

Design and implementation of a program quality assessment tool

Case studies of
primary health
services

Three case studies of primary health services in developing countries

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Introduction

Service quality is a relatively new issue in health care management. Despite this, we find no shortage of models prescribing the true path to managing quality of care. Selection among these competing models demands an understanding of the underlying theory. Belying the stereotype of theorists as impractical inhabitants of the ivory towers of academy, a sound theory is a supremely practical device. Proper use of a good theory helps find the roots of current problems, and aids in predicting future outcomes. A sound theory of quality is potentially important in primary care, where it would assist practitioners in defining quality, measuring the quality of service outputs, and identifying the specific decisions and actions which can improve the quality of those outputs.

Service quality has been conceptualized from the perspective of a health professional as "provision of appropriate and technically sound care that produces the anticipated effect" (McAlexander, 1994), from a client perspective as "conformance to client specifications and expectations" (Berry and Parasuraman, 1990), and from a health policy perspective as "the extent to which the care provided is expected to achieve the most favorable balance of risks and benefits" (Donabedian, 1980). While each definition is valid within a narrow domain, none reflect two systemic features of primary health care:

- (1) high interdependence among the specialized functions within a complex service delivery system; and
- (2) large information gaps among the diverse entities (clients, providers, health agencies, aid agencies, policymakers) with a stake in the quality of service outputs from the system.

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Design and implementation of a program quality assessment tool: three case studies of primary health services in developing countries

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Keywords Assessment, Design, Implementation, Methodology, Quality awareness

The total service quality paradigm has been slow in diffusing to the health service domain, and TQM techniques are even less widely used to govern primary health services in the developing world. This interdisciplinary work analyzes the design of a TQM-based quality assessment tool (PQAT) used to evaluate quality of care in family planning programmes in Africa, Asia, and the South Pacific. It shows how family planning service quality models have failed to keep pace with advances in management theory, introduces the process theory model to overcome the limitations of the variance model, and grounds the tool in the context of quality theory. The paper goes on to report results from field use of the PQAT in three widely varying sites in the Asia Pacific region, and to draw useful conclusions for primary health researchers and practitioners.

Quality management practices: a comparative study between East and West

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Keywords Manufacturing, National cultures, Organizational culture, Quality management

This paper compares quality management practices in manufacturing companies in the East and the West. It uses data collected from three countries in the East, namely Japan, Korea and Taiwan and compares these with data collected from four countries in the West, namely Denmark, Finland, Sweden and Australia. Twenty-five Japanese companies, 105 Korean companies, 48 Taiwanese companies, 65 Danish companies, 88 Swedish companies, 18 Finnish companies and 62 companies from Australia responded to the questionnaire. Comparison between the East and the West is carried out on the following: formulation and communication of

a quality policy; education and training of employees in quality management; top management participation in quality activities, quality motivation and suggestions; and the use of quality tools and methods. The comparison shows that quality management practices are relatively more widespread in the Eastern companies than in the Western companies. The key differences between the East and the West are identified and suggestions made to close the gap.

A survey of applications of computer-based technologies in support of quality

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Keywords Computer technology, Hong Kong, Quality, Software use

This paper presents the findings based on a survey conducted to examine the status and extent of the use of computer-based technology (CBT) to support "quality", including such aspects as quality control, quality assurance and quality management, in Hong Kong. Five main categories of CBTs, namely decision support systems (DSSs), group support systems (GSSs), executive information systems (EISs), expert systems (ESs) and artificial neural networks (ANNs), in support of quality are surveyed. The survey findings indicate that CBT usage to support quality in Hong Kong is low, particularly ESs and ANNs. This is partly due to a lack of awareness regarding the potential of CBTs in supporting quality among their potential users, and partly because of a lack of availability of suitable software to support their use. This paper represents a first attempt to examine the real-life use of CBTs in support of quality. Based on the research findings, we have identified several opportunities for further research and suggested a number of research directions for CBTs to support "quality" in practice.

Quality of customer service in supply chain system: a diagnostic study

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Keywords Customer service, India, Quality, Supply-chain management

Supply chain systems play very significant roles to improve the quality of customer service and therefore, derive considerable

Unless such reductionist viewpoints can be expanded, health professionals will tend to exclude their clients from decision processes, clients will be unaware of the available choices and the probable consequences of those choices, and policymakers will remain ignorant of the impact of their decisions on individuals.

The gap between these divergent views of ends and means emerges in quality management processes at three levels of primary care: clinic, organisation, and policy. Patient perceptions of service quality frequently differ from those of care providers, who may in turn not fully understand the motivations of their clients. At an organisational level, managers providing commodities, training, or information services supporting the delivery system may not have adequate exposure to conditions in the field, while clinic operators (who seldom receive formal management training) may not fully understand the workings of the headquarters organisation. At a policy level, the comparative ease of reporting unit cost data may shift the focus of stakeholders toward a reductionist view of organisational efficiency ("making the numbers"), at the expense of service quality, which is of course far more difficult to conceptualize and report. These gaps would be closed by a theoretically valid model reflecting the contribution of each element of the service delivery system, as the base for an empirically validated evaluation tool which can provide policymakers with a holistic view of quality gaps in the delivery system, and managers with specific performance targets which contribute to the quality of service provided by the organisation, and thus to the well-being of its clients.

This paper briefly outlines the evolution of contemporary quality management theories, and compares and contrasts traditional product quality based on variance theory with a service quality model emerging from field use (Ragahavan-Gilbert, 1991). This model is consistent with an emergent process theory of organisations advanced by Mohr (1982). The authors then apply process theory as a lens to inspect the definition and measurement of the determinants of service quality, in the context of a relatively complex primary health service delivered in widely varying geographic, organisational, economic, political, and cultural settings. The paper extends its theoretical analysis to the empirical domain by identifying the underlying assumptions about the determinants of family planning service quality imbedded in a program quality assessment tool as applied by the primary author in several Asia-Pacific nations. It concludes by mapping these assumptions to the structural features of both variance and quality theories, and draws implications for researchers and service providers.

A brief history of the quality movement

This section provides a brief history of quality theory and the evolution of the quality movement in industry, services, and health care. It is useful for us to review these different paradigms of quality, in terms of their theoretical structure, to grasp the significance of this evolution.

The quality movement in industry

The industrial quality movement emerged between 1950 and 1975 in Japan, supporting its effort to reconstruct after World War Two. Ironically, this quiet Pacific revolution was led by American quality pioneers Edwards Deming and Joseph Juran, later joined by Japanese professor Kaoru Ishikawa. These experts believe quality improvement theory is a managerial science derived from statistics, engineering, and psychology, and grounded in experience. Most current theories build on the early work of Walter Shewart, who suggested in the 1920s that the efforts of a company should be directed not at finding and fixing problems in the products, but rather at finding and fixing problems in the processes of work. These pioneers argued that managing quality is an enabling and not a control task because quality problems arise from defective systems in which workers are placed by their managers. Thus, early industrial quality improvement theory rests on the organisational imperative paradigm, which assumes considerable individual and organisational latitude in selecting and implementing technological options such as quality systems (Bank, 1992).

Services

International Standard ISO/CD 8402-1 defines a service as: "the results generated by activities at the interface between the supplier and the customer and the supplier's internal activities, to meet the customer needs". All organizations, ranging from factories to professional services such as family planning, offer some services to their internal and external customers, or to both. The emerging interest of the business and professional service sectors in service quality management stems from the growing awareness that support services of adequate quality are needed to enable a quality physical or technical product to capture the desired market share. These sectors adapted concepts, skills and tools from the market-driven quality revolution in industry. Unsurprisingly, the structural framework of the TQM service model resembles that of the TQM industry model (Table I).

Unfortunately, service delivery differs from production along the dimensions of intangibility, coproduction, and simultaneous production and consumption. These features create interesting quality management problems, because a service (more accurately a service experience) can neither be made, inspected, nor stored ahead of production. Transfer of the quality measurement model from industry to professional services is particularly awkward, as it would ultimately depend on client perceptions, which are often neither sufficiently accurate nor complete, and which obviously are more difficult to acquire and process than buyer specifications.

The quality movement in health care

A Boston physician and leader of quality activities led the US National Demonstration Project that first posed the rhetorical question whether “the tools of modern quality improvement with which other industries have achieved breakthroughs in performance could help a relative newcomer, the health care industry?” (Berwick *et al.*, 1990). While working with the health care industry, Joseph Juran (1989) argued that despite claims that the health industry is “different”, managerial processes are alike for all industries, and thus the lessons are transferable. However, many health professionals (perhaps because of their high status and lack of exposure to management concepts and skills) remain skeptical. The central tenet that quality is determined by the processes involved in health care production (rather than the power and knowledge vested in the physicians) violates both the self-image of the medical profession and the desire of many patients to sanctify the role of the physician. These factors may explain the pattern of weak support for the quality movement among physicians.

Practitioner-researchers with extensive service sector experience such as Berry, Parasuraman Zeithaml, Goonroos, Fountain and others see less difficulty in applying the lessons from quality in the service industry to professional services such as health care. They continue to study the decisive factors that influenced quality improvement efforts in other sectors, despite differences in history, technology, and culture (Fountain, 1994).

Family planning is a specific type of primary health care. Researchers and practitioners advise caution when translating lessons from industry to family planning programs. This is because many believe that quality is incompletely understood because of the inherent complexity of the decision-making process in human reproductive behavior (Calla, 1991). The authors see these concerns about the validity and reliability of relationships among service quality, service utilization, and fertility outcomes as theory verification problems, imbedded in the theoretical structure of the evaluation model which is dominant in this field. However, new models of the determinants of health services quality may yet emerge from other theoretical structures. Primary health researchers can build new

Industry TQM model

Service TQM model

Customer specifications
Management responsibility
Production processes
Design processes
Continuous improvement
Monitoring
Review

Customer needs
Management responsibility
Service processes
Improvement projects
Continuous improvement
Evaluation
Review

Table I.
Comparing industry
and service TQM
models

models by examining service quality tools with good track records in field use, then developing cause-effect models reflecting the underlying concepts.

Determinants of quality: an organisational theory perspective

The normative service quality management literature offers many prescriptions. For example, several proponents of the current total quality management (TQM) model mandate a long term view and a consistency of leadership and vision at all organizational levels. Only an unfaltering commitment to quality enables an organization to acquire new attitudes and skills in the managerial, technical, and cultural domains in which it accomplishes its daily mission. The difficult organizational process of entrenching quality in the organizational psyche is estimated by various quality experts to require several years (Crosby, 1979). However, the current empirical quality research literature does not support these broad generalizations about the relationships between specific management techniques and the quality of service outputs (Powell, 1995). This leads to an interesting question: is something wrong with quality theory, or with the way we test and validate such theory? There are several reasons for our inability to find stable determinants of quality. First, the literature reflects work emanating from many academic disciplines, each with its preferred theoretical constructs, methodological tools, and conflicting definitions of quality (Rust and Olive, 1993). Also, this body of work mingles units and levels of analysis. Finally, much of this work applies research theory which is structurally inconsistent with the nature of the phenomenon under scrutiny, a course which inevitably leads to a lack of stability in results (Downs and Mohr, 1976).

The structure of a management theory supports its view of the nature and direction of causal relationships, within the context of a logical argument. Without understanding how its underlying theory treats relationships between antecedents and quality, we can neither evaluate the utility of a given model, nor judge the contribution of research work emanating from its use. As the following section explains, the path to verification of such new theory necessarily depends on its structure.

A comparative analysis of variance and process theories

Following the influential Mohr (1982) critique of variance theory based research, a growing number of researchers adapted the process theory model (Table II) to explore emergent behavior in many domains, including labor relations (Kelly, 1989), human resource management (Villere and Hartman, 1990), law (Klarman, 1991), management accounting (Smith, 1993), innovation (Wolfe, 1994), strategic management (Chen and Miller, 1994), and management information systems (Soh and Markus, 1995).

Mohr (1982) distinguishes between theories along three structural dimensions: levels of analysis, causal structure, and logical structure. In

Main feature	Variance theory	Process theory
Desired outcome	A variable	A discrete occurrence
Theoretical logic	If X (independent variable, necessary and sufficient conditions, or NSC) then Y (dependent variable); and If more X, more Y	If not-X (necessary conditions or NC), then not-Y (outcome); Cannot be extended to either "more-X" or "more-Y"
Assumptions	Outcome is invariable when NSC are present	Outcomes Y may not occur even in the presence of NC X, without the enactment of a specific "recipe" involving external directional forces and probabilistic processes
Role of time	Not relevant, as NSC can occur in any sequence	Crucial: sequence in which NC combine is consequential to effect
Theoretical interpretation	The cause is necessary and sufficient to produce the effect	Causation consists of a flow of interactions among NC in a specific sequence, as influenced by external forces and random events

Table II.
Variance and process theories (adapted from Soh and Markus, 1995)

quality research, the levels of analysis range from individuals, work groups, units within organisations, to society. The causal structure is defined as implicit or explicit beliefs about the nature of causality: whether changes in quality result from external constraints, demands, or forces (technological imperative), from purposive, rational collective behaviours (organisational imperative), or interactions among people, setting, and events (an emergent process perspective). The current quality literature reflects theories of all three types. Logical structure refers to whether a theory argues that outcomes are related to their antecedents "in an invariant, necessary and sufficient relationship", or "in a recipe of sufficient conditions occurring over time" (Markus and Robey, 1988). Although the logical structure of normative quality theory often takes this second form, the majority of the current research literature is oriented toward testing a hypothesis which explains variance in a dependent variable, normally some measure of quality. Together, these two dimensions provide the causal structure on which explicit theories of quality (as well as management models which express an implicit theory) rest.

Competing theories of human and organisational behaviour are intended to help understand, explain, predict, and to at least to some degree control outcomes (Pate, 1987). The behaviour of interest in this work consists of specific human decisions and actions which affect the quality of service

outputs from a primary health care system to its clients. Human behaviour can be viewed as a function of interactions between a person, formed by inherited and environmental forces, and a specific environment. There are two distinct categories of motivational theories which might help explain differences in quality across organisations and provide managers with insight into the potential effect of human behavior which determines quality performance: content theories, and process theories. Content theories, such as the need theories of Maslow or McClelland, focus on relationships between an individual condition (for such theories, the content of needs) and behaviour. Motivation research based on process theories (e.g. expectancy theory, equity theory, dissonance theory, and attribution theory) focuses on the relationships between stimulus and response, as mediated by one or more cognitive processes. Similarly, research seeking to identify the determinants of quality may also be mapped to these two categories of theories: generally, research which seeks to identify relationships between specific attributes of organisations and their performance is an example of content theory, while research which focuses on linking the nature of the interaction between an organisation and its environment to its behaviour (for example, most of the innovation research literature) falls into the category of process theory.

The tools used to validate these theories also vary: generally, content theories are validated by using statistical tests adapted from the physical sciences (e.g. multiple regression) to determine the probability that a given hypothesis is false, in the classical social science research paradigm. The result is a measure of the amount of variance in a dependent variable that can be explained by independent variables representing differences in specific attributes of the organisation. For quality research, the dependent variable might be customer satisfaction, while independent variables might include the size of each organisation in the sample, and categorical variables such as industry, the locus of national headquarters, and whether it has achieved ISO 9000 certification. This is a fairly typical example of theory validation based on the variance model.

An important research topic for service industries is the relationship between quality and service continuation. An evaluation research model of family planning behavior has a logical structure: if service quality (typically as perceived by clients) is high, continuation of contraceptive use by clients will increase; while yet higher quality will continue to raise continuation rates. In this consumer-oriented model based on variance theory, client perception of service quality is both necessary and sufficient to achieve the outcome. From another perspective, the determinants of quality are specific inputs to the service delivery process. Here, better logistics systems, improved access for clients, or a wider range of choice may enable higher utilisation. This model is consistent with process theory. To be useful, either of the competing theories requires tools: a

meaningful operating definition of quality, and some means to measure the various dimensions of quality consistent with this definition, and to identify the probable outcomes of alternate decisions and actions.

Measurement and tools

Basing their analysis on evidence reported by Heller (1976), Mwabu (1982) and other researchers focusing on the demand side of utilization, Akin *et al.*, (1985) suggest that primary health care program quality is an important issue in studying utilization, often neglected because it is difficult to measure, a conclusion supported by other researchers (Colson, 1971).

There have been many efforts to evaluate access and continuation of use of family planning and reproductive health care services (Katz *et al.*, 1993). However, the nature of the complex and non-linear relationships identified by Kumar *et al.* (1989) suggest that the variance model may be unsuitable. Positive client perceptions are necessary, but not sufficient to produce the desired outcome. A rising value for one antecedent will not necessarily lead to a rise in perceived quality. While continuation rate is only a surrogate measure of quality, many health agencies (and donors) view this as a critical success factor for certain services, particularly for family planning.

Quality measurement in manufacturing

Manufacturing creates objects, which facilitates quality measurement. Output quality is measured as differences between actual and target levels of performance in several ways, as work that is:

- (1) not to specification;
- (2) in need of correction;
- (3) discarded;
- (4) repeated;
- (5) behind schedule;
- (6) completed after the time needed; and
- (7) done, but not required.

Each of the above quality measures often represents an opportunity to improve quality at little or no extra cost (Deming, 1986). The sum of these measures can be labeled as the cost of quality, or more accurately the cost of quality failures (Crosby, 1979). The visible success of quality management techniques in manufacturing encouraged many efforts to transfer these tools to the service industry. However, differences between the nature of service experiences and that of manufacturing production processes lead to difficulty in measuring the quality of a physical service activity.

Service quality measurement

Unlike manufacturing, it is inherently difficult to identify defects, assess rework, or measure scrapped and lost service items. Unlike a product, a physical service cannot exist without the presence and participation of clients in the production process. The imbedded features of intangibility, coproduction, and simultaneity of production and consumption of the service make service quality measurement inherently difficult (Fountain, 1994).

In the industrialized nations, a continuing funding crisis in the health care industry has generated considerable interest in measuring quality as a tool for allocating scarce resources. To overcome the inherent barriers to measurement, Heskett *et al.*, (1990) developed four equations to capture the most important relationships emerging from the service encounter:

- (1) The quality of service (measured in terms of customer satisfaction) = service quality delivered minus service expected.
- (2) The value of a service to a customer = service quality (both results realized and the process by which they were achieved) divided by cost (price and other customer costs of acquiring the service, including waiting time).
- (3) Potential margin "leverage" in providing the service = value to the customer minus cost to the service provider.
- (4) The profitability of a service to its provider = margin multiplied by repeat usage divided by the investment.

The first three relationships apply equally to the private and public sectors. However, as expectations and satisfaction are difficult to measure for any service that the client does not fully understand, the first can be ruled out for the more technical aspects of health care. The second, which focuses on both the outcome and the process is interesting only in the presence of an efficient market for services (and perhaps for the waiting time of clients), which is atypical of health services in the developing world. The third assumes that value adheres only to the client, although we know that health services (and family planning programs) generate large public externalities to non-users. The fourth equation is relevant only to organisations with the potential to generate self-supporting revenue, which once more does not apply to the developing world. As this analysis demonstrates, not all quality measurement concepts from the industrialized world apply to the developing world. This is because the measurement of service quality is to some degree, context-dependent. In health services, human, economic, temporal and spatial factors add to the difficulty of defining useful measures (Joseph and Phillips, 1984).

Preventive health care services are seemingly intangible. Although they consume physical objects (e.g. the IUDs used in family planning) they produce none to be measured. Despite this illusion, careful examination of

most service activities reveals many tangible service production elements as candidates for specification and measurement. Further, because physical services are not acquired objects, but the results of human experiences which take place in time and space, service quality involves not only the intangible dimension "How it is done", but "What is done, when, and where". These, as dimensions of physical reality, offer adequate scope for measurement.

Quality management in primary health programs has two dimensions:

- (1) The problem of operationalizing a definition of service quality which facilitates the identification of quality failures. This is a particularly difficult task in a politicised area such as family planning, with multiple stakeholders both within and outside the organization, who have both stated and hidden agendas.
- (2) The problem of management decisions. This is because good decisions are enabled only through the acquisition, selection and use of relevant and sound information about resources, services and needs. Limited resources, and vast amounts of often inadequate, incomplete and inaccurate information frequently affects the decision-making capability of the delivery organization. A useful field tool enhances organizational ability to select, process and use information in a timely manner to improve program quality in a systematic but flexible manner. The identification of key indicators and standards are critical issues in quality management research.

Note that both dimensions are information-intensive: if the definition of quality is the foundation of service quality management, indicators and standards are its infrastructure.

Service quality measurement in family planning

In our efforts to measure quality, we first adopted a medical model: measuring incidents. Underlying any incident model are the assumptions that the entire population needing service is known, and that the provider will know which technique is most appropriate for the client. Therefore, the incident report captures only an instance of service failure, and misses two common problems with FP services: delivery of a service that does not meet client needs, and failure to provide adequate access. This reveals one of the central problems in managing family planning quality: information asymmetry between a provider and the client. The client does not understand the limitations of the organizational support systems, and may not know which technique would be most appropriate to meet her needs, while the provider may not know the needs and limitations of the client.

Another approach, adapted from policy analysis techniques, evaluates program performance in terms of client decisions to adopt, and later to continue, the service. This model assumes clients have a full understanding of the appropriateness of the proposed technique and the technical quality

of the service offered, and that their decisions to adopt or continue service depends primarily on these factors. An alternative model (though seldom applied) focuses on the quantity and quality of goods inputs. This model assumes direct services are a uniform commodity, and ignores the client-provider interaction. However, it does focus our attention for the first time on internal support services provided by the organization, which are known to and understood by managers. In sharp contrast, some recent quality measurement techniques focus only on the multiple dimensions of FP service delivery which are visible to the client. These assume (again) the client has full information, and ignore the knowledge held by managers, especially of organisational determinants of quality. Therefore, the second challenge is to develop a measurement tool based on realistic assumptions, in the context of a total quality management service model of family planning.

Process theory: quality as an outcome of successful use of a "recipe"

Many innovation models are, at least implicitly, process theories (Markus and Robey, 1988), which take individuals as their unit of analysis. A decision to adopt new technology follows from interactions among the attributes of the technology and the social forces acting on actors in a social system, over time (Rogers, 1983). When individuals are the unit of analysis, process theory focuses on the means by which they are motivated rather than their needs. This is appropriate for management theory, which attempts to link future outcomes to alternative actions and decisions. Mohr (1982) likens process theory to a recipe, a story of the interactions among the unit of analysis and three types of structural elements:

- (1) necessary conditions,
- (2) necessary probabilistic processes, and
- (3) external forces which guide a sequence of interactions between the unit of analysis and the necessary conditions.

"In the theory or story of malaria, for example, these necessary conditions are the malarial parasite, persons already harboring the parasite, and Anopheles mosquitoes. The combining of elements is of paramount importance." The example reveals the essentially probabilistic and temporal nature of process theory: "nothing about the prior malaria victim or the parasite is assumed to make the bite of another mosquito inevitable, and nothing about that mosquito makes it inevitable that it will later bite the focal person", because the natural behaviour of mosquitoes is to bite people with and without malaria at random (Mohr, 1982). A process theory can be no more powerful than its definite action, which derives from the strength of the probabilistic processes which make the connections and the external forces which combine the actors and the processes. In order to be a theory, a compelling flow of action is required: an outcome

(contraction of malaria) depends on encounters between the focal unit (victim) with factors which spring from elsewhere (the mosquito and its earlier meal). Thus, in primary health, service quality may emanate primarily from interactions between the elements of the service delivery system and its interface with the client. One management theory of family planning service quality appears in its process theory form as: if the critical business and technical processes and facilities meet minimum standards, and if the resulting services conform to client expectations, and if external political and social factors support contraception, then the continuation rate is likely to rise unless other factors or forces intervene. A model and assessment tool based on this logic appear in the next section.

The determinants of quality: lessons from the field

The Program Quality Assessment Tool is a practical management tool designed to generate information about program quality that middle managers can use directly to affect program performance, or indirectly to influence program policy makers. The PQAT attempts to narrow the quality gap between “what is” and “what should be” for program quality by reducing information gaps within the enabling system. It provides a feedback loop from the field which guides the enterprise in establishing and conforming to country and project specific quality standards and requirements.

The structure and measurement elements of the PQAT are derived from an underlying systems theory of quality imbedded in the Program Quality Assessment model portrayed in Figure 1 (Raghavan-Gilbert, 1991). This model shows how inputs into the family planning programme (at the left) and outputs from service delivery activities (at the right) are mediated by

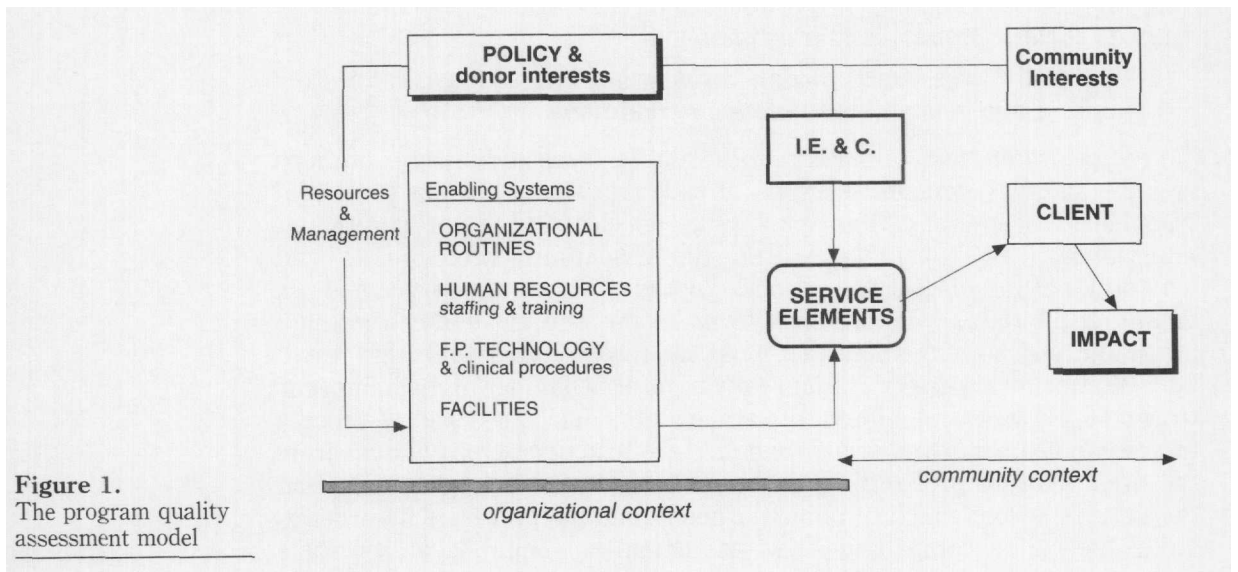


Figure 1. The program quality assessment model

the central processes imbedded in the enabling systems for organisational functions. The model shows how the PQAT field evaluation tool and the standards govern the processes in the enabling systems. This logic is consistent with the process theory model advanced by Mohr. Table III portrays PQAT indicators, criteria and sample standards.

While some quality management researchers find strong justification for measurable pre-set standards (as in the PQAT), for others this is a point of contention (Calla, 1991). Evaluation researchers often critique preset

Indicator	Criteria	Standards (global, locally adapted)
Competence	Training levels SOP use Knowledge Interpersonal skills	e.g., 4 week FP training, 10 IUD insertions, last training 3 years prior Observed empathy, etc.
Choice	Contraceptives available Method mix	Four or more Appropriate to context
Safety	Infection control Commodities storage	Infection control protocols Technically correct process
Medical backup	Professional support	Referral process
Commodities	Logistics system	No recorded stockouts
Expendables	Logistics system	Written inventory
Equipment	Logistics system	Maintenance
Physical facilities	Image Privacy Comfort Identification	Cleanliness Partitions and Curtains Ventilation Signage and directions
Guidelines and protocols	Clinical guidelines Management guidelines Continuing education	Current, correct, available Available and in use Reference material, minutes
IEC	Community outreach Hospital outreach Educational materials Communication materials	Specific activities, (in community context) Available, current, in use Available, current, in stock
MIS	Client records Service statistics	Accurate, complete Complete, accurate
Supervision	Clinic level supervision Central level supervision Supervisory tools Supervisory work plan	Depends on context, structure Checklists, forms, registers Formal schedules, etc.
Monitoring	Program performance Program feedback	Measurement process in use Regular meetings, HQ action
Client follow-up	Appointment system Defaulter tracing	Process in use by clinic Process in use by clinic
Access	Distance Functional access Waiting time Cultural barriers Costs	Travel time, in context Service hours suit clients 90% less than one hour Language, etc. to suit context Suitable for target clients

Table III.
PQAT structure,
indicators, criteria and
sample standards

standards, yet miss the point that PQAT standards emerge from robust group techniques such as brainstorming and the Delphi process, and are then adopted by management. All PQAT core indicators and standards were locally adapted by a team of experienced field and headquarters managers. These are “decision-makers and information users who have questions about the program” (Patton, 1986). As primary stakeholders in their programs, they know which information is important, and whether the preset norms are appropriate in their country. Normative standards which are grounded in the experience and knowledge of the local managers are valid for the management purposes for which they were selected. When evaluation research generates more information about these indicators, criteria, and standards, they can be modified, deleted, or replaced. The program quality indicators cover five domains: resources, management practices, support systems, accessibility, and continuation.

The indicators and the standards in inputs and processes identified serve as a guide to quality during program development and design. They provide a checklist for “Getting it right the first time ” (Crosby, 1979). The PQAT can also serve as a quality template, used to modify and restructure existing programs. Table IV portrays links between standards and use of the evaluation-based tools.

However, the following limitations should also be noted:

- (1) The Program Quality Assessment Tool is still in a formative stage.
- (2) The quality variables and treatment specifications (the input and process standards) may change over time as more information becomes available through operations research or other studies.
- (3) The process used to gather information during use of the tool is as important as the tool itself. It should be non-threatening, non-punitive and educational. This is supported by the use of open-ended questioning, loose structure, and participant-observation of practice. The assessors must provide collegial and constructive feedback to providers and managers if suggestions to improve program quality are to be integrated with minimal resistance.
- (4) Training of assessors is critical for successful application of the Program Quality Assessment Tool.
- (5) The Program Quality Assessment Tool was neither designed nor empirically validated as a research evaluation tool. It is intended for use by managers. Its theoretical and empirical validation are heuristic, following the qualitative tradition of grounded theory.

Unless quality is defined, measurement is arbitrary. While evaluation research generates information telling us that there is a problem, it fails to link problems to their roots in processes. Management requires additional investigations and new data to take corrective action, and incurs further delays and expenditure of scarce resources. In contrast, the logic and structure of the PQAT facilitates cause-effect analysis, and rapidly

Indicators	Specification area	Link to quality	Link to action
Competence	Training SOP use Knowledge Interpersonal	Imported technologies Technology transfer/ integration	Case management Practice Communication Supervision
Choice	Range available Method mix	Options Coercion Paternalism	Commodities acquisition Provider training Supervision
Safety	Infection control Commodities storage	Invasive procedures Method failure	Training Management support Supervision
Medical backup	Technical back up Written inventory	Emergency protocols Unbroken supply	Organizational routines Training Organizational routines
Adequacy of commodities	Written inventory	SOP application	Training Organizational routines
Adequacy of Expendables	Written inventory	Safe practice	Training Organizational routines
Adequacy of equipment	Appearance Privacy Ventilation Toilet/water Signs/directions Client flow	Consumer preferences Client needs Client satisfaction	Upgrade facilities Management training Supervision
Physical facilities	Clinical guidelines Infection control guidelines Management SOP Current literature	Specify current standard Technical practice Management practice	Management support Training Supervision
Guidelines and protocols	Hospital outreach Community outreach Teaching aids Informational materials	Parallel activity Communication	Program policy Organizational routines
IEC	Records and forms Service statistics	Reliable client data Reliable program data	Program policy Training Supervision
MIS	Project supervision Clinic supervision Supervisory tools Supervisory work plan	Close supportive supervision Structured supervision	Management support Training Supervisory systems
Supervision	Program performance Program feedback	Intrinsic rewards Motivation	Management, field and trainer linkages
Monitoring	Defaulter tracing Appointment system Cost Distance Waiting time Cultural barriers Functional access	Program continuity Method continuity Program use Program non-use Method discontinuation	Program policy changes Program design Program redesign
Client follow-up system			
Accessibility			

Table IV.
Analysis of program
quality variables

identifies problem processes that managers need to address. The next section presents data to substantiate this claim.

Use of the PQAT in the Asia-Pacific: three cases

The PQAT has been used in Africa, the Middle East, and Asia. Tables V–VIII portray the results of assessments of family planning services in three island countries in the South Pacific. All share certain similarities: former colonies, they are remote from the industrialized world. However, levels of social development are very different. In each nation, the sites represent a mix of urban and rural clinic locations, and both government-run and independent clinic operations (Raghavan-Gilbert, 1997).

Of the three, Nation A had achieved the lowest level of economic and social progress since independence. Table V reflects inadequate headquarters support to the field (note the pervasive pattern of inadequacy in facilities, access, standards, MIS, supervision, monitoring, followup, safety and competence. The single urban clinic (Clinic 1) assessed as adequate in a majority of the indicators was run by an NGO and located in the capital. Clinic 5, located 50 kilometers from the nearest referral hospital, had no trained staff. Despite generally high demand for family planning services in the area, this clinic had the lowest utilisation of the six sampled.

The island nation “B” was somewhat more developed, due partly to its role as a popular tourist destination. Nevertheless, similar patterns emerge:

Nation A	Clinic 1 Urban	Clinic 2 Urban	Clinic 3 Rural	Clinic 4 Urban	Clinic 5 Rural	Clinic 6 Rural
Competence	AD	AD				
Choice	AD	AD	AD	AD		
Safety	AD	AD				
Medical backup	AD	AD	AD	AD		
Commodities	AD	AD				AD
Consumable	AD		AD	AD		AD
Equipment	AD		AD			
Physical facility	AD					
Access	AD					
Std and protocols						
IEC (outreach)	AD					
MIS						
Supervision	AD					
Monitoring						
Client follow-up						
Utilisation		High				

Table V.
PQAT findings:
Nation A

Note: AD = adequate quality only in this domain

Clinic 1, located in the main city, was operated by an NGO. Clinic 2, in the central government hospital in the same city, had good utilisation figures despite its poor showing in the assessment. Clinics 3 and 5 (also run by the government) suffered from a lack of trained staff, while utilisation was low.

Nation "C" was larger and had more highly developed infrastructure than the other two, which is reflected in much higher performance on access and medical backup, far stronger performance in capital-intensive areas such as logistics and equipment, and generally better performance on skills-based areas such as competence, safety, supervision, and MIS.

Table VIII compares the major findings as reported to the central health authorities across the three cases. Although the required action varied by country, common problem areas emerge, such as technical competence, standards, management information systems, and outreach. It should be noted that small sample size and other methodological limitations present severe barriers to an evaluation research approach. Despite this, the authors argue that the findings are valid and generalizable, in the context of the process theory research model.

Summary and implications

The general principles of quality measurement and management are endorsed by most program managers, yet these are often not well understood in the field, at the operational, or even in the headquarters levels of many programs in less industrialized countries. This gap is due to a lack of exposure to quality theory, philosophy, and techniques, compounded by a dearth of practical management tools to support timely operational decisions. These symptoms can be addressed

Nation B	Clinic 1 Urban	Clinic 2 Urban	Clinic 3 Rural	Clinic 4 Rural	Clinic 5 Rural
Competence	AD			AD	
Choice	AD			AD	
Safety	AD			AD	AD
Medical backup	AD	AD	AD	AD	AD
Commodities					
Consumable					
Equipment					
Physical facility	AD			AD	AD
Access	AD			AD	AD
Std and protocols	AD				
IEC (outreach)					
MIS					
Supervision	AD				
Monitoring	AD				
Client follow-up					
Utilisation	High	High			

Note: AD = adequate quality only in this domain

Table VI.
PQAT findings:
Nation B

Nation C	Clinic 1 Urban	Clinic 2 Urban	Clinic 3 Urban	Clinic 4 Urban	Clinic 5 Rural	Clinic 6 Rural	Clinic 7 Rural	Clinic 8 Rural	Clinic 9 Rural	Clinic 10 Urban
Competence			AD							
Choice	AD	AD	AD	AD	AD	AD	AD	AD	AD	AD
Safety	AD	NA	AD	AD	AD	AD	AD	AD	AD	AD
Medical backup	AD	AD	AD	AD	AD	AD	AD	AD	AD	AD
Commodities	AD	NA	AD	AD	AD	AD	AD		AD	NO
Consumables	AD	NA	AD	AD	AD	AD	AD	AD	AD	NO
Equipment	AD	NA	AD	AD	AD	AD	AD	AD	AD	NO
Facility			AD	AD				AD	AD	AD
Access	AD	AD	AD	AD		AD	AD		AD	AD
Std and protocols										
IEC (outreach)										
MIS		AD		AD					AD	NO
Supervision				AD				AD	AD	AD
Monitoring	AD			AD	AD			AD	AD	NA
Client follow-up								AD	AD	AD
Utilisation			High	High	High	High				

Table VII.PQAT findings:
Nation C**Notes:** AD: adequate quality only in this domain

NA: not applicable because medical services not provided at this site

NO: many processes were not observable at this privately run clinic

Indicators	Nation A	Nation B	Nation C
Competence			
Choice	AD		AD
Safety			AD
Medical backup	AD	AD	AD
Commodities	AD		AD
Consumable	AD		AD
Equipment	AD		AD
Physical facility			AD
Access		AD	AD
Std and protocols			
IEC (outreach)			
MIS			
Supervision			AD
Monitoring			AD
Client follow-up			

Table VIII.Summary of findings
for organizational
management action

simultaneously by providing a system of quality management training combined with quality evaluation tools built on a strong theoretical foundation, then facilitating adaptation of these tools to the local context. The PQAT is a viable example of this process.

Program evaluation and evaluation research are not identical. The theory verification paradigm of evaluation research is a lens to illuminate the search for "Truth". In contrast, program evaluation seeks to "inform action" (Patton, 1986). This role is consistent with Stake (1981) and Cronbach (1980), who find that program evaluation and evaluation research differ in the importance attached to making generalizations. This was because program contexts and the concerns of decision makers are very program specific and are seldom replicable in an identical way in the real world. Johnson (1970) also pointed out that program evaluation is differentiated from evaluation research by its utilitarian focus.

The articulation and validation of a relatively complete process model of primary health service quality has several important implications. First, the PQA model can help us understand why specific decisions and actions do not always lead to improved quality, and thus helps move the focus of research away from simple linear relationships between the use of specific quality methods and subsequent organisational outputs toward more complete analysis of specific patterns of interaction among inputs as enablers of service quality. This shift in focus will help highlight specific areas for research, such as the reasons for differences in service quality between private and public care providers.

Second, the PQA model provides a robust framework, and the PQAT a validated instrument, for empirical tests of potential links among contextual conditions, management processes, and service quality improvements. We believe that researchers have already made much progress in learning about interactions between the provider and the client, but that our understanding of interactions among the entities in the other domains remains incomplete.

Finally, the results of empirical work based on the PQA model will provide practical guidance to practitioners on decisions and actions ranging from standards to quality information systems and logistics support, and its underlying process and structure are generalizable to primary health care.

While this paper views a quality theory early in its evolution, it presents an internally and externally valid model of how, when, and why specific management inputs into service processes lead to improved quality. The authors believe, based on their analysis of the features of the PQA model and competing models, the process model captures the key ingredients of a recipe to focus management decision and action on opportunities to improve primary health service quality.

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