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# Convergent analytics and informed decision-making: A retrospective multimethod case study project in Kenya

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## KEYWORDS

Analytics;  
Case study;  
Multimethod study;  
Participatory action  
research;  
Scenario based plan-  
ning;  
Phenomenology

## Abstract

**Objective:** The objective of this qualitative, retrospective case study was to explain how and why the Chaguo Letu project was able to successfully make informed strategic decisions on how to implement a Cervical Self Sampling Program (CSSP) in Kenya.

**Methods:** This qualitative, inductive, study applied the case study method; a retrospective, explanatory, single bounded case study involving critical reflection on four embedded units of analysis: 1) Participatory Action Research (PAR) methodology, 2) Scenario Based Planning (SBP) method, 3) Existential Phenomenology (EP) method, and 4) Convergent Analytics (CA) model. Theory-related analytic generalization provided the foundation for the data analysis approach.

**Results:** The PAR methodology was critical to grounding this complex study and provided a new way of interacting and learning. The SBP data collection and analysis tools performed well in conducting perception analysis and trend/uncertainty analysis exercises. Incorporating EP enabled a deeper investigation of the phenomenon of cervical self-sampling and determined which units of significance (i.e., situational or emotional) had a greater influence on CSSP social acceptability. The CA model provided an approach to make sense of data, turn it into meaningful information and facilitate the convergence of tacit, explicit and cultural knowledge, which ultimately enabled informed decision-making for an uncertain future.

**Conclusions:** Applying an integrated approach encompassing the PAR methodology, SBP method, EP method and CA model enabled the Chaguo Letu project to make informed

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strategic choices on how to implement a CSSP in Kenya. Each element of the study design, by itself, could not have achieved this outcome.

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## Introduction

There is consensus in the literature that there are numerous factors presenting rapid change, unprecedented in our history, all of which influence the sustainability of our health systems around the globe [1,2]. However, there does not appear to be any evidence in the literature that health decision makers are sufficiently prepared to make informed decisions on how to respond to these challenges, either in the present or in the future.

This paper describes a retrospective case study of the Chaguo Letu project (which means “our choice” in Swahili) in which study participants applied an informed decision-making process to design a much-needed Cervical Self-Sampling Program (CSSP) in Kenya. It is estimated that less than 3.2% of Kenyan women aged 18-69 years have been screened for cervical cancer, and 4802 Kenyan women are diagnosed with this disease every year, of which 2451 die [3]. Cultural barriers to screening, low knowledge of cervical cancer and screening, along with substantial infrastructure deficiencies contribute to Kenya's high incidence of cervical cancer [4]. To address these complexities/challenges, local decision makers applied an informed decision-making process to minimize the risks associated with the CSSP's implementation.

Decision-making has been formally studied around the globe for over a century in numerous disciplines [5,6]. Studies show that as the degree of uncertainty increases, decisions become unstructured, jeopardizing policy makers' ability to make good choices. In the early 70's, the business community responded to the challenges of rapid organizational change by developing the Scenario Based Planning (SBP) method [7], which develops and tests scenarios to minimize risk and manage uncertainty when making decisions [8]. Organizations typically choose this technique when the ambiguity in their environment is high and the pace of change is accelerating [9]. This method has been underutilized within the health industry [10].

Some researchers have recognized that different cultural backgrounds have different values, beliefs and expectations, which in combination with situational variables, influence their decision-making, especially in risky/uncertain situations [11,12]. Phenomenological analysis has contributed to researchers' ability to investigate and make sense of participants' cultural and emotional experiences and to give meaning to their lived realities [12,13].

Making informed decisions is dependent on having access to sufficient, relevant information to make choices between options [14-19]. This could be achieved in part by building the technical capacity of decision makers to: a) apply descriptive, data pre-processing and exploration tools to understand the meaning of data [17,19], and b) to apply decision models and simulation tools to determine potential risks and consequences when making scenario choices [18].

Analytics deals with the application of processes, tools and techniques to perform an analysis of data to gain insights; analysis being the examination process itself, and analytics the supporting tools and techniques [18,20]. In the past, analysis was performed manually through the application of mathematics and statistics. In contemporary times, analyses have been performed with a variety of machine learning technologies. Over the past 30 years analytic tools/techniques have incrementally evolved from: a) being descriptive and diagnostic for the purpose of managing retrospective data for predominately operational and tactical decision-making, to b) enabling predictive and prescriptive analysis with a prospective focus on the development of strategic decisions on how an organization should respond to future uncertain events (Fig. 1) [18,21].

Over three decades ago, Susman and Everend [22] spoke about a crisis in organizational science in which scholarly research did not relate to the real world of practice. This situation persists today with numerous health policy makers/researchers expressing their concerns about the limitations of research contributing to decision/policy making [23-25]. Although some organizations have emphasized the importance of building decision-maker capacity [26,27], progress has been slow; many health organizations have little capacity to operationalize research to strengthen health systems and service delivery [23,28].

Applying informed decision-making involves several challenges that require systematic approaches and the integration of different methods. Blagescu and Young [29] stress that successful integration of research into practice requires broad-based participation and a locally driven agenda. By including local experts (with the required tacit and cultural knowledge) in a collaborative decision-making process, ownership of decisions could be strengthened, thereby increasing the probability that they will be acted upon [19,27,30]. PAR emphasizes local, collaborative decision-making, focuses on improvement of practice through the creation of knowledge, and links scientific understanding to social action [30,31].

In summary, in diverse cultural settings with a high degree of uncertainty, decision-making is a complex, high-risk process that could benefit from a PAR methodology that guides the integration of SBP, with existential phenomenology (EP), and an analytic model that facilitates the convergence of processes, tools, and knowledge to enable informed decision-making (i.e., Convergent Analytics - CA).

## Study purpose, research questions and theoretical propositions

The purpose of this qualitative, retrospective, explanatory case study was to explain how and why the Chaguo Letu project was able to successfully make informed strategic

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