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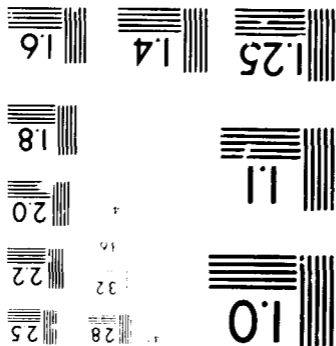
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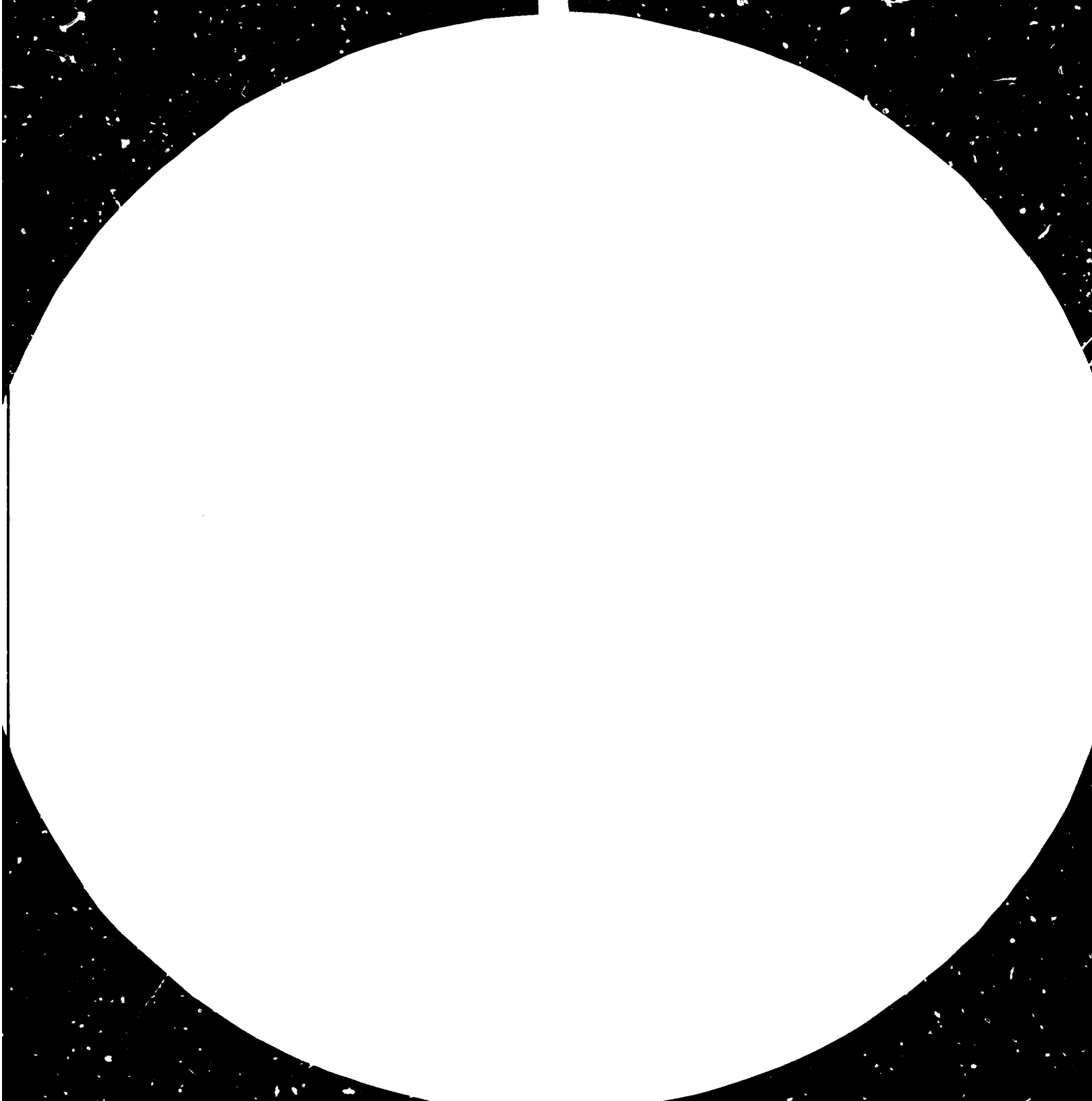
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CENTRE MONDIAL INFORMATIQUE ET RESSOURCE HUMAINE: /
INTERNATIONAL ACTIONS*

by

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Centre Mondial Informatique et Ressource Humaine:
International Actions

1. Introduction

The Centre Mondial Informatique et Ressource Humaine is a center of research and experimentation In the use of the computer for human development. The Centre was founded in Paris in 1982 on the premise that exploding computer technologies can be a wedge driven between the advantaged and disadvantaged, or a lever elevating the disadvantaged into modern economic and social life. The Centre is committed to realizing the second view, that of the computer as a tool for global human development.

The Centre views the computer as a multiplier of human intelligence, as a powerful element in global communications, and as a central tool in modern economic activity. These utilities are embedded in a general "computer culture." Those sectors of the world population who embrace this culture will find a productive role in the future economic and social order; those who refuse to accept this culture, or are denied access to it, will be consigned to secondary and diminishing roles. Confronting this challenge, the mission of the Centre Mondial is to expand the utility of the computer for human resource development, and to foster the widest possible access to the computer and the culture which surrounds it.

To pursue this mission, the Centre has developed a three–part strategy of research, experimentation and public outreach, all three with both French and international dimensions. The *research programs* focus primarily on technological enhancements necessary to support new applications: man/machine communications, interaction of the computer with other communications media, and new techniques for the use of the microcomputer in teaching, training, medical care and agriculture. The *experimental programs* convert these new technologies into practice in environments in which the computer has previously had little exposure: for example, training of the chronic unemployed in the provinces of France, early childhood learning in Dakar, health care delivery in the central African bush, technical assistance for peasant farmers in France and the Ivory Coast. The programs of *public outreach* seek to initiate the largest possible public in the culture of the computer, by providing orientation, training and free access to computers, both in France and in developing countries.

These three axes of the Centre Mondial strategy are evident in the history of the six concrete international actions undertaken thus far by the CMI.

2. Current International Actions

In the two years of its existence, the Centre has initiated cooperative projects in Senegal, Tunisia, Colombia, Chad and the Ivory Coast, and has conducted an international training program for representatives of these and ten other developing countries. The scope and purpose of these actions vary considerably, and thus serve as a rather comprehensive experiential base for developing future strategies. The actions are described briefly below.

2.1 Senegal

In late 1981 the Senegalese government approached the founders of the Centre Mondial to explore the implementation of computers in their educational system. From this initiative evolved a project centered on the LOGO programming language, a powerful pedagogical language authored by Seymour Papert and his collaborators at M.I.T. The LOGO Experiment in Dakar was established in early 1982, coincident with the founding of the Centre Mondial, with the participation of S.E.R.S.T. (Secretariat d'Etat a la Recherche Scientifique et Technique Senegalais) and the Ecole Normal Superieure de l'Universite de Dakar.

The first step of the project was the training of four senior Senegalese educators in a month-long program in the U.S., organized by the Centre and supported by USAID. Upon their return to Dakar, the group was provided with computers and software by the Centre Mondial, and an experimental laboratory was established in the Ecole Normal Superieure. During the summer of 1982, fifteen Senegalese teachers were trained at the Centre Mondial. In September of 1982, this larger group intiated the full-scale project, in which 60 children between the ages of 9 and 11 were brought to the laboratory for ten hours of instruction and exploration in LOGO each week. At the same time, a second laboratory was established in Dakar University to develop versions of the software in Wolof and other African languages. A continuing seminar in computer-based pedagogy was simultaneously launched at the Ecole Normal Superieure.

In the summer of 1983, the Senegalese conducted a teacher training seminar, partly staffed by the Centre Mondial. This seminar prompted the creation of three planning commissions addressing questions of local language software, computer-based pedagogy, and new technologies. The work in the teaching laboratory was expanded to involve 200 students. This spring, the teaching activity shifts from the laboratory to the four elementary schools involved, using equipment provided by the Centre Mondial.

The project must be viewed as a success to the extent that it resulted in a critical mass of trained and highly motivated Senegalese, who have now assumed full responsibility for the direction and support of the project. The pedagogical effects remain open to scientific evaluation.

2.2 Tunisia

The Centre Mondial has been engaged in the planning, technical definition, and support of the Centre Informatique Bourguiba in Tunis. The Bourguiba Center has three objectives: training of students of the Lycee Bourguiba in the uses of the microcomputer; training and initiation in computer use for the general public, and the development of programming languages and software in arabic languages. The Bourguiba Center has opened its facility this year. The Centre Mondial provided several of the computers for this facility, particpated in the planning of the programs, provided technical manpower for setting up the computer system, and trained two of the staff members in our International Training Program (see below). In the coming year we will provide additional equipment and technical support as the programs develop.

The Centre Mondial views the Bourguiba Center as an ideal partner in pursuing our mission, because it comprises the following elements:

(a)   commitment by the national leadership

(b)   affiliation with a strong educational institution

(c)   orientation to the general public for initiation in computer culture

(d)   plans for local research and development

2.3 Colombia

Direct exchange between Jean – Jacques Servan – Schreiber, president of the Centre Mondial, and President Belisario Betancur of Colombia resulted in the creation, in 1983, of the Latin American Center for Informatics and Human Resources in Bogota. This Center is founded to address, in the Latin American region, goals closely paralleling those of the Centre Mondial. The two centers are formally linked. The Centre Mondial is committed to providing training, research fellowship opportunities, technical advice, and the transfer of research results. The Latin American Center will cooperate in joint projects, which may initially include:

(a)   development of adult training using the interactive videodisc

(b)   development of a prototype microcomputer which can be manufactured and used in the Latin American environment

(c)   exchange of software and technical expertise for the development of computer – based aids for agriculture and medicine

2.4 Chad

Our Third – World Medicine project has selected Chad as the test site for the development and use of a microcompute. – based medical diagnostic program. This project has been launched in conjunction with Medecins Sans Frontieres, a Belgium – based organization providing medical care in the villages of Chad. The Chadian medical system is currently incapable of providing rudimentary medical care outside of a few large towns; the challenge is to provide some degree of care in the bush villages, despite the chronic lack of trained medical professionals.

To this end, we have developed a program which can be used for initial diagnosis by a person without medical training. The program employs simple principles of artificial intelligence, and is implemented on a rugged microcomputer capable of operating in the harsh and uncertain environment of the African bush. The first field test of this program and device takes place in April. The purpose of the test is to measure the medical utility of the system and to determine the social and psychological acceptance of it. If the field test is promising, we will continue the development of the system, to incorporate other medical functions, including prescription, maintenance of pharmaceutical inventories, and medical record keeping.

2.5 Ivory Coast

The INADES (African Institute of Economic and Social Development), an international development organization, operates throughout Africa via ten national offices. Its training department, INADES – Formation, has developed basic farming training courses for African farmers, covering general farming problems and those particularly concering African crops: manioc, cotton, etc. These courses, the result of 20 years of field experience, are illustrated with drawings and translated into several African languages. The vocabulary is limited to 500 words.

Using these training courses as a base, the Centre Mondial is developing training materials using interactive videodisc technology developed by the Centre. This technology enables an unsophisticated user, with a few minutes of training, to call up sequences of images with audio and/or textual explanation. The Ivory Coast project is an experiment to determine the utility of such technology among subsistence farmers, for whom we make no assumptions regarding technical background or literacy. Given the known utility of the course material, we seek to discover if the training is enhanced by the use of this powerful instructional technology. Educational television has not been successful for such formal training in the Ivory Coast. This project will add the power of computer interaction to the power of the video image; we hope thereby to overcome the cultural constraints which have weakened the impact of previous video – based attempts.

2.6 International Training Program

In November and December of 1983, the Centre Mondial conducted an experimental international workshop. This program brought to the Centre 30 trainees from 15 countries.[1] The goal of the program was to develop trained cadre who could begin the analysis and planning for cooperative actions between the Centre Mondial and institutions in their home countries. To this end, the five-week workshop had four components:

(a) technical training in the hardware, software and programming languages of microcomputers

(b) training in the use of mainframe utilities and network cummunications

(c) seminars in exemplary uses of microcomputers in various fields of application

(d) workshops to initiate local planning

As a follow-up to this program, the Centre Mondial is working with each group to define program opportunities in their country. The Centre will support these efforts with technical advisors and donation of equipment.

3. Future Directions

Through the efforts recounted above, the Centre Mondial has established a solid foundation for the development of its international programs. From these experiences, one may extract several themes which serve as guiding principles:

(1) The early involvement of high-level government officials is vital to rapid project development.

(2) Projects involving the innovative use of computer technologies must be viewed as scientific experiments by all parties. In this way the project can succeed even if the technology falls short of expectations, leaving a positive attitude among the local leaders.

(3) Given the limited resources of the Centre Mondial, or any such organization, the primary goal of any project must be the transfer of responsibility, organization, support and technical expertise to the host institutions.

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1. Cameroun, Colombia, Ethiopia, Ghana, India, Indonesia, Ivory Coast, Kenya, Morocco, Mexico, Nigeria, Senegal, Sri Lanka, Tanzania, Tunisia

(4)   The similarity of goals and needs among the developing countries underscores the need for international networks of technical exchange.

(5)   At the same time, local differences -- in language, technological sophistication, institutional structure -- demand strong local initiatives for the adaption of new technologies.

(6)   Every country with which the Centre Mondial is involved has two resources in abundance: motivation to adopt computer technologies to their needs for human development, and intelligent, imaginative and energetic people ready for this task.

(7)   At the same time, all have, to varying degrees, three deficits: lack of facilities for high-level training in computer science, an absolute dependence on American, European and Japanese suppliers of hardware, and an underdeveloped capacity for software production.

Guided by these themes, the Centre Mondial is devising a strategy to continue experimentation in the application of computer technologies to human resource development in the Third World, with experimentation guided by the higher-level goal of helping to build the training and technical resources of the host countries. With solid partnerships established in Latin America and north and west Africa, and promising contacts in many other regions, we are optimistic about the prospects for this endeavor.