the operation. The evaluator role in this scenario is one of a facilitator and data synthesizer: compiling input from various sources, maintaining the shared dashboard of performance metrics, and reminding the group of the agreed quality standards and objectives. The combined application of MCE and quality management is exemplified in the scenario through decisions that are made collaboratively and supported by data. For instance, when an indicator such as "average wait time for medical attention" starts to trend above the acceptable threshold, it triggers an immediate joint problem-solving session among medical teams and coordinators, rather than waiting for a post-disaster evaluation report. In sum, the methodology demonstrates a fusion of collaborative evaluation with continuous improvement techniques in a realistic disaster setting, highlighting how this integration can foster agility and accountability even in a high-pressure context.

Theoretical and Practical Contributions

The integration of collaborative evaluation with quality management yields several noteworthy contributions to both theory and practice. Theoretically, it demonstrates the compatibility of stakeholder involvement evaluation models with systems-oriented management frameworks in dynamic environments. Humanitarian

operations evaluations have typically been retrospective, assessing outcomes and extracting lessons after interventions.

By reframing evaluation as a forward-looking, real-time process that informs decisions during an intervention, this integrated model challenges the conventional theory of change in disaster management. It posits that evaluation need not be a final accountability exercise but can be an ongoing learning mechanism woven into management cycles. This contributes to evaluation theory by expanding the understanding of utilization-focused evaluation in urgent contexts: when stakeholders co-create evaluative criteria and continuously interpret data together, evaluation transcends its summative role and becomes part of the intervention itself.

The MCE suggests a concept of "real-time co-evaluation," where the distinction between implementation and evaluation becomes less clear, resulting in a management approach enriched with feedback. This idea aligns with systems theory perspectives in which disaster relief operations are viewed as learning ecosystems capable of self-correction (Senge, 2006). By embedding collaborative evaluation processes, the relief system can adapt to disturbances or inefficiencies as a living system would adjust to maintain equilibrium.

Methodologically, the paper offers a novel framework for conducting evaluations in fast-paced, high-stakes environments. It integrates qualitative, collaborative techniques with quantitative performance management tools, showing how these can complement each other. The MCE's emphasis on interactive dialogue and shared interpretation of findings provides the contextual intelligence often missing in purely metrics-driven management, while the rigor of quality tools provides evidence and structure that collaborative discussions might otherwise lack. This approach ensures that improvements are data-informed but value-driven, balancing what the numbers say with what people on the ground experience. Moreover, adopting elements of agile methodology (as suggested by Nolt & Callahan, 2023) within the evaluation framework introduces a cycle of hypothesis testing and rapid adjustment that is relatively new to traditional evaluation designs. This can influence how future evaluations in emergency management are structured, encouraging designs that are more iterative and adaptive.

Another significant contribution is the concept of decentralized decision-making based on collaborative evaluation. In practice, this means field teams and local stakeholders gain a degree of empowerment to interpret data and suggest course

corrections without always waiting for top-down directives. The framework thereby extends empowerment evaluation principles (Fetterman et al., 2018) into the realm of quality management. Trust is a crucial theoretical element here: by building a process where all relevant parties see the same data (through shared dashboards) and contribute to the analysis, the model inherently increases trust in the findings and recommendations. Brunelle et al. (2024) suggest that using digital trust mechanisms, such as verifiable data and transparent criteria, can improve collaboration in disaster response.

The MCE operationalizes this by ensuring everyone involved in the relief operation has access to the evaluation information and understands how decisions are derived from it. In summary, the contribution lies in merging collaborative and continuous improvement paradigms to reconceptualize disaster evaluation as a collaborative and trust-building process. The methodological contribution details the implementation of the process, using specific tools, roles, and sequences that are systematic yet adaptable to disaster scenarios.

RECOMMENDATIONS

Translating the MCE framework into practice requires structured planning, stakeholder engagement, and sustained organizational commitment. Based on literature insights and scenario-based analysis, several actionable strategies emerge.

First, disaster relief organizations should initiate collaborative planning processes early in the response cycle. Early-stage collaboration helps define mutual expectations, clarify service benchmarks, and prevent misalignment between aid delivery and local needs (Telford & Cosgrave, 2007). The initial steps of the MCE process, identifying the situation and clarifying expectations, provide essential foundational safeguards. Explicit role delineation among agencies, as emphasized by Rodríguez-Campos and Rincones-Gómez (2015), facilitates efficient coordination and reduces duplication during critical response phases.

Second, embedding real-time feedback loops supports continuous learning and adaptation. Techniques such as community surveys, mobile check-ins, and debriefs enable rapid identification of emerging challenges. These mechanisms should be framed as collaborative learning opportunities rather than performance audits, fostering psychological safety and engagement (Edmondson & Lei, 2014). Integrating feedback through shared digital hubs and designating facilitators to synthesize findings promotes timely responsiveness. Third, capacity-building efforts must familiarize both responders and community stakeholders with the principles of collaborative evaluation and continuous

quality improvement. Training in tools such as the PDCA cycle, collaborative data interpretation, and scenario-based simulations cultivates a culture of reflective practice (Preskill & Boyle, 2008). Evaluation becomes a sustained organizational habit when embedded in operational norms, supported by accessible materials and holistic learning processes.

Fourth, the use of visual tools, such as logic models, causal diagrams, and system maps, can improve shared understanding among various stakeholders. These tools highlight interdependencies and facilitate comprehensive planning, assisting teams in identifying both technical and process-based areas for improvement (Senge, 2006).

Fifth, leveraging digital platforms enables shared access to performance data, spatial information, and coordination documents. GIS and dashboard tools enhance transparency, while cloud-based systems support real-time collaboration, even in resource-constrained environments (Ramasubramanian & Milyaeva, 2020). Digital tools should augment human interaction, serving as aids for informed discussion rather than substitutes for engagement.

Sixth, organizations should implement scenario-based simulations that incorporate evaluation processes alongside operational drills. Embedding collaborative reflection into these exercises allows teams to develop adaptive skills and integrate evaluation into real-time decision-making (Nolt & Callahan, 2023).

Finally, establishing institutional partnerships and long-term support mechanisms is critical for sustainability. Collaborations with academic institutions, interagency networks, and knowledge brokers can institutionalize the framework, ensuring that lessons learned inform future responses (Ward, House, & Hamer, 2009; King & Stevahn, 2013). Embedding MCE and quality protocols into standard operating procedures can transform evaluation from a project-based activity into a systemic norm. Together, these recommendations provide a practical roadmap for embedding the integrated framework into disaster response practice. They enable organizations to evolve from reactive service delivery toward a proactive and learning-oriented model of humanitarian relief. Evaluators must define the evaluation clearly, establish transparent expectations, and maintain structured yet flexible feedback mechanisms throughout. Tools such as benchmarking, conflict resolution protocols, and role clarification checklists should be adapted from the MCE literature (Rodríguez-Campos, 2015).

CONCLUSION

This paper showcases a framework for enhancing disaster relief effectiveness by integrating collaborative

evaluation with quality management practices. The proposed model strengthens accountability and process efficiency, enabling organizations to respond more effectively to crises. Future research is encouraged to test and refine this approach through empirical studies in various disaster contexts. The model bridges gaps between theory and practice, offering a strategic roadmap for organizations navigating the uncertainty and urgency of disaster settings. Also, studies should explore its application across different types of emergencies and geographical contexts, and further investigate the long-term benefits of embedding evaluation as a core organizational function.

The sustainability of this integration will also depend on training investments, digital infrastructure, and leadership support, factors that merit targeted inquiry in subsequent research. Empirical validation through case-controlled comparisons between traditional evaluation approaches and the MCE integrated model could provide robust evidence of its practical advantages. It would be important to explore cross-sector implementation, particularly in low-resource contexts, and test the durability of this model under complex, protracted emergencies. This reconceptualization enables organizations to make informed adjustments during crises, promoting accountability and responsiveness beyond bureaucratic compliance. Integrating the MCE with quality management practices offers more than a procedural enhancement; it reframes disaster relief evaluation as a collaborative, real-time learning system. A well-developed collaborative evaluation using the MCE can lead to better questions, solutions, and results. **Furthermore**, it fosters sustainable decision-making, enhances stakeholder trust, and institutionalizes learning across disaster systems.

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