Microenterprise in Health Care
and Health Education

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Over the last decade, development aid has increasingly used a more collaborative model, with donors and recipients both contributing ideas, methods and goals. Though many examples of collateral aid projects exist in agriculture, business administration and banking, few have found their way into health care and health education, a typically donor-dominated model. The following case report describes a collateral project in health care education. This case report analyzes data-inducing project proposals, personal interviews and project reports obtained through standard archival research methods. The setting for this joint project was the collaboration between international nongovernmental (NGO) aid foundations and the faculty of a major sub-Saharan African Medical School’s Department of Anesthesia. The initial goal of this project was to improve record keeping for all anesthetic records, both in the operating theatres and outside.

Analysis of the data was performed using ethnographic methods of constant comparative analysis. The purpose of the analysis was to critically evaluate both the goals and their results in the Department of Anesthesiology. The findings of this analysis suggested that results included not only quality assurance and improvement programs in the department but also advances in the use of critical incidents as teaching tools, hospital-wide drug and equipment utilization information and the initiation of an outreach program to district hospitals throughout the country for similar projects.

INTRODUCTION

In the arena of international assistance, “Development” has as many definitions as there are users of the word. Some include social restructuring, technology advancement, financial well-being and basic improvements in health, education and social welfare. To complicate the issue further, unlike many of the physical sciences, the results of development are often measured by a collection of uncertainties rather than hard and fast quantifiable results. No generalized model for successful development can be applied across time and geography. The recent South African National electrification plan, introduced by the Mandela government, is a prime example of the uncertainty of outcomes with even the best-laid development plans. The Mandela project to introduce electricity into households and small business in South Africa has not been able to produce measurable increases in the use of electrical equipment or a financially independent power industry despite extensive pre-planning and widely recognized need. The National Electrification Planning project manager, Thula Bopeal, attributes the failure of this multi million-dollar project to 1) the lack of consideration of seemingly unrelated financial factors and 2) local traditions.

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“What we have seen is that electricity doesn’t improve people’s lives alone. It has to be linked to roads, water, jobs, and development in general” [2].

General development policies fall into three basic categories: Top-down, Bottom-up, or collateral (See Figure 1). Top-Down strategies are donor dominated. Donors, both governmental and nongovernmental are the sole arbitrators of the amount, type and extent of aid given and projects funded. The most notable promoter of this development strategy is Go Bruntland, former chairman of the United Nations Commission on Environment and Development. Though Top-Down aid has the advantages of being expedient, it is fraught with the inherent problem that ideologies, technologies, knowledge and skills are not always directly translatable. Development aid in medical care, education and technology has most frequently fallen into this category.

Examples of Bottom-Up aid schemes are less apparent and less frequent [4]. Bottom-up strategies originate with local populations, typically thought of as recipients and often organized as peasant cooperatives, women’s collectives and cultural and agricultural groups. Here projects are conceived and planned at the grassroots level with follow-up solicitation of donor support by the planners themselves. Projects in these categories are commonly small-scale agricultural and environmental or childcare related. Though this approach empowers local groups to initiate development, problems lie in the fact that without prior knowledge of the routes of technical and economic advancement, local populations are frequently the least able to be in a position to access development assistance (the “you can only get a loan if you really don’t need a loan” philosophy).

In contrast, a more collaborative approach to development aid has been introduced by Uphoff. [5] In the Assisted Self-Reliance model, external (donor) resources such as advice funds, material assistance, and training (not project plans) are used to strengthen local capacities to generate income, manage natural resources and create infrastructure. Successful examples of this model include the microenterprise projects that are springing up throughout developing countries [6, 7]. Worldwide, microenterprise and its counterpart, microcredit, result in small, self-sustaining businesses, usually consumer-oriented [7, 8]; however, there are few examples of microenterprise and microcredit in health care and health care education. The following is a case study of one microenterprise project in the field of anesthesia education. This project uses micro- rather than macro-donor investments to solve locally identified problems in anesthesia education. Problem identification is by local educators, and solutions use local resources both educational and human.

![Figure 1. The three most commonly used development strategies indicating the direction of flow of resources, including monetary, human and technical, between aid donor and recipient.](attachment:image.png)
METHODS AND MATERIALS

Following approval by participants, the data used in this case study and analysis were collected by standard archival methods. Methods included personal interviews and retrieval of all possible documents generated and related to this project. The project is based in a large tertiary-care medical center and teaching hospital in sub-Saharan Africa. Documents used in this analysis spanned the time period of March 1995 through January 1999. (See Figure 2). Data collection was principally performed during two sites visits by the author (May 1996, February 1997), and communications have continued between the author and the faculty of the teaching hospital for the purpose of clarification and updating.

All data were catalogued using key categories generated in the analysis, additionally it was noted if the documents were original or copies, with information including site of data collected, participants involved and date. The analysis followed standard ethnographic methods for generation of grounded theory using constant comparative analysis and use of disconfirming events [9].

Figure 2. A time-line of important events in this project.
RESULTS

In 1995, the faculty members of the School of Anesthesia in a major sub-Saharan African teaching hospital concluded the need for improved record keeping and methods of quality assurance in their department. This need was recognized following a visit to a UN operated hospital at the Rwandan border. With the assistance of an international non-governmental aid agency (NGO), the department identified existing problems in record keeping. After the phase of problem recognition, local faculty members were allowed to submit proposals to the international agency, outlining proposed solutions, measurable goals, methods and budget considerations. The accepted proposal is outlined in Table 1.

In these plans, the department's statistical director financed tuition in statistics and record-keeping with funds from the NGO. These funds were small investments (in the range of $80-$100 USD/month) and used for training in local School of Medicine record keeping. Materials and supplies, progress and budgets were documented in monthly reports to the NGO.

Within one year of operation, this project made considerable changes in medical record keeping in the department itself. Progress was observed not only in the techniques of record keeping but also anesthesia education and quality assurance (Table 2).

As a result of the project, anesthesia procedures were classified by technique with cross-referencing to complication. Critical incidents were identified and used as teaching tools for the students in the School of Anesthesia. Additionally, this project resulted in a more efficient review of drug and equipment usage. Additional benefits of the project were the introduction of outreach programs by the statistical director of the project to various community hospitals. There he introduced similar but simplified methods for record-keeping and tracking of equipment and drug usage.

Table 1. Proposed anesthesia record-keeping plan. This table illustrates the phases of this project, beginning with problem identification, proposed solutions and budgetary requirements for completion of project.

| Phase I. Problem identification: need for reliable, reproducible documentation of anesthesia charts, ICU charts and pre-anesthetic consultations for purpose of: |
|---|
| 1. Quality assurance of anesthetic care |
| 2. Drug utilization |
| 3. Teaching students elements of correct charting |
| 4. Identification of critical incidence |

| Phase II. Methods. This project will: |
|---|
| 1. Recruit 1 AO* faculty, 1 AO student and 1 nurse for project |
| 2. Enlist local faculty in school of medical record technology to teach interested anesthesia faculty in statistical considerations |
| 3. Designate non-clinical time for chart review |
| 4. Produce monthly reports to department and project manager |

| Phase II. Average monthly budget: |
|---|
| 1. Office supplies | $50.50 USD |
| 2. Instructional fees | 18.00 USD |
| 3. Salary | 20.00 USD |
| Total | $88.50 USD |

*AO, anesthesia officer.
DISCUSSION

This project deserves unique consideration, not only because of its results but also because of the strategy. The use of collaborative aid has several advantages, including full investment of the faculty participants in the problem and its solution, transparent cost accounting, and self-determination of goals with the use of local resources, technologies and professional expertise. All too often, well-intentioned donors, making use of technology and values that are not culturally translatable, find successes self-limited to the extent of donor presence. Collaborative aid builds local capacities to both diagnose and solve problems. The initiation of drug and equipment utilization reports is an example of this problem solving. In sub-Saharan African hospitals, lack of anesthesia drugs and equipment are frequently the limiting factors for surgical procedures. This tracking system provided improved methods for requesting additional supplies for Ministry of Health before the inventories became critically low. This is a simple illustration of self-determination but one infrequently applied in postcolonial health care systems.

Perhaps the most significant contribution of this project is the introduction of quality assurance and quality improvement into the School of Anesthesia’s curriculum. Through the systematic reporting of anesthetic cases, the students now have a rich local resource of documented complications of anesthesia frequently unique to developing countries and not available in standard Western anesthesia or medical texts.

The use of collaborative aid also allows donors to gain an understanding of local realities, including both limitations and resources. Because of the low scale of the financial involvement, the cost accountings are simplified. One disadvantage of this type of aid is the requirement for ongoing communication between the site and the donor, Table 2. The results as analyzed by ethnographic methods. Clinical, educational and management changes are identified and categorized.

| Project                  | Pre-project                                      | Post-project                                              |
|--------------------------|--------------------------------------------------|-----------------------------------------------------------|
| Reporting format         | Cases categorized by:                           | Cases categorized by:                                     |
|                          | 1. Surgical specialty                           | 1. Surgical specialty                                     |
|                          | 2. Emergent vs. non-emergent                    | 2. Emergent vs. non-emergent                              |
|                          |                                                  | 3. Regional vs. general anesthesia technique              |
|                          |                                                  | 4. Mask vs. endotracheal technique                        |
| Identification of anesthesia | Nil                                             | 1. Identification of critical incidence with faculty follow-up |
|                          |                                                  | 2. Listing of complications by organ system               |
| Utilization review       | Nil                                              | 1. Drug utilization report                                |
|                          |                                                  | 2. Equipment utilization report                           |
| Educational value        | ?                                                | 1. Outreach program to district hospital including documentation of: |
|                          |                                                  | a. Drug/equipment utilization                            |
|                          |                                                  | b. Tabulation of anesthetic complications                 |
|                          |                                                  | 2. Introduction of Quality Assurance into student curriculum |

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through communication or on-site supervision. Additionally transfer of highly technical skills and production may be limited by local infrastructure.

With these limitations in mind, microenterprise offers a feasible alternative for sustainable aid in health care education in a post-colonialist global economy. Other microenterprise projects in health care education at the same site now include a continuing medical education project, assisted by a volunteer U.S. teachers and proposed equipment repair program. These and other potential programs build infrastructure and design medical curricula that address local medical needs.

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