

BACKGROUND

The complexity and rapidly changing environment of emergencies make it critically important that emergency management organizations demonstrate the ability to collaborate and communicate effectively in a variety of situations. During COVID-19, Uganda, and its supporting international partner organizations, were initially required to modify established emergency response procedures to accommodate public health safety measures like social distancing. As positive cases increased and the threat of transmission grew, Ministry of Health emergency managers were required to again alter response coordination protocols; shifting operations to an almost exclusive virtual working environment which relied on technology to accommodate daily communication and coordination.

OBJECTIVE

Examine the management of Uganda's public health COVID-19 response and identify factors that contributed to the successful implementation of emergency management practices.

HYPOTHESIS AND RESEARCH QUESTIONS

Hypothesis: Due to unpredictable situations, multi organizational collaborations and ad-hoc teams, innovative collaboration and coordination approaches were needed for managing Uganda's COVID-19 emergency response activities.

Research Question 1: Did the use of information communication technologies enhance Uganda's public health emergency response to the COVID-19 pandemic?

Research Question 2: What factors contributed or enhanced the implementation of emergency management practices during Uganda's response to the COVID-19 public health emergency?

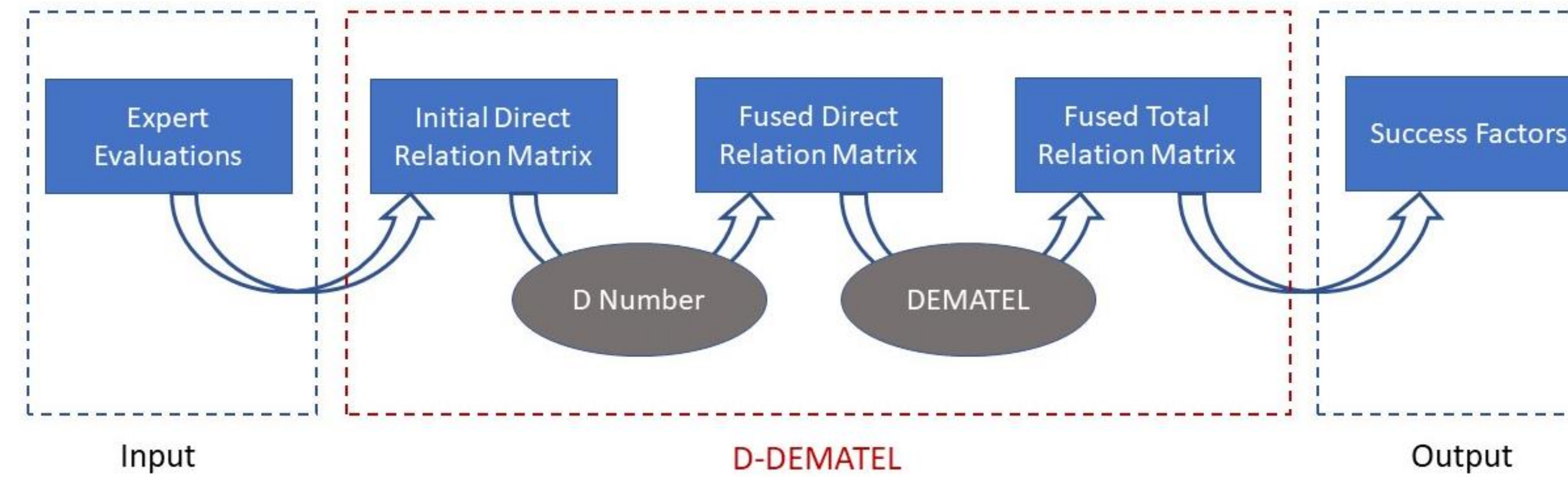
METHODOLOGY

A mixed-methods research design was implemented to gather feedback from public health professionals and emergency management subject matter experts. Quantitative data was collected using a web-based survey, and qualitative data was collected through semi-structured interviews.

D Number theory was first used to address the subjectivity in expert evaluations and the fuzziness in linguistic assessment.

A multi criteria decision making technique, the DEMATEL method, was then used to evaluate the direct relations of influential factors and obtain the cause-effect classification. Finally, the factors in cause category are identified as enablers for the emergency management response.

D-DEMATEL ILLUSTRATION



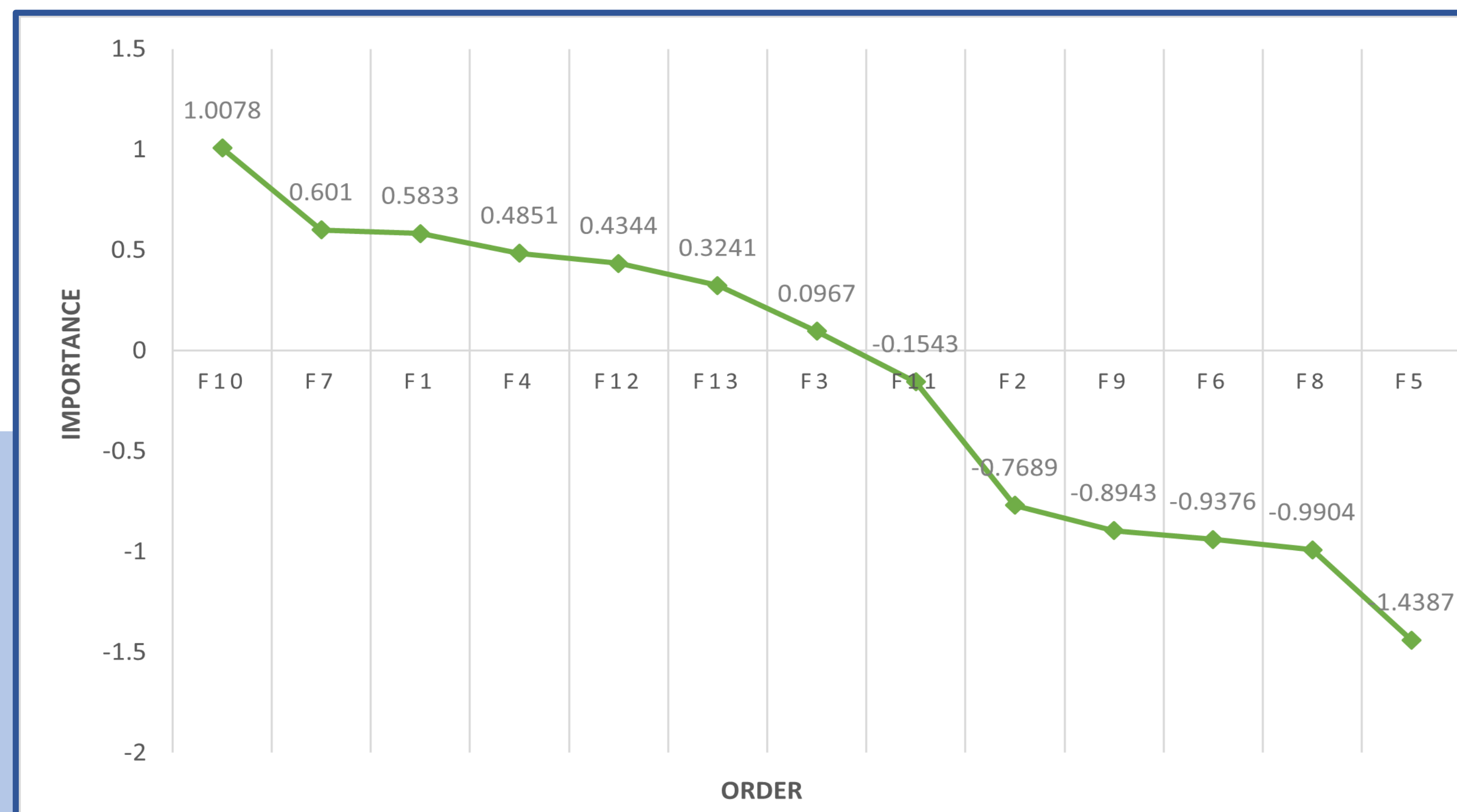
INFLUENTIAL FACTORS

Factor	Description
F1	Leadership - ability to guide teams through communication and create the understanding and trust needed to encourage others to follow
F2	Trust - ability to build trust in project team and other stakeholders to create a strong relationship for knowledge and communication sharing
F3	Stakeholders - ability to engage stakeholders to maintain their support and aligning their goals with the goals of the project
F4	Geographical dispersion - impact on information sharing, coordination, problem solving, trust building, and constructive conflict resolution with others in the team
F5	Culture - influences of state policy, financial conditions, social contexts, international stakeholders, language
F6	Skills - communication systems are consistent with the experience and expertise of the people involved in the project
F7	Communication tools - communication system capable of being rapidly implemented and easily used by teams of related organizations to share information with the least amount of training and management
F8	Communication variety - time to communicate and to exchange information formally or informally
F9	Knowledge - based on personal experience of individuals and information about interpreted facts as observations and judgments.
F10	Organizational structure and participation - influence of hierarchy on the coordination and flow of organizational systems
F11	Infrastructure - technology infrastructure able to facilitate the dissemination in project organizations
F12	Technology - ICT collaboration tools or platforms that ensure good quality communication between the project team members
F13	Levels of information provision and information updating - balance between providing adequate and timely information and stakeholder needs and the formats in which the information is published

CLASSIFICATION AND IMPORTANCE RANKING

Category	Factors and Ranking	Importance
Cause	F10 Organizational structure and participation	1.0078
	F7 Communication tools	0.6010
	F1 Leadership	0.5833
	F4 Geographical dispersion	0.4851
	F12 Technology	0.4344
	F13 Levels of information provision and information updating	0.3241
	F3 Stakeholders	0.0967
Effect	F11 Infrastructure	-0.1543
	F2 Trust	-0.7689
	F9 Knowledge	-0.8943
	F6 Skills	-0.9376
	F8 Communication variety	-0.9904
	F5 Culture	-1.4387

Based on the proposed method, the optimization of Uganda's emergency management response can be efficiently simplified into optimizing the seven success factors.



INTERPRETATION OF RESULTS

According to the analysis, these seven factors were identified as success factors in Uganda's emergency management response:

- F10 - Organizational structure and participation
- F7 - Communication tools
- F1 - Leadership
- F4 - Geographical dispersion
- F13 - Levels of information provision and information updating
- F12 - Technology
- F3 - Stakeholders

Based on the expert evaluation results, Organizational Structure and Participation (F10) has the greatest importance of influential factors. Communication Tools (F7) and Leadership (F1) follow with their importance almost equal to Organizational structure and participation; therefore, these are worth more attention. The Geographic Dispersion (F4) and Technology (F12) are in the middle of the distribution and almost identical in importance. So, in responses where different elements of the response are dispersed to different geographical locations, attention should be paid to linkage associated with these factors. Finally, emergency managers should consider the Levels of information provision and information updating (F13) and the number of their stakeholders (F3). At this stage, the use of Technology (F12) with Levels of information provision and information updating (F13) is recommended to meet the project stakeholders (F3) communication and information needs. This is important in gaining the trust of stakeholders.

CONCLUSIONS AND FUTURE RESEARCH

This study validated the D-DEMATEL process for determining success factors for Uganda during a specific response under unique circumstances. While innovative collaboration and coordination approaches were needed for managing Uganda's COVID-19 emergency response activities, subject matter experts assessed that organizational structure and participation along with leadership played a more important role in response management. Additional research efforts will focus on assessing and quantifying success factors for other responses in Uganda and ultimately other countries in order to optimize emergency management practices.

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