Information and Communication Technology in Cuba
The Case of the Joven Club de Computación y Electrónica

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TERMS AND ABBREVIATIONS

CBIE   Canadian Bureau for International Education

CIDA   Canadian International Development Agency

EEUU   Estados Unidenses / United States of America

HTML   HyperText Markup Language

ICT   Information and Communication Technology

IDRC   International Development Research Council

JCCE   Joven Club de Computación y Electrónica / Computer and
            Electronics Youth Club

PAN   Pan-American Network

PCC   Partido Comunista de Cuba / Cuban Communist Party

TCP/IP   Transmisson Control Protocol / Internet Protocol

Telecentros Community-level computing and/or telecommunications centres

UJC   Unión de Jóvenes Comunistas / Union of Young Communists

UUCP   Unix-to-Unix Communications Protocol

ABSTRACT

Information and Communication Technologies in Cuba:
The Case of the Joven Club de Computación y Electrónica

Mark Rushton – 22 December 2004

In 1987, Cuba initiated the *Joven Club de Computación y Electrónica (JCCE)* programme, a nation-wide installation of staff and computer equipment that grew to encompass all 169 Cuban municipalities with community centres for computer-related training. Despite the severe economic upheaval that followed the 1989-1991 disappearance of Cuba's major trade ties with the U.S.S.R., the JCCE project endured. As the economy gradually recovered with the rapid growth of tourism and foreign investment, so, too, did investment in the JCCE. In 2000, the organization had 172 community centres. In less than four years, that number would nearly double. Approximately one-thousand centres are planned to be in operation within the next two years (2004-2006). Cuba's foray into this field is intended to "informaticize" its society, enabling Cubans to partake in the global "knowledge economy" through the participation of workers in joint-venture operations and through the creation and export of software and other technology. Similar ICT efforts on a smaller scale and with varying barriers to access not present in the Cuban example have been established by her Latin American neighbours, but only Cuba has the mass level of literacy and education to make that access relevant. This paper examines the development of the JCCE initiative, identifies the context in which it is being carried out and explores the Cuban experience as a sustainable model for mass ICT development.

1. Introduction

From October, 1999 through January, 2000, I undertook a CIDA-funded research initiative in Cuba focusing on the activities of the Joven Club de Computación y Electrónica (hereafter, JCCE). Among the achievements, this initiative contributed to the augmentation of Cuban IT professionals' involvement with their peers throughout the region. The linkages that developed are enabling the Joven Club to forge new ties with colleagues in their field and promote awareness of the JCCE model for community-level ICT introduction.

In an era of increasing globalization and the concurrent phenomenon of privatization, competition and removal of the state from its traditional role as the guide of the development process, Cuba represents a departure from the norm. While foreign investors have been courted with gusto throughout the past decade, that investment has been strictly controlled by the state and directed toward particular sectors of the economy, with other sectors – notably, education and health care – designated off-limits.

This is not a new role for Cuba, which has gone against the grain for over 40 years as it pursues an indigenous and unique development path free of influence from global agencies such as the International Monetary Fund and the World Bank. Still, Cuba's path has not always been of its own choosing: circumstances dictated isolation from its nearest and historical trading partners in the hemisphere, particularly during the years of the Cold War, due to its economic and ideological alliance with the former U.S.S.R.

Contemporary development projects throughout the world have incorporated technology as both a methodology and goal in the process of raising the conditions of life.

The increasing ability of people to communicate, in both quantitative and qualitative terms, is seen as a vital component in that process. Since 1993, in particular, that communication has been manifest in the use of computer networks (which, interconnected and widespread, combine to define the global Internet). These networks provide the enabling conditions for the dispersal and collation of vast amounts of information, available to everyone who possesses even a minimum of literacy and access to a linked computer.

Accessibility is a key condition in this development equation. Throughout Latin America, Africa and Asia, the creation of technological access points – known as "telecentros" – is viewed by agencies of development as an important step in bringing that wealth of information from the world to everyone and anyone at the community level. Thus we can see in Peru the projects to link rural indigenous communities with their peers in other parts of the country, or around the world. In Ecuador, inner-city youth are given access and training in computer technology. In Africa, millions of dollars are spent on the creation of a high-capacity fibre optic line that rings the continent, bringing network capability to areas where telephones have yet to penetrate.

These instances where information and communication technologies (ICTs) are the focus of development projects are, for the most part, in the hands of development agencies which channel their funding and personnel through universities, specific recipient government ministries and private initiatives. Rarely are they conducted on a broad scale; more often than not these initiatives

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are directed to specific communities (in both the geographic and conceptual sense). An ICT project may target indigenous peoples, at-risk youth, small business creation, environmental awareness... a myriad of possibilities. Yet they are characteristically small-scale, very specific initiatives conducted within a specific community.

The role of the state in these processes can be summed up as the following:

- a partner in the process via the appropriate ministry (e.g., health) which supports the project with personnel, and which is responsible for the management of project funds provided by the external partner agency;
- on a broad scale, responsible for creating the conditions (legal, political, commercial) within which the project may proceed.

The design of these projects is often explicitly intended to include significant involvement from the private sector. Whereas the state is permitted to set the overall objectives and strategy for ICT deployment, when it comes to implementation there is little room for the state as agent.

Cuba is the exception. In the context of the Revolutionary government's 45-year-old development project there is room for the state as agent and no other. Neither are efficiency and modernity the priority, as ICT implementation became a part of the socialist development process. The example of ICT introduction explored in this research effort, the Joven Club de Computación y Electrónica (JCCE), is for the most part the direct opposite of most other models in scope, implementation and structure. This project undertook a case-study approach to

the JCCE in an effort to identify its unique characteristics and possible lessons which can be taken to the conceptualization of ICTs as both a development objective and tool.[1] The state-directed nature of the JCCE differs markedly from other ICT efforts around the world, where the private sector and / or international development agencies take centre stage in the process of implementation. This study is primarily concerned with the opportunities which ICTs present to the development of an informed society in the Cuban context. It is a central proposition of this thesis that the Cuban model contains aspects and methodologies which contain valuable lessons for other situations where ICTs are being implemented. Given the unique (i.e. socialist) nature of the Cuban government vis-à-vis other governments in the region where ICT initiatives are being pursued, the differences which arise in the Joven Club model are of particular interest, and raise the question: What lessons can be derived from the Cuban model for implementation on the same scale and with the same level of integration with national development policy in other countries?

There are a number of factors that come into play when discussing ICT development in the Cuban context. Given the geo-political situation of Cuba throughout the past four decades (i.e., as a target of an isolationist policy on the part of the United States of America),[2] Cuban technologists had far greater

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[1] A broader exploration of Cuba's experience with ICT, beyond the Joven Club, can be found via American University: Impacts of National Information Technology Environments on Business. URL: http://www.granma.cu/ingles/julio1/27compu-i.html

[2] The U.S. economic embargo goes far beyond 'not trading' with Cuba. Successive U.S. administrations have, since 1961, drafted additional legislative measures which, among other things, prevent ships from docking in U.S. ports if they had visited a Cuban port in the previous six months. Diplomatic pressure has also been exerted on Cuba's regional neighbours, with the aim of further cutting trade ties. The Helms-Burton Act of 1994 extended the restrictions on doing business with Cuba to the point where third-country companies were threatened with lawsuits and their directors banned from U.S. entry if those companies in any way made use of property in Cuba which was 'illegally' expropriated by the Cuban government. A broader discussion of the embargo can be found at http://www.canadiannetworkoncuba.ca

interaction with their Soviet counterparts than regional colleagues (Lazou, 1982; Press et al., 1992; Valdés, 1997;). The Soviet era saw a great transference of industrial technical knowledge and capital investment, but nothing in the way of distributed computing systems for popular communication.

This is not unique to the Cuban experience, since the beginning of the personal computing epoch in North America only began in the mid-1980s, and did not reach a mass presence until a decade later. Latin America's foray into computing networks began shortly thereafter, with the greatest push for development in most areas with the "birth" of the World-Wide Web in 1992/1993, when the technological advantages in terms of access to vast quantities of information outweighed the substantial infrastructural costs.

2.   ICTs in the Literature

The World Development Report 1998/99, subtitled "Knowledge for Development," may well have been given the title "Knowledge for <u>Market</u> Development." The World Bank continued to see open trading regimes as the primary path to economic development, with social and political development apparently riding its coattails. The Report is also heavily laden with western value perspectives regarding technology and its necessity in the "modern" society. For example,

> "One of the great hardships endured by the poor, and by many others who live in the poorest countries, is their sense of isolation. The new communications technologies promise to reduce that sense of isolation, and to open access to knowledge in ways unimaginable not long ago."
> (IBRD, p.9)

The theory of trickle-down economics, which dominated official development policy for many years, all good things will follow ICT implementation. Farmers will have knowledge of weather and can protect their crops; small-scale lenders can do credit checks on potential borrowers; and public health projects can become more effective. Admirable goals, though the words remind one of the valueless modernization theory. "Modern" society requires an adoption of communications technologies to connect the disconnected, bringing them into a sphere whereby they may receive knowledge. The experience of the past fifty

years shows that the more likely result is the creation of still more consumers who receive teachings in the value of things through these new media.

It would be hypocritical to reject many of the recommendations of the Report, as this thesis does advocate the development of community-based computer networks. The issue is not the tool, but how it is used, conceptualized and implemented. MacLuhan's realization that "the medium is the message" led communications technology analysts to appreciate not only policy implications on their face, but also the broader, less-obvious but no less profound cultural impact that such technologies inevitably bring (1967). However, knowing from the outset that the technology carries with it implications for the way in which knowledge is transferred, one can take steps to mitigate those implications and / or adjust them to suite the context. The valueless application of ICTs as advocated by the Report follows the decades-old tradition of an open market ideology.

The report is a useful contrast to what has happened / is happening in the Cuban context. While the Report argues strongly and frequently for the privatization of telecommunications infrastructures (IBRD, Box 4.5, p.65), Cuba remains steadfastly opposed to that sort of market-driven development of services. Although the national telephone company has been opened up for joint venture development (with first Mexico's Grupo Domos as a partner, and now an Italian firm), state control and direction remain the definitive guiding force. Cuba's telecommunications development continues to advocate an equitable distribution of new capacity, rather than concentrating that capacity in urban areas, or within urban areas, to specific neighbourhoods. It is this character of national development planning which permeates all sectors, and in the context of

this study is most relevant when discussing the developmental nature of the Joven Club system.

Technology as a driving force behind the development process is a well-discussed concept (Kuri Gaitán, 1995; Patel, 1995). The past decade of innovations and implementations of ICTs in the developing world context, though, provides sufficient real-world examples from which to conclude that the nature of ICTs has changed in a quantum fashion from the first days of telephone, facsimile and HAM radio. The world now possesses satellite telephones which provide for near-universal access. Internet technologies have pushed out from their northern barriers to reach all corners of the earth. Internet cafés exist in major cities of some of the poorest countries.[3] Private commercial internet connections exist in even smaller centres. The world continues to shrink, as citizens' horizons expand.

One of the great promises of ICT implementation is the "democratic enabler" they represent. Using community networks to inform the people, providing detailed information to many with little expenditure of money and resources. One form of ICT implementation, the Community Network (REF), provides tools for civic empowerment and is a facilitator for organizing groups to conduct collective action.

Contemporary ICTs, unlike any technology that has gone before, have **an exponentially greater liberating / empowering characteristic** in the context of national / social development (UNDP, 2000). The capacity of ICTs to contribute to development in all spheres is large, provided the infrastructure is constructed **with developmental goals in mind.**

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[3] Visit http://www.world66.com/netcafeguide for a comprehensive listing of cybercafés around the world.

This liberating, or empowering, characteristic of ICTs goes far beyond the former hi-tech plateau of telephone and fax capability: ICTs permit the near-instantaneous communication of information to unlimited numbers of recipients (limited only by access) with an incredibly small cost penalty. The capacity for two-way communication, just as rapid, is as impressive. The ability to coordinate collective action in this manner surpasses anything that has gone before.

In the South, ICTs are being implemented in many ways, some with objectives appropriate or at least intended for differing cultural, political and economic contexts. The vast majority of these are led by the private sector, with government support for certain sectors (infrastructure development, research funding, policy).

This is a point of departure in the literature; an open-market approach to the implementation of ICTs tends to follow the money trail; business leads the way, following those who can pay for the services. It can be argued that in many cases of ICT implementation, the motivation is not one that serves local development interests, but rather the agenda of someone outside the community, perhaps outside of the country. Just as the development of better-quality roads through the Brazilian Amazon served not the interests of the people but the interests of resource extractors, ICTs may also be developed contrary to community interests.

Governments can encourage ICT development in ways that serve the broader community. Through regulatory means, infrastructural development and educational support, ICTs can become a tool of the people rather than a diversion at best; a cultural threat at worst. Yet this government hand in the

process is often decried by such international bodies as the International Monetary Fund, which sees such involvement as inappropriate and contaminating to the "natural" process of demand-led development. For that reason, government policies which encourage ICT development of a character that is conscious of the implications may fall into the same disfavour as protectionist economic policies of the 1970s.

With each major technological advance comes an expanded productive capacity. ICTs provide more than simply a way to immediately communicate information, they provide a method for instantaneous collaboration (Lanfranco: 1998) to achieve goals both intentional and predetermined, and goals that arise out of that interactive communication.

There are additional issues to consider. ICTs are big business; they cannot be implemented easily without an investment in infrastructure, modernization of existing capacity, and some degree of training and skills enhancement. Tied to this is dominant open market ideology - the vast majority of the literature on ICT implementation refers to economic development objectives. ICTs will enable developing countries to provide for its citizens and the international community such services as "electronic commerce," VISA authorizations, hotel bookings and the like.

In the Cuban context, this requires an adjustment in the analysis. Although there have been entrepreneurial and open market experiments, the state retains control over all economic initiatives, infrastructure development and strictly controls foreign investment, particularly in key sectors. The information sector in Cuba is rapidly expanding, and is poised to represent a significant new economic contribution to national production.

The Cuban Example

Larry Press' work is a valuable technical survey of Cuban networking capacity in the 1990s, though it should be noted that his analysis is weighted to technical barriers and policies, not the broader issues of societal development. He identifies the infrastructural difficulties faced by planners as they attempt to implement new digital networks for communications across the island. Press incorporates a multidimensional evaluation of Cuba's networking capacity, which is used to compare the country with other Caribbean and Latin American states. His own notes point to a discrepancy in the analysis, as Cuba ranks low for "Geographic Dispersion" of networking capacity due to the fact that it has only one connection to the global internet (CENIAI). "If, however, we were to consider email connectivity, we would find access in every province and nearly every municipality..." (Press, 1998). Also noted is the communications infrastructure growth rate, which is substantially higher outside of the city of Havana, pointing again to the state's desire to provide equality in ICT access. In a followup examination of Cuba's ICT infrastructure, Press notes:

"...in the spring of 1999, Cuba's total international bandwidth was 832 kb/s, which is less than a home with high-speed DSL service or cable modem and less than 1/50th of the bandwidth from my campus of the California State University to the Internet .... Furthermore, connectivity was concentrated in Havana (though less concentrated than in many developing nations) and limited to relatively few people, almost exclusively through their work .... Africa is an even stronger case in point .... many nations

have international connectivity speeds roughly equivalent to a single analog modem …. in many African nations, access is available only in one city…" (Press, 2000).

In comparing Cuba's ICT development model with that of other countries, Press speculates that "(i)f Cuba retains this geographic balance, we may learn something of the ability of networks to improve quality of life" (Press, 1998). This is based upon UNDP estimates that developing countries will continue to see higher rates of rural-to-urban migration, as services continue to be concentrated in cities to the detriment of the countryside. Should Cuba's efforts stem that tide by providing the services which the society desires / needs, it may well end up with a more sustainable situation in terms of urban / rural population balance. While Cuba has a long history of post-Revolutionary triumph in the dispersion of services of education and health, its continuing commitment in the information age to that path lends it a distinction from other countries' initiatives.

The issue of what Cubans have called 'cultural imperialism' is raised by Press (1997), who notes "Cuba has moved slowly out of concern for the preservation of the values of the nation." While these sentiments are shared by most other developing nations, he notes that "Cuba is further concerned because of its socialist economy and political philosophy." He cites CITMA Minister Rosa Elena Simeon, who states "The First World uses the network to introduce viewpoints that work to the detriment of the ethical and cultural values of developing nations."

Beyond these threats-by-nature come more overt threats undertaken intentionally by the First World. Press refers to the use of ICTs by the United States to spread propaganda via radio and television signals. There has even been one recorded incident of the U.S. interests section personnel using Cuba's fledgling email network to spread U.S. -origin information to many of those Cubans who had email access at the time. Cisler (1994) and Press (1996) make reference to incidents of "e-bombing" undertaken by Miami exiles who flooded Cuba's network with thousands of email messages, a move which led the Cuban state to exercise stricter control over access to the technology (American Libraries, 1996: 25).

Press' analysis overall is preoccupied with the development of IP connectivity; that is to say, the technological protocols utilized and access to the global internet. He sees the protective nature of Cuban ICT development as an impediment to its ultimate success. The fact that Cuba's model for ICT development emphasizes internal capacity building and training, with secondary consideration given to providing the citizenry with global internet access, is a problem. He does not appreciate, though the evidence is within his own material, that Cuba is proceeding in a culturally-appropriate manner, guided by its fiscal and technical capacity, and its geo-political situation. Even developed nations such as France have decried the homogenizing effect of the global internet and its predominantly U.S.-based content (Coleman, 1997). Cuban resistance to following the dominant model is characterized as a "strategy of building internal networks and skills at the expense of international connectivity.... a result of political ambivalence toward networking (a desire to

reap the economical and educational benefits without the political and cultural risks)" (Press: 1997).

If there is a paucity of information in the literature which appreciates the unique nature of Cuba's development of ICTs, it seems to lie primarily with an inability to assess the project in context. Analyses of the Cuban effort which base their critique on norms that are transferred from a market economy simply will not work. It is only by first establishing the parameters of a socialist state and planned economy that one can assess the Joven Club initiative, and all of Cuba's forays into ICT development, with any hope of divining an accurate picture.

3. The Joven Club de Computación y Electrónica (JCCE)

Over a period of 3.5 months (October, 1999-January, 2000) I travelled throughout Cuba, visiting Joven Club installations in cities, coastal villages, mountain settlements and on the plains. I met with current and past administrators of the Joven Club, staff at the local and national level and those members of the general public who made use of the Joven Club facilities in each community. As the research effort began, I attended a national meeting of network administrators for the Joven Club, held in Havana. I promptly had access to those who implement and operate this community-level informatics network.

The extent of the organization was impressive; in almost every municipality there existed a community centre where the public could undertake computer training. The scope of the Joven Club initiative would be intimidating to any planner in a developing nation: 169 municipalities, some of which were still using horses as a primary mode of transportation, limited infrastructure (though perhaps more equitably distributed than in other countries) and continual problems with electric power availability. Despite these and other challenges, the Joven Club managed to construct 174 community centres, equip each of them with computers and staff, and initiate an educational programme that would target not just youth, but children, adults and seniors.

Foundation And Development

The *Joven Club de Computación y Electrónica* was founded in 1987 with the support of President Fidel Castro (Díaz, 2000). The state recognized the need to develop

a Cuban culture of information technology to prepare the population for its part in the continual advance of technology in the world.

> Local experts say Decree 209, passed in June to integrate Cuba into global information networks, demonstrates the government's decision to make progress in that industry. "There is no alternative, and we must not lose time," Vice-President Carlos Lage told a seminar on Cuba's involvement in the Internet, the global computer network (Acosta, 1996).

The implementation of the project, or "movement" as the Joven Club team describes it, was undertaken according to a model that would be challenging in any other context. Rather than create areas of specialization and concentrate scarce resources to achieve a critical mass of knowledge and technical capacity, the Joven Club model instead distributed its resources equitably, bringing all localities to approximately the same level in both technical and staffing terms, with the exceptions being provincial capital centres termed *"palacios"* where a concentration of the newest technologies existed. This initial direction has remained a core policy, with every Joven Club in the country receiving a new multimedia computer over the New Year (2000) holiday period and the recent announcement by the Cuban government of a further capital enhancement.[4]

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[4] Field Notes. Compiled during a research visit to 30 communities across the breadth of Cuba from 04 October 1999 to 16 January 2000. Unpublished.

Objectives And Methodologies

As the Joven Club movement grew, so too did its mandate, objectives and methodologies (see Appendix B). Initially viewed as a useful tool to engage idle youth and provide a non-formal training opportunity, the Joven Club as an organization now employs methodologists at the national and provincial levels. These administrators oversee the implementation of programmes, attempt to reconcile the wide variety of individual skill bases amongst community-level instructors and formulate future directions for training and special projects.

The Joven Club's mission is to "develop an informatics culture among the community with a priority toward children and youth, playing an active, creative role in the formation of values in the process of informaticizing Cuban society" (Díaz, 2000). From the research visits to several community centres through a four-month period, it was clear that the Joven Clubs have assumed central roles in their respective locations. Integration with the Young Pioneers, a children's organization to which virtually all Cuban youth join, is very much in evidence. They are present on a regular basis for computer literacy classes, which initially take the form of game-playing sessions and which gradually become more complex as the children's comfort level rises. This partnership with local schools at all levels allows the Joven Club to reach its 'target audience' while providing technological training to students that schools are not equipped to deliver.

Issues of Access

The objective of raising the technological capacity of Cuban society appears to take precedence over any concerns or desire to restrict access to only those who are seen as supporters of the Cuban government. This characteristic is somewhat at odds with examples of fax machines and computers belonging to "dissidents" being confiscated by the Interior Ministry when their activities are seen to pose a threat, however small, to the state and society. Although the Joven Club is an organization under the administrative control of the Union of Young Communists (UJC) -- the youth wing of Cuba's Communist Party (PCC) -- there is surprisingly little overt top-town control. The individual community centres, though, are closely integrated with the activities of local UJC chapters. In this respect, it is not unreasonable to assume a certain degree of peer influence.

At the community level, the only restrictions on access to the facility are based on hours of operation and the availability of electricity. There is no prerequisite to be a member of the UJC or PCC. Children are first exposed to the Joven Club through programmes developed between the community club and local schools. Once or twice a week, children spend a half-day at the club playing computer games and learning about the equipment. As they grow older, other avenues for involvement, such as "Circles of Interest," are made available for specialized instruction by peer-groups. An example of these groups is the radio-aficionado club, which is a problem-based approach to learning about packet radio transmission of computer data, an initiative that even young teenagers pursue.

At this point in the Joven Club's development, there has not been an opportunity for counter-revolutionary persons or groups to abuse the technological capacities of the organization. The potential exists, as the proliferation of ICTs provide rapid communication of information, for such activities to develop once email becomes more ubiquitous. Few of the Joven Clubs provide email access for individuals, not for any ideological reason but rather for practical, technical reasons. Currently each Joven Club has one email address, used by the director and other staff. There is at this point no privacy, beyond that which the staff wish to implement and agree upon (although each Club has a director with three-to-four staff under him/her, the team approach to management is very evident). For a counter-revolutionary member of the community to have unrestricted access to email via the Joven Club network is highly unlikely. Likewise, guaranteeing any privacy for the recipient is next to impossible if the destination email is within the Joven Club domain.

With the rapid development of the technical capacities, however, the potential for abuse of the system (e.g. dissident groups organizing, unofficial journalism, etc.) will grow as well. Incidents that will provoke policy development in this regard will likely happen slowly, as the Joven Club system by its nature does not - cannot - grow quickly. All equipment investments of any value are made by the state.[5] The potential for rapid transformation does exist as international partnerships and state commitment to expanding capacities grow. At the time of the field research, however, the likelihood was very low

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[5] Individual Joven Clubs do have the discretion and autonomy to enter into partnerships with foreign bodies and individuals. Field visits to communities in Santiago de Cuba and Pinar del Río revealed three such partnerships, each with European NGOs or individuals who procured donations of equipment, typically used computers of low capacity.

that any rapid development would occur. The equity principle that requires all Clubs to remain more or less on par with one another means there will not likely be a rapid jump into full-global-access-internet in any location. Multiple local email accounts may come first, followed by a provincial and/or national email service. Eventually the global email barrier may be broken, but only if there is a real and demonstrated need or benefit that would outweigh the risks.

Even barriers of ability are being overcome, as some Joven Clubs undertake special programmes to hold classes or incorporate into existing courses, people with physical or mental challenges. Adults and seniors are also included, though they are less likely to be actively recruited. The Joven Club is open to their participation in courses, and becoming involved for volunteer activities if their skills and time allows for that commitment.

Infrastructure and Capacity

The Joven Club national network structure has at its core *TinoRed*, one of the first national computer networks in the country, which became active in 1991. As of spring, 2000, TinoRed consists of central servers located in the Palacio de Computación in Havana which coordinate the transfer of email, program files, and other data among the various users in the provinces. The data transmission protocol throughout this network is UUCP, as it has been from the day it was formed, which presents limitations on growth and future development (see below). TinoRed's central servers in Havana exchange data (email, primarily) among outlying regions in this manner:

Figure 1
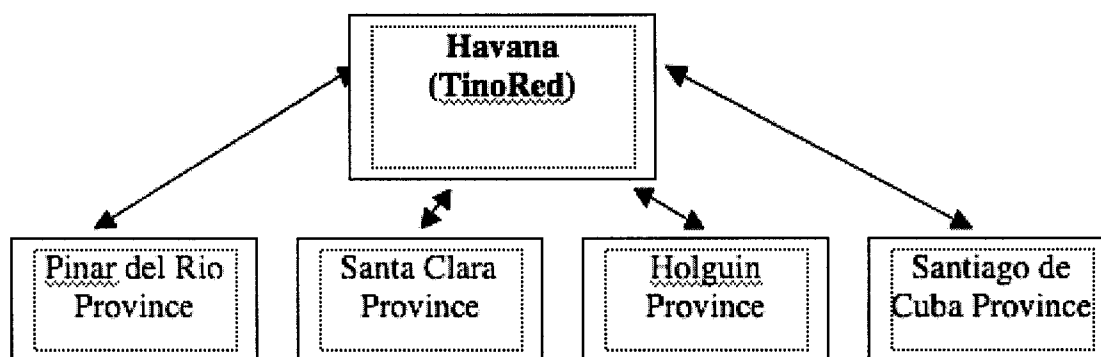
Each of the double-ended arrows represents a UUCP connection, which is to say, one computer calls another using a modem over poor-quality telephone lines and exchanges data, then disconnects. If a user in any province wishes to send a message to someone in another province, then that message passes through the central servers in Havana. At the provincial level, the above diagram is duplicated, with the provincial server handling email messages for the various clubs that connect to it.

There are several Joven Clubs that do not have the technical capacity for simple email. In most cases, it is not a question of hardware on the Joven Club's end, but rather a lack of capacity at the local Communications Ministry operation. There simply is not the ability to add any more telephone lines to certain areas.

The Clubs are getting around this limitation by exploring wireless networking alternatives. "Packet radio" is the term applied to the use of shortwave radio signals as a method of sending and receiving data. Transmission in most cases is limited to a rate of 9600 baud, the speed at which most facsimile machines in the world operate. While not sufficient for large data files, it is more than appropriate for small text-only communications. This

method is being put to use primarily in remote mountainous areas where the communications infrastructure is poorest.

A Typical Community Installation

A "snapshot" of a typical Joven Club (of which there were 174 spread throughout 169 municipalities as of January, 2000) would show it to consist of a stand-alone building, one-level, made of concrete. It has six rooms; a reception area, an office for the Director, a technician's shop, a general-purpose classroom with a chalkboard, a computer laboratory with four-to-six old IBM-XT clones or possibly 286's, and a second laboratory with up to two computers running Windows 95 or 98.

Staffing at the community level typically consists of one Director, with two hardware specialists and two software specialists. The Director would fall into one of those two categories also. All are certified teachers in their field. The software specialists teach computer literacy, programming, and applications. The hardware specialists offer instruction in repair, maintenance and circuit design.

The Joven Club national team, based in Havana, works with local representatives of municipal government and political institutions to identify an appropriate location within the community for the club. In many cases a pre-existing building is converted for use; in others, the community and local government raise funds to construct a building if no acceptable structure exists. The municipal government also contributes to the ongoing operation of the club through a donation of utilities (e.g. electricity) and supplies (paper, light bulbs,

etc.). The club would be physically located near the centre of the community, maximizing access for residents.

With the recent phenomena of joint ventures with foreign investors, the development of the tourism industry, and other similar creations of new organizational "wealth" or capacity, the Joven Clubs have taken advantage of personal and political connections to augment their capacities locally. Some clubs have formed partnerships with local "*empresas*" or new businesses to make use of their equipment for training purposes, or to address a technological need (e.g. a Joven Club that has created a website that relates the community history may make use of an *empresa*'s CD-burner to facilitate distribution of that material).

In certain communities of a particular geographic nature, the Joven Club incorporates community outreach activities. There are, in some localities, "Mobile Clubs" which see the staff packing up computer equipment and using rural bus transport or other means to visit communities, schools, etc. which are in remote locations. The Mobile Clubs concentrate on computer literacy more so than structured programming, as their presence in any one community on a regular basis is not guaranteed. The National Office has indicated a desire to augment the capacity of these specialized services to perform more effective outreach services.

Integration with National Development Programmes

The extensive presence of the Joven Club system at the municipal level allows for some interesting possibilities. In the 1997 elections, the Joven Club

network was used to transmit ballot box counts from communities to the tallying office in Havana. While not the "televoting" procedures that are gaining ground in North America, it represents a solid step forward in the inclusion of appropriate technologies into State operations.

The Joven Club project intended, as one objective, to address idle or disaffected youth by engaging them in something new and exciting. This is a primary concern for the methodologists who have national meetings aimed at improving their outreach and access. The Joven Club effort has already been shown to have a significant impact on the educational choices of Cuban youth. A poll conducted by the JCCE National Office in early 2000 found that over 95 percent of youth who had received instruction through the Joven Club network continued in the informatics field through university and trade schools. Among those already in the workforce, a survey of just under 2000 workplaces found 23.3 percent of workers had received computer instruction through a Joven Club (Bueno-Mesa et al., 2000). Thus, the Joven Club is "laying the groundwork" for the emerging ICT sector, which will require knowledge workers.

Infrastructural Needs Assessment

In 1999/2000, the Joven Club community centres, regional centres and national network were at each level deficient of hardware / resources in some respect. The human resources were more than sufficient, with instructors and managers (at all levels) in abundant supply.

The Joven Club initiative provided each regional centre with adequate material for the achievement of stated objectives. While community-level centres

were upgraded collectively as the situation allowed, regional centres (located in the provincial capitals) were institutions where equipment and personnel could be concentrated to serve a broader range of needs and greater capacity of clients. In discussions with end-users, instructors, managers and national headquarter personnel, the Joven Club's infrastructural deficiencies included:

Individual Joven Clubs

- Outdated computer equipment (486-model PCs were the norm)
- Spare parts
- Protected power supplies
- Air conditioning
- Basic materials for instruction (paper, pens, chalk, overhead projectors)
- Telephone service (both for the staff and for regional / national networking)

JCCE National Network

- Severely deteriorated telecommunications lines
- Nonexistent telecommunications linkage to remote sites
- UUCP technology for existing linkages (whereas TCP/IP is the standard)
- Insufficient redundant capacity at the server level

Performance

According to the JCCE's *Centro de Información*, in the period between October, 1998 and January, 2000, the Joven Club system saw 35,302 citizens (of all ages) receive training in the community centres. This represents a 92.7 percent

retention of those who signed up for classes, with 99 percent successfully completing the courses. These figures do not include, among others, the 9017 students in secondary, pre-university and university classes, which function cooperatively with local Joven Clubs to provide resources and training. Nor do they include the 11, 273 students at the primary and basic-secondary levels who likewise spend part of their school week learning computer literacy through the JCCE (Díaz, 2000).

4. Lessons from the Joven Club model

To attempt to compare the Joven Club model of bringing information and communication technologies to the citizenry with similar efforts in other Caribbean or Latin American contexts is difficult and, ultimately, not entirely fruitful. Cuba's development of the ICT sector is as unique as the processes which brought the Revolution into being. Replicating the conditions for success – and the Joven Club is a success, in my opinion – is not likely to happen in other countries.

At the heart of this question is state involvement in the sector. Cuba's centrally-planned economy dispenses with the vast majority of market mechanisms which are called upon to drive consumer development in the rest of Latin America. Whereas the market economy counts on demand to fuel an industry built around selling a product, Cuba's strategy discounts the individual's consumerist desires and places the national good (in this case, the need for a trained workforce in the ICT area) at the forefront.

Cuba sees the potential economic benefits that can come from a combination of its already-significant achievements in education and the emerging ICT field. Whereas her neighbours must first be concerned with finding already-skilled people, or those who can have their skills upgraded, to enter this sector, Cuba has the best-educated populace in the region. There is no need for something as basic as a literacy campaign – Cuba covered that base three decades earlier.

The success of the Joven Club initiative is all the more significant when one considers the economic context. Shortly after the first Joven Club was opened, Cuba's socialist bloc trade relations were severely disrupted. Combined with the continuing (and strengthened) U.S. embargo, there were scarce resources to commit to an emerging economic field. It was a gamble which ultimately succeeded. In any other nation, there might have been a push to create a "centre of excellence" out of which a small but well-educated body of workers could rapidly emerge. But in Cuba, the socialist principle of equality for all resulted in a growth plan which ensured a broad programme aimed at giving

as many people as possible something to work with. Perhaps this was intended also to give the masses the impression that the country was moving forward together.

Also unusual in its execution of this plan, at least insofar as the usual implementation of community-level ICT projects is concerned, was the lack of any fees whatsoever for training. There are few examples in the rest of the developing world in which *telecentros* take the form of no-fee training centres. In most cases, use of a *telecentro* implies a certain disposable income, a minimum level of education and self-direction. Cuba turns the dominant model on its ear, giving away the training so that the citizenry can be utilized for future ICT-related projects, business ventures and other needs of the state.

The Joven Club de Computación y Electrónica is a prime example of what can be done to meet a development objective when the long-term fill of the State is behind it. For almost twenty-five years, the Joven Club has received consistent support from the state in terms of resources and political endorsement. It rapidly introduced a new technology to the masses, continues to provide initial training (for young and old), and prepares these alumni for a more probable future in research, a state ICT / Software company, or for work in an international joint venture.

This certainly would not be a reality were it not for a consistent political will on behalf of the government. The stability provided by a non-confrontational electoral system, a consensus model of legislating, thorough consultation with workers and bureaucrats, all come together to enable economic planning unlike any other context in the hemisphere. It is precisely this characteristic that makes replication of the Joven Club model throughout the

region problematic, particularly with the continued push for privatization of any venture which could be turned into a profit-making enterprise. Until the IBRD and related agencies see the value that lies in raising the bar, collectively, for all to benefit, Cuba's neighbours may well be left to look on enviously as the nation creates a powerhouse of programmers, researchers, designers and other related positions. While non-state *telecentros* bring a profit aspect to the provision of technological training, they bring no guarantee of subsequent benefit to the national project. When, as in Cuba, the state sets the economic agenda without external interference, scarce resources can be marshalled strategically, without waiting for the market to adjust to demand, or supply.

The Joven Club in 2004 is a different creature from its humble beginnings. Whereas it once was the only source for computer training, now every school in the country offers some sort of in-house access and training, regardless of the distance from urban centres or infrastructural barriers such as electricity (Riera, 2001). Its promise now lies, not in the basic training of the population in ICTs, but in the continued presence for all citizens to have access and put their skills to use. Some communities are utilizing the Joven Clubs to arrange virtual work groups, others take training as retirees in order to make use of the computers on local history projects. The possibilities are endless.

One challenge which remains to be confronted will arrive on the day that Cuba's internal intranet is connected fully to the World-Wide Web. The flood of primarily U.S.-based (and highly negative, toward Cuba at least) information will present a threat to Cuban society. It is hoped that these years of preparation, of *informaticización* of the Cuban people, will enable them to weed out the good and the bad. This is not a short-term concern, as Cuba's ability to pay for a faster

connection and one with more bandwidth is not likely to change in the near future. It may be years before Cuban citizens can sit down in a local telecentre and surf the internet with CNN and the Cuban-American community's web-presence. But that challenge will one day become real, and require a very considered approach.

Appendix A: CBIE Report

CIDA AWARDS PROGRAMME FOR CANADIANS

RUSHTON, Mark

Information & Communication Technologies and Cuba:

Building for the Future

Project Year: 1999/2000   **Country:**   CUBA

Sectors: Infrastructure Services, Democracy, Human Rights, Good Governance.

ABSTRACT

Project Description

This project assisted the Joven Club de Computación y Electrónica (JCCE) to connect with international institutions / movements. In so doing they are gaining access to experiences in other countries within the region and also a forum in which to share their own experiences in this regard. The project contributes to building the capacity of Cuba's ICT sector. It is one crucial step in the design of a telelearning strategy appropriate to Cuba's contemporary circumstances and constraints.

Goals:

- develop a comprehensive overview of the Joven Club model for ICT introduction.
- complete a needs-assessment (infrastructure).
- identify the pedagogical processes in use.
- initiate new linkages with regional professionals / organizations working in the ICT field.
- formulate a partnership with a Canadian software co-operative.

Content of Report

Part I: Questionnaire

Part II:Abstract

Part III: Final Report

Part IV: Statement of Expenditures

Part V: Evaluation Letters (Project Supervisor / Host Organization)

Appendix

Methodology

In achieving the goals indicated above, the researcher and partner collaborated closely in designing appropriate methodologies for the Cuban context. The organization provided internal documentation outlining its own goals, pedagogy, infrastructural design and aims, future directions and evaluations. Field interviews with staff at more than 30 community sites were conducted to assess uniformity and cohesion of implementation. End-user interviews were sought whenever possible to correlate information from staff interviews. The researcher utilized pre-existing contacts in the ICT field to introduce national office representatives with regional ICT professionals.

Statement of Accomplishments:

Administrators at the JCCE do not have easy access to the global internet and therefore have no way of discovering online communities and contemporaries. This project's component of initiating contact directly between the JCCE administrators and members of the IDRC-supported Pan Americas Networking initiative may in the long term prove to be the most significant accomplishment. The project undertook a needs-assessment / inventory of the infrastructural conditions present in the Joven Club network. We (and other researchers / development workers) are now better able to formulate future projects and initiatives. One of those projects, the partnership connecting the Joven Club and the Csuite Community Networking Co-operative in Halifax, Nova Scotia, is well into the planning stage. This project represents a revitalization of the community "telecentres" operated by the Joven Club, and a

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large increase in the installed base of CSuite's community networking software. The IDRC-PAN connection brought the Joven Club into an IDRC-funded documentary short which will premiere at the Malaysian "Global Knowledge for Development" conference. In the month of February, 2000, a California, USA, high-school teacher brought 18 youth to the Joven Club for a digital videoproject. The U.S. group dedicated computer and video equipment to the JCCE and is initiating a joint project to exchange videos made by youth. This connection was facilitated by the researcher, and given the lack of expertise in this area on the part of the JCCE administration, may not have developed if contact had been made in any other fashion.

Results and Benefits to the Host Country:

The Joven Club is now involved in multiple international initiatives; (a) implementation of an improved model for community networking (CSuite), (b) formulation of a joint software development programme (CSuite), (c) participation in the IDRC's Pan-American forum for community networking professionals, (d) a developing USA-Cuba youth connection using computers and video. The implementation of CSuite's software provides individual email accounts and a greater sense individuality, while protecting privacy. The end-users gain new skills as the network evolves more rapidly than administrators had planned. This new ability to participate and learn results in greater economic and social opportunities. The JCCE system has t been used to transmit election results as Cuba strengthens its system of representative government.

Conclusion:

An important new characteristic of Cuba's community networking efforts is its international exposure. As this research is publicized, and the IDRC-PAN connections develop further, more people will hear of the unique efforts undertaken in that country. Cuba can now promote its installed capacity of IT workers, its unique experiences with state-directed ICT development at the community level, including pedagogical components of a different nature than those employed in the standard telecentre model used throughout Latin America and the world. The project's radical restructuring resulted in a successful research initiative, thanks in large part to the professionalism and flexibility of the Joven Club de Computación y Electrónica. This underfunded but omnipresent national organization is now poised to become Cuba's flagship in international IT recognition. With a rapid upgrading of its capacities through a parternship with CSuite, a Canadian community networking organization, ICTs can finally be said to be nearing not only universal access, but access with a capacity to be useful and relevant to Cuba's changing economy and society.

CIDA AWARDS PROGRAM FOR CANADIANS

Final Report Part III: Narrative Report

"Information and Communication Technologies & Cuba: Building for the Future"

Researcher: **Rushton,** Mark

Institution: Saint Mary's University, Halifax, Nova Scotia, Canada

Award Year: 1999

Goals and Objectives:

[see Appendix A for goals specific to the CSuite / Joven Club linkage]

1. In partnership with the Joven Club National Office, this project performed a comprehensive study of the history, development and planned future direction of national efforts to develop community-level centres for information distribution and informatics capacity building. The focus was on the "Joven Club" effort to introduce widespread community training to address the needs of the new knowledge-based economic revolution.
2. This project also assisted Cuban professionals within these institutions to connect with international institutions / movements to introduce and study the impact of community-level ICT centres, such as the Pan American Telecentre Initiative. In so doing the Cuban professionals gained access to experiences in other countries within the region and also a forum in which to share their own experiences.
3. The research conducted contributes to building the capacity of Cuba's ICT sector in the distribution of information. It is one crucial step in the design of a telelearning strategy appropriate to Cuba's contemporary circumstances and constraints.
4. Supplementary to the core research project is a linkage effort that directs a portion of one NGO's material donations already flowing into Cuba directly to ICT agencies with an indicated need for equipment. The Nova

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Scotia-Cuba Association feeds (among other things) personal computers into Cuba's technology sector via the distributional assistance of ICAP (Cuban Institute of Friendship with the People). This project also serves as an assessment of the potential target agencies for that equipment, leading to the creation of a direct NGO-ICT sector linkage between Canada and Cuba.

5. A local community networking cooperative (CSuite: http://www.csuite.ns.ca) is forming not simply a link, but a technological partnership to further citizen's access to and use of technology for cultural sharing and collaboration (in the field of public domain software). This linkage will eventually produce a series of professional exchanges for learning and teaching between Canada and Cuba.

METHODOLOGY & IMPLEMENTATION

Overview of original (revised) project implementation timeline:

- planning, proposal completion and research design (Nov. '98 - Sept.'99)

- orientation and adjustment to project parameters (Oct. '99)

- initial assessment of ICT strategies, agency objectives (Oct./Nov. '99)

- interviews with stakeholders (Nov./Dec. '99)

- distillation of interviews / identify tasks and recommendations (Dec.'99)

- presentation of recommendations to participating organizations (Jan. '00)

- report-writing, translation of material into English (Jan./Feb. '00)

- preparation of papers for conference presentations (Feb. '00)

- completion of thesis (April. '00)

The project proceeded with the revised timeline (previously submitted to CBIE) with additional minor adjustments as the situation changed. Currently the project is in the report-writing and translation phase, with conference presentations and thesis completion on track as per the original schedule.

In achieving the goals indicated above, the researcher and partner collaborated closely in designing appropriate methodologies for the Cuban context. The organization provided internal documentation outlining its own goals, pedagogy, infrastructural design and aims, future directions and evaluations. No restrictions whatsoever were placed on access to documentation.

The Joven Club national office facilitated meetings and interviews with former staff members of the organization, including two national directors and various methodologists / pedagogists and technicians. Field interviews with staff at more than 30 community sites were conducted to assess uniformity and cohesion of programme implementation. End-user interviews were sought whenever possible to correlate information from staff interviews.

Sr. Florencio Bueno Mesa, the Joven Club's chief methodologist and my research partner, was very open and encouraging in our discussions surrounding my experiences. We frequently debriefed meetings and events, adjusting plans and direction as the situation warranted. My participation in planning meetings and national administrator's gatherings was never a question; it was assumed that I would participate at that level.

I utilized pre-existing contacts in the ICT field to introduce national office representatives to regional (Latin American) ICT professionals. The Joven Club also asked that I participate in a national conference at the beginning of the fieldwork (which I did), and I will return to Cuba in late May to participate in a follow-up international conference.

RESULTS:

In line with the goals and objectives submitted, this project achieved the following results:

- Developed a comprehensive overview of the Joven Club model for Information and Communication Technology implementation.
- Completed a needs-assessment (infrastructure) upon which to build future developmental plans and donations schemes.
- Identified the pedagogical processes in use, including specific methodologies for teaching children, teens and seniors.
- Initiated with the partner institution new linkages with regional professionals / organizations working in the ICT field (with emphasis on other Canadian aid organization-supported initiatives).
- Formulated a partnership with a Canadian software co-operative to (a) develop a Spanish-language version of community networking software and (b) introduce that software into the Cuban context, as appropriate.
- Initiated a test-phase in two locations for the Canadian-developed community software. Following an evaluation of these tests, wider introduction is expected.
- Established solid professional and personal contacts which will be brought into play with future projects of this nature.

IMPACT:

The primary stakeholders in this research project were the Joven Club de Computacion y Electrónica (JCCE), the CSuite Community Networking Co-operative, and the researcher. Secondary stakeholders include the Unión de Jóvenes Comunistas (UJC-administrative body overseeing the JCCE) and the

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Chebucto Community Network (which is monitoring the progress of the CSuite project, with an eye to joining in a future initiative).

• Institutional Capacity Building

The Joven Club de Computación y Electrónica had been relatively insular and disconnected since its formation in 1987. Many of the administrators at the JCCE do not have easy access to the global internet, although most do have international email access. Though they may send and receive email anywhere in the world, they have no simple way of discovering online communities and contemporaries. This project's linkage component – initiating contact directly between the JCCE administrators and members of the IDRC-supported Pan Americas Networking initiative – may in the long term prove to be the most significant accomplishment.

The project did result in an important first step; a needs-assessment / inventory of the infrastructural conditions present in the Joven Club network. With this in mind, we (and other researchers / development workers) are better able to formulate future projects and initiatives.

• International Contacts / Strategic Liasons

(a) The partnership connecting the Joven Club and the CSuite Community Networking Co-operative in Halifax, Nova Scotia, is well into the planning stage. An initial workplan has been finalized and administrators are discussing the form in which the project will eventually begin. This project, if successful,

represents a significant change in the status quo; a revitalization of the community "telecentres" operated by the Joven Club, and a large increase in the installed base of CSuite's community networking software. The next phase includes joint development of a Spanish-language version of CSuite, to be followed by other software ventures.

(b) An **IDRC-PAN** connection is the Joven Club's inclusion in an IDRC-funded documentary short which will premiere at the Malaysian "Global Knowledge for Development" conference. The Recipient was requested to organize and direct this component of the linkage due to previous professional experience in the field. There was no pre-existing internal capacity to undertake this initiative. Through participation in the process, from design to execution, members of the JCCE national office gained exposure to and experience in this activity. This is significant, given that one other international linkage (see following) involves video-making. The skills acquired will be beneficial to the host institution.

(c) This research project brought together two "enemy states" so to speak. In the month of February, 2000, a California, USA, high school teacher brought 18 youth to Havana, connecting with the Joven Club on a digital video initiative. The U.S. group dedicated computer and video equipment to the national headquarters, and is initiating a joint project to exchange videos made by youth. This connection was facilitated by the researcher, and given the lack of expertise in this area on the part of the JCCE administration, may not have developed if contact had been made in any other fashion.

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The Joven Club is now involved in multiple international initiatives; (a) implementation of an improved model for community networking (CSuite), (b) formulation of a joint software development programme (CSuite), (c) participation in a Pan-American forum for community networking professionals (IDRC'S PAN initiative), and (d) a developing youth-to-youth USA-Cuba connection using computers and video.

For those Cubans at the community level who take advantage of the Joven Club system, new benefits come from the ongoing implementation of CSuite's software. Individual email accounts give a greater sense of identity and individuality, while protecting privacy. The end-users gain new skills as the WWW-based network evolves at a more rapid pace than administrators had thought possible. This new ability to participate and learn results in greater opportunities both economically and socially. The JCCE system has in the past been used to transmit election results as Cuba strengthens its system of representative government. With increased technical capacity comes greater possibilities for this technology to be employed for better governance.

An important new characteristic of Cuba's community networking efforts is its international exposure. As this research is publicized, and the IDRC-PAN connections develop further, more people will hear of the unique efforts undertaken in that country. Cuba can now promote its installed capacity of IT workers, its unique experiences with state-directed ICT development at the community level, including pedagogical components of a different nature than those employed in the standard telecentre model used throughout Latin America and the world.

• **Fulfilling CIDA's Development Priorities**

Enhancement of **Infrastructure Services**: Through this project the needs and deficiencies of the Joven Club network have been identified. An NGO-led, donations-driven process is currently underway which will address at a low level these technical needs. With the third stakeholder (CSuite Cooperative) committed to working with the Joven Club, and interested in pursuing further projects, it is expected that further development of that network will take place within the coming year. That project will focus primarily on two components: community-level capacity to implement new networking software in all communities and a national effort to assist in the upgrading of data transmission capacity between provincial network nodes.

An expected impact of this project is in the area of **Strengthening Civil Society**. As the implementation of more advanced community network capacity proceeds, individuals and organizations will have greater opportunities to create their own "virtual space." Among the possibilities is the creation of locally-developed websites which will first serve the local community. As the national network capacity grows, so too will the "audience" and potential collaborators for these organizations and individuals. Environmentalists may come to use the technology to share information about climate change impacts and other events. Social groups (whether cultural, educational, or political) likewise will benefit from the longer-term creation of virtual spaces for collaboration.

An informed society is better able to participate in its own governance. Thus, this project addresses Canada's development priority of **Good Governance & Democracy**. Further penetration of community networking technologies in an effective and open manner will enable more effective communication and coordination. The Joven Club network has been utilized by regional offices of "Poder Popular" to submit election counts to the national office in Havana. The potential for the use of these technologies at the community level to receive information and provide feedback to the state bureaucracy is great. A system already highly participatory in its electoral structure, Cuba may expect in the long term to incorporate this technology to its benefit.

RECIPIENTS' PERSONAL IMPRESSIONS

The project's radical restructuring resulted in a successful research initiative, thanks in large part to the professionalism and flexibility of the Joven Club de Computación y Electrónica. This underfunded but omnipresent national organization is now poised to become Cuba's flagship in international IT recognition. With a rapid upgrading of its capacities through a partnership with CSuite, a Canadian community networking organization, ICTs can finally be said to be nearing not only universal access, but access with a capacity to be useful and relevant to Cuba's changing economy and society.

I was struck by the autonomy afforded not only the JCCE as an organization, but also the regional (community) offices of the Joven Club. One might expect that a country with a communist government would be highly bureaucratic and controlling of process. Indeed, that is the expectation I had

going into the project. The JCCE is under the administrative 'control' of the Unión de Jóvenes Comunistas (UJC), the youth wing of the Cuban Communist Party. As such, the director of the JCCE reports to a bureaucrat at the UJC, and may receive directives on policy from that body.

From discussions with the JCCE national director, however, the relationship between the two bodies appears to be highly complementary. The JCCE provides ongoing reports of its technical situation and what it desires for future upgrading, drawn from an annual planning process and from daily experiences. Likewise, the UJC and the JCCE work together to develop and implement community-level and national meetings, conferences, etc. which have mutual benefits. One example will occur in November, 2000, when the Joven Club holds a national conference on Community & Culture in Santiago de Cuba. This conference is being fed into by a Joven Club initiative to develop community histories for eventual publication on local websites.

There is another aspect of contemporary Cuba that makes this autonomy very unusual to the outside observer. Since the collapse of Cuba's Soviet-bloc trading partners in 1989, the economy has bottomed out and begun a long, slow recovery. The past ten years have been ones of hardship and material deficiencies. The profound effect on Cubans in general, as it is in many societies, took the form of youthful expression. New forms of cultural outlet (grunge rock music, new fashion experimentation, etc.) by the youth sector were not easily accepted by the society at large. Unemployment coupled with an overeducated and idle people led to the creation of a large population of disaffected youth.

In that context, it is surprising that the UJC makes so little overt use of the Joven Club network. Computers are a fascination for many, and represent a new

educational avenue which could lead to new economic gain. Youth particularly are drawn to this community-level network. Given that target audience, the fact that the UJC does not proceed with strong ideological programmes via the Joven Club was surprising.

That autonomy extends to the community-level administration of the Joven Club. In many of the communities visited, local staff had formed direct partnerships with (primarily European) foreign visitors or organizations. This often took the form of arrangements to obtain donations of computers and other equipment. That such interactions of an international character could proceed without the involvement of the national office represented an unexpected freedom to operate.

I feel that this research initiative has created several opportunities for me both professionally and personally. The time spent living in Cuba has deepened my appreciation of Cuban culture and society. I have been, one might say, reinvigorated with respect to my volunteer efforts in Canada on behalf of stronger Canada-Cuba relations. I certainly benefited from the research and the effect it will have on my Master's thesis, as very little information on Cuba's community networking initiatives was available outside of that country. My professional aspirations are directed toward a return to Cuba in the form of yet another project.

Future Directions

In the near-term, this project will lead to the following initiatives:

- A donations-driven scheme to supply the JCCE network with computers and other technology, with an aim to upgrade their existing community-level capacity.
- Pursuing funding possibilties to address Cuba's national data transmission infrastructural deficiencies (project proposals pending with CIDA).
- Continuing with the process of implementing CSuite in the various communities across Cuba, including the provision of technical assistance if required (currently unfunded).
- Confirming a software development partnership between CSuite and the Joven Club to create a Spanish-language version of the community networking software.
- Attendance at the May, 2000 informatics conference by the researcher and the head of CSuite.
- Conversations with IDRC, World Bank and other agencies to fund an exchange of researchers from the Joven Club to Canadian ICT conferences.

Part IV   Financial Statement

(NOTE: Statement on file with CBIE)

Item	Budget	Actual	Difference
Aifare	1250		
Local Transport	640		
Visas	150		
Health Insurance	200		
Immunization	200		
Accommodation	3600		
Subsistence	1800		
Phone/Fax	200		
Postage / Courier	150		
Equipment	244.51		
Translation	300		
Supplies	200		
Editing / Printing	200		
Contingency	456.73		
Total	9591.24		

Part V: Letters of Evaluation

a) Project Advisor (Canada): Dr. Sam Lanfranco, York University, Toronto

(filed with original CBIE report)

b) Dirección Nacional de Joven Club de Computación y Electrónica

Informe de las actividades desarrolladas por Mark Rushton durante el período octubre de 1999 – enero 2000. Ciudad de la Habana, Cuba

Actividades más significativas:

- Presentación de conferencia especializada "Las redes comunitarias". (Taller Nacional de redes, 2 y 3 de noviembre de 1999, Palacio Central de Computación, Ciudad de la Habana)
- Reunión de coordinación y organización del trabajo (8 de noviembre 1999)
- Diseño de la estrategia de trabajo conjunto con el asesoramiento de Lic. Florencio Bueno Mesa, especialista del departamento metodológico de la Dirección Nacional de Joven Club de Computación y Electrónica, 9, 10, 11 noviembre de 1999)

- Recorrido de familiarización y observación (trabajo de campo) en tres provincias:

Pinar del Río	(6 centros visitados) (15 y 16 de noviembre)
Santiago de Cuba	(9 centros visitados, dos inaugurados) (6 y 7 diciembre)
Holguín	(8 centros visitados) (8, 9, 10 diciembre)
Total	23 centros de estos 7 en regiones de montaña

- Trabajo de asesoramiento e intercambio con Tinored (centro de administración de la Red Nacional de los jóvenes cubanos) (permanente)

- Visita y recorrido al Palacio central de Computación (10 diciembre)

- Entrevista a personalidades relacionadas con Joven Club:

Ing. Adalberto Mora (Especialista ICID, Cuba)
Lic. Nestor del Prado (Director CENSAI, Cuba)
Lic. Jackelín Núñez (Sub-directora Informática del SIME, Cuba)

- Contribución al documental sobre telecentros que prepara el Antropólogo Scott Róbinson (México) para IDRC, teniendo a su cargo la elaboración del guión y dirección, preparación de la documentación y asistente de cámara (12, 13, 14 de enero de 2000)

Otras actividades desarrolladas:

- Contribuyó de manera positiva a la divulgación internacional del trabajo que desarrolla Joven Club.
- Contribuyó a la elaboración y diseño de las estrategias para el trabajo en los Joven Club de Computación y Electrónica en zonas de montaña y participa en el proyecto.
- Aportó a las actividades científicas del coloquio internacional "La informática y los jóvenes"
- Seleccionó y asesoró los lugares donde se desarrollará la experiencia de trabajo conjunta Joven Club – Chebuco Suite, implementando redes comunitarias con el software CSuite.
- Facilitó la visita del Dr. Gary Baycom al Joven Club de Viñales en Pinar del Río.
- Coordinó con la ecuatoriana Karin Delgadillo para insertar a los Joven Club de Computación a la red de telecentros en América Latina.

Valoración:

- Consideramos que el resultado del trabajo fue excelente, aportando elementos significativos para nuestra institución.
- Debe apoyarse su investigación por la repercusión que tiene para Cuba y para Latinoamérica.
- Permite mostrar el trabajo de los Joven Club como una alternativa en cuanto al trabajo de la informática en las comunidades.
- Inició una nueva etapa de divulgación internacional de Joven Club, institución que ha sufrido también de manera severa el impacto del Bloqueo Norteamericano.

Evaluación: Excepcionalmente Positiva

Fdo:
Lic. Florencio Bueno Mesa
Dto. Metodológico
Dirección Nacional Joven Club de Computación

CBIE Report Appendix: Project Goals

CSuite Community Network Software: Introducing CSuite to the Joven Club

Introduction

After more than two months of research into the Joven Club structure, operation, and infrastructural capacity, we feel the time has come to begin creating a technological partnership between the Joven Club de Computación (Cuba) and the CSuite Cooperative (Canada). Additional support may be provided by the Nova Scotia-Cuba Association (NSCUBA) in transporting equipment, etc.

CSuite offers the Joven Club a free package of software for the development of community networks (please refer to the license document included on this disk). It is for the Joven Club to decide whether the software meets the needs and interests of the organization and its developmental plan. We hope that an evaluation of CSuite software will lead to official ties between our two organizations.

Potential Benefits to the Joven Club

a) the installation of CSUITE in each Joven Club will provide the basis for developing HTML-based information on the communities in advance of the creation of a national TCP/IP network (i.e. when the network is functioning, the Joven Clubs will have material already prepared for publication)

b) the installation of CSUITE in each Joven Club will initiate the process of teaching HTML and JAVA, two programming languages which

c) are in great demand in the world, and instruction in the LINUX operating system.

d) this partnership will be advertised in Canada and other forums for community networking, to augment Cuba's image in this field, sharing

e) Cuban experiences with others working to construct community-level networks.

f) professional development through exchanges with Canadian counterparts

Potential Benefits to CSuite Co-op.

a. the development of a Spanish-language version of CSuite software

b. propagation of the software in Cuba, and greater international exposure

c. professional development through exchanges with Cuban counterparts

d. awareness of the Cuban experience (12 years!) in the development of community network (methodology, pedagogy)

We propose:

a. JCCE install and test the CSuite software in at least one location.

b. That following this test, CSuite and the Joven Club form a partnership to develop the Spanish-language version of the software for use in Cuba, and eventually for propagation throughout Latin America.

c. That this partnership may include professional exchanges (i.e. visits by technicians and administrators) between Halifax and Havana.

d. That this partnership may include the facilitation of donations from Canada to Cuba to augment the capacity of the Joven Clubs.

We suggest:

a. One of the tests be conducted at JCCE Holguin #1 (Dra. Sonia Freeman), which is currently operating a LINUX local-area network, has the capacity to easily undertake a test of this type and has responded enthusiastically to the possibility of participating.

b. The software also be evaluated in Havana to provide a second base of experiences for evaluation.

Other site tests may be conducted at the discretion of the Joven Club.

Appendix B: Joven Club - Key Documents

One of the reasons for Cuba's scant reputation in the ICT field is the information barrier which exists in the United States. With the U.S. government suppressing the publication of scientific works from countries such as Cuba,[6] and the additional burden of a language barrier, means many researchers in the ICT field have little knowledge of Cuba's achievements. For this reason, key information from the Joven Club is reproduced below.

1. History

Los Joven Club de Computación y Electrónica (JCCE) constituyen un programa de la Unión de Jóvenes Comunistas de Cuba, que abarca todo el país para alcanzar el objetivo principal de proporcionar la cultura informática a la comunidad con prioridad hacia niños y jóvenes, representando un papel activo, creativo y de formación de valores en el proceso de informatización de la sociedad cubana.

Surgimiento

Los Joven Club surgen en 1987, como resultado de una iniciativa de la Unión de Jóvenes Comunistas (UJC) en el plan vacacional de ese año, apoyada por la empresa Copextel y el INSAC. Surgen el 8 de septiembre de 1987 por iniciativa del Comandante en Jefe después de evaluarse como positiva la experiencia del Joven Club radicado en el Pabellón Cuba (Calle 23 entre M y N,

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[6] "US Publishers Demand End to Cuban Book Ban," November, 2004.
http://www.cubavsbloqueo.cu/Default.aspx?tabid=677

Vedado, Ciudad de La Habana); con un plan de 35 centros inicialmente.

En la actualidad la cifra de JCCE ha llegado a los 400, distribuidos en todos los municipios del país, incluso en los más apartados y los de más difícil acceso.

Contamos con dos laboratorios móviles de computación que brindan un servicio de forma itinerante, además de un Palacio Central de Computación en la capital, y dos más en las provincias de Cienfuegos y Pinar del Río respectivamente, dotados de recursos técnicos y humanos necesarios para la realización de proyectos docentes, recreativos, de comunicación social, técnica y experimental.

Los Palacios cuentan con centros de documentación especializada en materia informática y electrónica para satisfacer las demandas informativas de todos los usuarios que accedan a sus servicios.

Cronología

Se decidió crear un centro provisto de medios técnicos de computación y de electrónica, para que niños y jóvenes emplearan su tiempo libre en algo provechoso. Esta propuesta alcanzó gran éxito y luego de algunas orientaciones a las instituciones participantes, el 8 de septiembre de ese mismo año se aprobó un plan para que se fundaran los primeros 35 Joven Club de Computación y Electrónica. Uno en cada municipio de la Capital, uno en la cabecera de cada provincia y el municipio especial, y los 5 restantes en otros municipios con alta concentración juvenil.

2. Mission

En sus inicios contribuir a la informatización de la sociedad

La misión del Joven Club en la actualidad es servir como enlace a todos los programas de la Revolución que actualmente se ejecutan, y ser un medio más para su difusión

Nuestra misión es enseñar a nuestros jóvenes a utilizar correctamente esta autopista informática, pues la misma es una realidad innegable que debemos dominar no solo para obtener información, sino porque es una herramienta eficaz para transmitir nuestra verdad, la realidad de la Revolución cubana

Objetivos

- Hacer masivo el aprendizaje y perfeccionamiento de los conocimientos de las tecnologías informáticas y electrónica, fundamentalmente entre los niños y jóvenes y propiciar la formación de una cultura informática en nuestra población.
- Contribuir a la recalificación permanente de técnicos y profesionales de todas las especialidades.
- Participar activamente en el Proceso de Informatización de La Sociedad Cubana así como en la Industria Nacional del Software.
- Participar mediante los grupos de investigación creados en los territorios en las investigaciones de la informática educativa.
- Detectar jóvenes talentos en estas ramas y atenderlos sistemáticamente en su formación como especialistas.
- Continuar siendo el marco propicio de intercambio de los jóvenes y niños a través de los eventos que se realizan para estas temáticas.
- Ser cantera de cuadros revolucionarios y con alta calificación para las organizaciones políticas, estatales y empresariales.

- Atender especialmente el trabajo con los territorios de montañas y de difícil acceso.

- Trabajo en la Formación Vocacional y Orientación Profesional.

- Potenciar los servicios de información electrónicos con el desarrollo de TinoRed.

- Propiciar a través de la informática un espacio para el entretenimiento de niños y jóvenes.

Alcance

Actualmente existen un total de 400 Joven Club (2004). Todos los municipios del país cuentan con un Joven Club y 59 de ellos con mas de uno. Funcionan a disposición de todos nuestros estudiantes 3248 computadoras Pentium de última generación. En los Joven Club laboran actualmente 2751 trabajadores, de ellos son instructores 1662.

¿Quiénes son nuestros asociados?

- Niños, adolescentes y jóvenes vinculados al proceso nacional de enseñanza.

- Personas desvinculadas del sistema Nacional de Educación

- Adultos de diferentes sectores sociales

- Personas con alguna discapacidad.

Niños, adolescentes y jóvenes vinculados al proceso nacional de enseñanza

Forman parte activa de nuestros asociados pues los cursos de computación que se imparten para niños y jóvenes, les permite el desarrollo de habilidades y ampliar los conocimientos que de diversas temáticas de computación posean.

La participación de estos en los eventos como son los concursos, les proporcionan motivación y desarrolla el intercambio de conocimientos. Esto permite ampliar en los estudiantes la capacidad de pensar, crear e investigar; así como el desarrollo de las habilidades propias de este novedoso sistema de enseñanza, ya sean dibujar, escribir, buscar información, etc.

Personas desvinculadas del sistema Nacional de Educación

El sistema nacional de educación se ha propuesto llevar a cabo el llamado" Programa para la vida". El que consiste en vincular a niños, hombres y mujeres- que no pertenecen a ningún centro educacional- a las actividades de los diferentes centros. Mediante el uso de programas educativos y juegos instructivos se logra motivar a estas personas que se encuentran desvinculadas del sistema educacional y se originan nuevos talentos que de una forma u otra influyen en el desarrollo de nuestro sistema de educación. De hecho este constituye uno de los logros de nuestra revolución.

Adultos de diferentes sectores sociales

Para cumplir con uno de los objetivos esenciales de los Jóvenes club que consiste en formar parte de la avanzada de las experiencias técnicas y metodológicas en el aprendizaje de la computación y la electrónica, es que todos los adultos de nuestra sociedad constituyen parte importante de nuestros asociados. El aporte del conocimiento científico de cualquier sector social incrementa el uso de las nuevas tecnologías de la información. Además que cada individuo puede contribuir al desarrollo de su sector en la medida que profundice en el conocimiento de la informática.

Personas con alguna discapacidad

Entre nuestros asociados, parte excepcional la forman las personas incapacitadas. Debido a la falta de capacidad o actitud para realizar alguna tarea específica, encuentran en la rama de la computación el logro y goce que no le permiten estas limitaciones. Dígase por ejemplo la invalidez de órganos o miembros inferiores que tanto restringe el desempeño de múltiples funciones; demuestran que pueden desarrollar la iniciativa del trabajo, el pensamiento lógico y las capacidades intelectuales generales por medio del estudio de métodos y procedimientos propios de la informática. Contribuye al desarrollo de la personalidad socialista de los educandos, además de fortalecer en ellos el amor al trabajo y a la vida. Asimismo aquellas personas que carecen de deficiente o nulo control muscular, no pueden desarrollar habilidades de escritura cursiva, mas con el uso del mouse no encuentran obstáculos para desenvolverse en algún software ya sea instructivo, educativo, etc.

3. Guiding Statement on Work with Children and Youth:

Las nuevas tecnologías de información, en especial las redes de computadoras, tienen una incidencia considerable en el proceso de las comunicaciones, hacen cercano cualquier punto del planeta y ponen a disposición de todos la información en muy corto tiempo. Esto trae aparejado un cambio en los aspectos de la realidad y tiene a su vez repercusiones en el orden económico y social pues el individuo que posee una cultura informática es mas productivo y hace mas eficiente el entorno donde se desenvuelve.

La tendencia actual es que los niños han iniciado un largo y apasionado

sueño con las computadoras. Llevan a cabo todo tipo de actividades: escribir, dibujar, comunicarse e informarse. Por tanto desarrollar y potenciar esta cultura informática desde las edades tempranas y posibilitando el aprendizaje de nuevas destrezas, nuevos conceptos y hacer frente a lo inesperado son premisas fundamentales para nuestra organización.

Los cursos que se imparten en nuestro movimiento son eminentemente prácticos y se utilizan métodos activos de enseñanza, enseñanza problemática y enseñanza asistida por computadora. En cada encuentro el alumno tiene la posibilidad de interactuar libremente con la computadora motivando de esta forma su aprendizaje. En muchos casos se hace énfasis en que el alumno descubra por si solo las potencialidades del sistema y pueda desenvolverse de manera independiente.

El propósito fundamental es que los niños aprendan los fundamentos de computación así como la operación de la computadora con fines específicos, mediante la experiencia y la orientación del instructor, comprendan las características básicas de la computadora.

Se utilizan programas educativos y juegos instructivos que hacen posible la creación de ambientes de aprendizaje activos y permiten a los niños resolver problemas, afrontar retos, desarrollar destrezas de pensamiento, creatividad y procesos de reflexión.

Se logra apoyar el aprendizaje de los objetivos del grado de los niños, favoreciendo en ellos la construcción del pensamiento lógico y la creatividad acorde con sus edades. Se utilizan ambientes relacionados con temas de la naturaleza, los héroes de la patria, la lengua Española, las matemáticas y en edades de 5 años que son los niños de preescolar se trabaja con las tareas

educativas orientadas por el Ministerio de Educación.

Los objetivos de la enseñanza de computación en los JC para niños y jóvenes son:

- Enseñar los conceptos de computación y desarrollar en el alumno las habilidades necesarias para el correcto manejo de la computadora.

- Estimular en el alumno la confianza en sí mismo en un ambiente motivador.

- Crear en el alumno el sentido de la organización y el entusiasmo necesarios para enfrentar los cambios y desafíos que constantemente nos propone la vida.

- Desarrollar en el alumno la capacidad de pensar.

- Desarrollar en el alumno la creatividad.

- Desarrollar en el alumno la capacidad para la investigación

- Promover en el alumno el trabajo en equipo y la comunicación.

- Fomentar en los alumnos la utilización de la computadora como una herramienta para el trabajo diario en la escuela.

Los grupos para el trabajo con niños se subdividen en los siguientes niveles de enseñanza:

- Preescolar: el trabajo en estas edades persigue familiarizar a los niños con esta actividad y permitir el desarrollo de habilidades informáticas e intelectuales esenciales en su interacción con la computadora, de acuerdo con las características de su edad.

- Primaria:
  - 1er. grupo. 1ro a 3er grado
  - 2do grupo. 4to a 6to grado

- Secundaria: 7mo a 9no grado

Los JC desarrollan actividades con niños y jóvenes en las siguientes modalidades:

- Círculos de Interés de Informática y Electrónica: esta modalidad permite crear y fomentar intereses vocacionales enfocados a la rama informática. Se desarrollan durante el período Octubre-Mayo, coordinándose con las escuelas y los palacios de pioneros, culminando con exposiciones de cada JC en las provincias.

- Cursos de computación para niños y jóvenes: permiten desarrollar habilidades y ampliar los conocimientos en las variadas temáticas que se tratan. Básicamente se concentran en la enseñanza del sistema operativo Windows y el empleo de aplicaciones como el Paint y el conjunto de programas de Microsoft Office que incluye Word, Excel y Power Point, se excluye Access en este nivel de enseñanza.

- Concursos de conocimientos y olimpiadas de juegos: estos eventos promueven el intercambio de conocimientos y crean motivaciones en los estudiantes para prepararse cada vez mas. Se realizan en coordinación con las escuelas para apoyar las actividades docentes y se vinculan a su vez con los conocimientos adquiridos por los alumnos en el JC. Estos encuentros motivan sensiblemente a los alumnos y propician el esfuerzo por aprender y desarrollar habilidades.

- Se promueve el acceso a enciclopedias en formato digital de temáticas variadas y multimedias sobre la naturaleza, la ciencia etc.

- Se facilita el acceso a todos los juegos didácticos que han sido distribuidos por el Ministerio de Educación, también los enviados por la Dirección Nacional de

JC, así como otros elaborados por instructores de los propios JC y/o colaboradores de los mismos.

- Elaboración de páginas web infantiles y de temas variados: esta modalidad ha obtenido resultados exitosos en niños desde 3er. grado.

- Cursos para niños discapacitados: esta modalidad se ha extendido a muchas provincias del país. Se atiende indistintamente a niños con retraso de aprendizaje, ciegos o débiles visuales, sordomudos, minusválidos o dificultad para la locomoción y niños con Síndrome Dawn. Se ha logrado brindar una atención diferenciada a estas personas que no son atendidas por otras instituciones, consiguiendo ocupar productivamente su tiempo libre, logrando su integración y el desarrollo de habilidades en la ejecución de juegos de computadoras.

Ser parte del movimiento JC permitirá a los niños y jóvenes compartir una cultura tecnológica de vanguardia y desarrollar un sentido de pertenencia, al aprender a "navegar" en el mar de las telecomunicaciones para cooperar, competir y colaborar en proyectos comunitarios mediante el uso de las computadoras.

Appendix C: InfoClub 2005 Agenda

IX Evento Nacional de Informática para Jóvenes:

Infoclub 2005

Todos pueden participar es necesario leer el contenído.

Objetivos:

- Propiciar un espacio para los jóvenes vinculados a la informática y la electrónica, donde se intercambien experiencias.
- Conocer resultados de trabajos informáticos y electrónicos en los últimos dos años en los Joven Club a favor de la comunidad.
- Mostrar los avances de la informática y la electrónica en el mundo.

Participantes:

- Instructores y trabajadores de los Joven Club.
- Niños, jóvenes y colaboradores menores de 35 años.
- En las comisiones de trabajos de electrónica participarán solo instructores de Joven Club.

Cronograma y lugar:

- Certamen nacional: *27 de junio al 1 de julio de 2005 en el Palacio Central de Computación.*
- Eventos provinciales: *entre el 15 de febrero y el 15 de marzo del 2005* , en cada provincia.
- Encuentros de base: entre el 1 de enero y el 15 de febrero del 2005 , en cada Joven Club o territorio.

Los trabajos seleccionados al certamen nacional se darán a conocer en la primera quincena del mes de Mayo del 2005.

Los trabajos propuestos por las comisiones provinciales deben ser enviados a la Comisión Técnica Nacional antes de los 10 días posteriores a la celebración del evento provincial.

Exposición:

En esta edición no se realizará feria expositiva. Los exponentes y/o instituciones interesadas en realizar alguna muestra de trabajos o tecnología de avanzada deben coordinar el espacio con el Comité Organizador Nacional al menos con un mes de antelación al evento.

Temática para la presentación de trabajos:

1- Tecnologías Informáticas de Avanzada:

- Productos informáticos multimedia,
- Inteligencia Artificial.
- Robótica.
- Trabajo gráfico por computadoras.
- Diseños.

2. Redes y Seguridad Informática:

- Aplicaciones para redes locales.
- Servicios de información electrónica y educación a distancia.
- Protección de la información.

3. Informática Aplicada:

Aplicaciones de la informática en:

- Economía (Administración, contabilidad, finanzas, y planificación).
- Gestión empresarial y marketing.
- Productos informáticos para la manipulación y/o modelación de bases de datos.
- Automatización de la información jurídica.
- Automatización de la gestión del Joven Club.
- Otras ramas.

Software educativo:

- Aplicaciones informáticas para la instrucción.
- Juegos instructivos y didácticos.

Appendix D: Project Outcomes

Regional ICT Linkages arising from this project

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12 agosto 2004

> *El trabajo realizado pr el Lic. Mark Rushton ha sido significtivo para Joven Club de Computación y Electrónica ya que permitió la inserción del Programa Joven Club a la red regional de Telecentros de América Latina y el Caribe, facilitando nuestra particpación en el I y II encuentro de Telecentros de la Región.*
>
> *Una continuidad de esto es la presentación en el año 2001 de una ponencia en la 11na Conferencia de CTCnet en Austin, EEUU. ("Los Joven Club: un entidad de nuevo tipo en las comunidades cubanas") Los aportes, sugerecias y resultads del trabajo investigativo del especialista Mark Rushton son de importancia para el mejoramiento del trabajo de Joven Club.*
>
> <div align="right">*Florencio Bueno Mesa*</div>

Author's additional notes:

This linkage between the Joven Club national office (and in subsequent years, various directors of community-level individual Clubs) and the Telecentros network is significant in that it represents a connection to another Canadian-led initiative. "Red Telecentros" (Telecentre Network) received support from the International Development Research Centre, linking regional ICT professionals with their peers as well as Canadian ICT researchers. The Telecentros connection provided an avenue for Sr. Bueno Mesa to pursue community ICT opportunities with ChasquiNet (Quito, Ecuador) during a multi-year overseas posting, and subsequently with the *Fundación Jatun Sacha* in the Amazon region.

Partnership with a Canadian software co-operative.

The research initiative and a follow-up visit to the Informática 2000 conference in Havana, Cuba, ended with high hopes for a partnership between the JCCE and the CSuite Community Networking Co-operative based in Halifax, Nova Scotia.

During the 1999/2000 project, CSuite information packages and software were provided to the JCCE for their consideration as a model for locally-implemented community networks, essentially a 'turnkey' system which would require little local input to be useful – with only a language barrier to overcome, as the technical knowledge (UNIX familiarity) was already present in Cuba. The partnership was to benefit both parties: the JCCE would translate the English-language software and thereafter have complete rights (under an open-source license) to distribute the material throughout Latin America, as well as for its own local implementation. Cubans employed through the JCCE would have access to training in Canada, establishing an ongoing professional development endeavour. The benefits to CSuite included a growing presence of its unique technology and potential future revenues from technical support agreements with implementing community networks.

Four years later, the project has produced no verifiable outcomes. The CSuite Networking Co-operative has since dissolved as an entity. No official partnership agreement was struck following the visit to Informática 2000. CSuite software may be implemented somewhere within Cuba, but not with any official supervision, nor connection to CSuite members.

As the development of the partnership was left in the hands of the JCCE and CSuite to pursue, the author can only speculate as to the reasons for its failure.

One may be reluctance by the JCCE head office to engage in the project, as opposed to building on indigenous capacity. Cuba's developmental path has always been insular and very much self-sufficient. Relying on an external partner for something as important as the emerging ICT sector may have proven too potentially unworkable. This apparently was a wise choice, given the eventual dissolution of the CSuite co-operative. Although local Joven Club personnel were initially enthusiastic to pursue the initiative, ultimately that support could not be maintained without buy-in from the upper levels of the JCCE structure.

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