

Facilitating the use of ICT for Community Development Through Collaborative Partnerships Between Universities, Governments and Communities

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ABSTRACT

Despite the huge potential of information and communication technology (ICT) to assist communities to increase their overall well-being through community development, there are relatively few examples of sustained community networks built around ICT when compared to commercial applications, even in the developed countries where the technology has been increasingly available for up to 20 years. Researchers report a wide range of potential success factors and impediments. Pre-eminent amongst these is that collaborative partnerships, social network strategies and the building of social capital at the local level are key issues for the successful adoption of ICT for development.

In this paper, the authors describe two successful community ICT projects whose success depended on the use of a collaborative methodology involving universities, governments, and communities. Central to this approach is the involvement of the community in all parts of the project. By using such an approach, we acknowledge the rich creativity that exists in each local community and that this creativity can be harnessed in the creation of a community network, which in turn empowers the community. Researchers in universities can play a crucial role in facilitating this collaborative approach.

Can the authors now facilitate similar projects with equal success in South Africa and in the small island developing states of the Caribbean?

Keywords: *community engagement; community informatics systems; community networks; inside out; social capital.*

PARTICIPATION IN THE INFORMATION SOCIETY

ICT is an increasingly powerful tool for participating in global markets; promoting political accountability; improving the delivery of basic services; and enhancing local development opportunities. But without innovative ICT policies, many people in developing countries - especially the poor - will be left behind (UNDP Barbados, 2003).

From the huge volume of written material, there can be no doubt that advances in ICT have huge and unprecedented implications for society at large. However, the uneven adoption of ICT across the world is great cause for concern to international collaborative bodies whose efforts are related to global inequity (UNDP 2001; DOTforce 2001). Adoption of the Internet in the Caribbean significantly lags that in the United States and other developed countries. But Internet adoption is also uneven within the Caribbean region, for example, in 2003 approximately 37 percent of the inhabitants of Barbados were

Internet users compared to six (6) percent for St Vincent and the Grenadines, and one (1) percent for Haiti and Cuba (ITU 2004).

Many governments and global agencies have recognised the growing issues associated with inequitable ICT access and have provided funded programs aimed at addressing specific needs within nation states. However, experience in developed countries is showing that many of the high-cost IT infrastructure programs are failing to meet their stated aims in equity of end-use and that there is a glass ceiling in the adoption of ICT for either local community benefit or society at large (Gurstein, 2003). Indeed, there is growing evidence that community-based disadvantages resulting from uneven societal adoption of ICT are growing (Castells, 2000). There is now increased understanding that the provision of ICT access, either high or low capacity, through government and private sector efforts by itself is insufficient to address these issues. In direct recognition of this, the United Nations through the International Telecommunications Union committed to sponsor two World Summits on the Information Society (WSIS 2004) in Geneva in December 2003 and Tunis in 2005.

ICT IN COMMUNITY DEVELOPMENT

Community informatics systems research

Despite the huge potential of ICT to assist communities to increase their overall well-being through community development, there are relatively few examples of sustained community networks built around ICT when compared to commercial applications, even in the developed countries where the technology has been increasingly available for up to 20 years. Early work in the field has had mixed success (O'Neal, 2001), and whilst the lack of external funding for equipment can be a barrier to success, provision in itself is no guarantee of successful adoption in community (Harris, 2001; Byrne and Wood-Harper, 2000). Researchers report a wide range of potential success factors and impediments (see for example, Gurstein, 2000; Pigg, 1999; Rosenbaum and Gregson, 1998; Schuler, 1996; Taylor et al., 2003). But from the current work in *community informatics systems (CIS)* - an emerging discipline that investigates the use of ICT in community development - there are some common elements beginning to emerge. Pre-eminent amongst these is that collaborative partnerships, social network strategies and the building of social capital at the local level are key issues for the successful adoption of ICT for development (Horrigan and Wilson, 2001; Harris, 2001; Taylor and Marshall, 2004).

Detailed below are two successful examples of ICT in community development (for others see Marshall et al., 2003; 2004) from which we can draw lessons and parallels for the Caribbean and South Africa situations.

E-Bario and E-Bedian, Sarawak, Malaysia

Sarawak is Malaysia 's largest state and about 60% of its 2 million people live in rural areas with very poor road and telecommunications infrastructure (Songan et al., 2005). The district of Bario comprises a small group of remote Kelabit communities in the highlands of Sarawak. Only about 1000 people out of approximately 5000 Kelabit remain in the highlands, the rest having moved away in pursuit of jobs and education. Approximately 83 percent of the population is in the actively working group age, with farming being the main occupation. Twenty percent of the population has finished upper secondary education and less than one percent has completed tertiary education. Approximately 29 percent has not attended any formal schooling. The Long Bedian community comprises several ethnic groups, including Kayan, Kelabit, Kenyah, Morek, and Punan. The population is approximately 1,700, of which 27 percent finished secondary education and less than five percent completed tertiary education.

Approximately 36 percent of the population has not attended any formal schooling. The main occupation is farming.

The e-Bario and e -Bedian projects utilize computers, telephones and VSATs to connect villagers in the remote communities of Bario and Long Bedian to the Internet (Songan et al., 2005). The e-Bario project is coordinated by Universiti Malaysia Sarawak and financially supported by the Demonstrator Application Grant Scheme and Canada International Development Research Centre (e-Bario, 2004). The project connected the village to the Internet, not only to provide a means for the villagers to communicate with their relatives and others outside Bario, but also 'to identify opportunities for such communities to develop socially, culturally and economically from the deployment of the technologies' (Bala et al., 2004, p.116). E-Bedian followed the success of the e-Bario project and where possible utilized the same methodologies.

The researchers realized the importance of engaging and empowering the community, and of placing the emphasis on the people and the process, not the technology. They identified with and learned about life in the village from the community, and the community learned about ICT from the researchers. They adopted a Participatory Action Research (PAR) model, in which community members performed major portions of the research. Data was obtained using a combination of surveys, direct interviews, workshops, and discussion groups (Bala et al., 2004, p.118).

Based on the experience of the e-Bario project, Bala et al., (2002) identified several issues that needed addressing to improve the adoption of ICT in rural areas of Sarawak:

- Costly infrastructure, connectivity and use;
- Language of resources - English is not understood by many people in the rural areas and so the trainer had to simplify the manual and write it in Bahasa Malaysia;
- Coordinated approaches and skilled human resources - the use of ICT-based development in communities requires new skills and approaches from a variety of professions, in particular, researchers need to be able to work with the community;
- ICT awareness in rural communities - the base-line survey indicated that ninety-nine percent of the people in the Bario community had no knowledge of the Internet (Songan, Harris, Bala & Khoo, 2000).

In their analysis of the e -Bedian and the e-Bario projects, Bala et al., (2004) conclude that a prerequisite for success and sustainability is the use of a collaborative approach in which the community participates fully in all stages and parts of the project. They also suggest that:

Since the information solutions span education, health, commerce, agriculture and culture as well as communications, there is no single agency that carries responsibility or authority for community development by means of ICTs. Instead, a range of agencies needs to be mobilized and coordinated for full benefits to flow to the community (Bala et al., 2004, p.124).

Community Informatics Internet Academy, Rockhampton, Australia

Rockhampton is an Australian regional city with a population of 65,000, which has been the traditional service and administrative centre for a large sparsely populated part of Queensland dependent upon mining, light metals processing, power generation and agriculture. It has comparatively lower levels of formal education, income, and people in the 26–55-year age bracket when compared to both State and National averages (ABS, 2000; CQSS, 2000). It has correspondingly higher proportions of people over 55 years of age. Despite the city being both the home base for Central Queensland University and it being a substantial base for regional public service administration, home connection to the Internet was

approximately 34%, which was 20 points below that of capital cities and substantially below that of rural areas in Australia. Significantly, those over 55 years of age had home connection rates of 16% compared to 44% for the preceding cohort in the 40-55 age range.

In order to overcome what was seen as a major obstacle for Rockhampton to participate in the information society, the University proposed an action research project to introduce ICT for community development. The initial attempt by the University was confined to a suburb of the target area and was heavily based on the involvement of schools as both adopters and influencers in the local community. The major objectives were to have class, teacher, parent and the Parent and Teacher Association email lists established to facilitate greater involvement through asynchronous electronic communication between all levels in the school community. This failed because the schools did not see a value of involving parents, teachers and students in an open dialogue using Internet technologies. This was despite the fact that the project was able to provide full assistance in establishing the email lists. The schools were mostly part of a state based and hence centralised educational system which did not have operational flexibility to either take the initiatives on or reduce other requirements to provide staff time. Subsequent evaluation determined that project leader credibility and a history of the University starting but not finishing community based projects and 'taking but not giving' were also significant issues.

As a result of reflection and analysis, the second cycle of the action research approach involved aligning the project more at organisational levels in the University (the Faculty of Informatics and Communication) and with the Rockhampton City Council (CEO's office and Mayor). The project commenced in mid-1999, as a joint venture between the University and the Council, in recognition that useful approaches to addressing the digital divide require such partnerships. The project aimed to:

- Provide computer and Internet access and training to members of community groups as a means to increase social participation,
- Measure changes in attitude and behaviour to the use of ICT for community development in individuals and the various community groups as a result of the project,
- Assist community groups develop an integrated approach to the use of ICT for community development.

Joint funding submissions to Government agencies (Federal and State) and business were developed by the Faculty and subsequently funded. The Faculty provided substantial cash contributions to match these funds and to equip the Community Informatics (COIN) Internet Academy in the centre of the city with computers, staff support and accommodation for four Council employees at very reduced rates. To further facilitate an integrative approach, the Faculty agreed that the externally funded staff positions should become a part of the Council staff compliment and report operationally through the Council. This was done with the aim of increasing the understanding of the role of ICT in community development within Council staff and elected representatives.

The COIN Internet Academy was opened in mid-2001 with two project managers, administration support, two post-graduate researchers, a ten-seat training facility and a nine-seat telecentre (Taylor and Marshall, 2002). The project used a social learning model to develop learning groups. The participants registered with the COIN Internet Academy not as individuals but as members of a community group. They then attended the Academy with other members of their group for their free training sessions in computer and Internet use. In this way, the sessions were perceived as social activities associated with their community group rather than as daunting classroom experiences.

Initial survey work conducted after six weeks exposure with the commencing group of seniors (targeted as a result of their extremely low adoption rates) found that there was:

- 25% reduction in fear of computers and the Internet;
- 33% reduction in perceptions of difficulty of use;
- 36% increase in defining useful home based applications;
- 25% reduction in cost as an impediment to use and purchase;
- 40% reduction in individual skills as an impediment; and,
- An almost total rejection of the proposition that the Internet was having bad societal effects from an original position of ambivalence.

At the end of June 2003, the COIN Internet Academy had 109 community groups with 951 people registered as members for a wide range of programs including 'train the trainer' programs to provide for wider diffusion (COIN, 2004). The University, Rockhampton City Council and the various groups are now collaborating to progressively create a site for vibrant online communities (Capricornia, 2004) that extends and supports the development needs of their geo-physical counterparts.

The action research cycle produced a number of learnings. At the outset it was recognised that no one agency (public or private) had the responsibility for increasing the use of ICT for community development. More particularly, the traditional structure of government agencies including local government and educational systems viewed Internet technologies only as an additional tool for existing service provision and this mitigated against the concept of ICT for community development.

Essential to the success of the COIN project was the recognition that the effort must be collaborative with community in neither 'top down' nor 'bottom up' approaches but in a combination described as 'inside out' (Nyden, 2001) that recognises the need for existing structures to extend their resources to address integrated community needs in equal partnerships. Change has to be introduced by 'champions' (individuals or organisations) who then have to face the hurdles of legitimacy, organisational embeddedness, resource allocation, and 'turf-protection' from existing stakeholders. Much of the eventual success in establishing the COIN Internet Academy was the result of collaborative championing by individuals in the University and the Council.

CONCLUDING REMARKS

The successful examples of CIS initiatives outlined above relied on partnerships between government, civil society and private sector - the three sectors recognised by the UN in its adoption of the General Assembly Resolution 56/183 to play meaningful roles in the WSIS summits.

Traditionally, local partnerships have been developed between public and private sectors within the confines of an economic development framework. This type of partnership concentrates on economic and infrastructural capital overlooking the potential contribution of social capital (Putnam, 2000). This approach concentrates power in the economic, regulatory, and administrative domains in respect to local development excluding the third sector, the civil society, from effective participation. Similarly, a cross-sectoral approach involving local government, Universities, private and voluntary sectors in which the agenda is narrowly focused on economic development, tends to disempower or exclude the community (Harris, 1996).

In order to address the imbalance of power between governance, the private sector and the community, Schuler (2001) and others including Day (2001) and Gurstein (2000) propose new forms of partnerships, a focus on creating civic intelligence, and acceptance by Universities and local governance of their responsibilities in this regard (Harkavy, 1998). A pluralist approach is required that

not only addresses issues of politics and power but also provides a mechanism for delivery of community benefit to be legitimised. This can be achieved by using a CIS approach that is based in community, and provides legitimacy for community development, community action as well as service provision through established agencies. The social inclusion agenda that is fundamental to a CIS approach is based on principles of participation, self-actualisation and individual responsibilities to the rest of the community.

The issue of new forms of partnership and community engagement go to the very heart of educational responsibility and local governance. It puts potential of CIS at the centre of not only new forms of community representation but also community participation. It is neither the availability nor necessarily access to ICT that is the limitation to the adoption of a CIS approach. The limitations are to be found within existing structures that were designed to serve community's best interests.

For Universities, a new framework for research is required which addresses the needs of society in the information age and which allows research and practice to be described and linked. In this research construct, the role of the development professional or researcher is to support the empowerment of the people who are part of the project and rather than extract knowledge purely for the edification of other 'experts'; it is a process of collaborative learning that impacts on and is impacted by the process. The success of the university-supported CIS research described in the examples above rested on the use of an 'inside out' (neither top-down, nor bottom-up) collaborative methodology in which the community participates fully.

The authors now intend to use this same approach to establish CIS projects in the Caribbean and South Africa. By using such an approach, we acknowledge that the development of local communities cannot be shaped by economics alone as this is only one element of the human condition that requires communication and participation with others as part of the social fabric. This approach also recognises the rich creativity that exists in local Caribbean and South African communities and that this creativity can be harnessed to ensure the success and sustainability of the CIS project, which in turn empowers the community.

REFERENCES

- ABS (2000), *Australian Bureau of Statistics Annual Economic Activity Survey. Sections 31-2, 41-2*. Website accessed December 2004 at : www.abs.gov.au/ausstats/abs%40.nsf/7884593a92027766ca2568b5007b8617!OpenView.
- Bala, P., Songan, P., Khairuddin Ab Hamid, Harris, R., & Khoo, G. L. (2002), "Bridging the digital divide: The e-Bario experience". *Sarawak Development Journal*, 5 (1), pp. 63-78. Sarawak Development Institute, Kuching, Sarawak, Malaysia.
- Bala, P., Harris, R.W. and Songan, P. (2004) "E Bario project: In search of a methodology to provide access to information communication technologies for rural communities in Malaysia ". In S. Marshall, W. Taylor & X. Yu (eds.) *Using Community Informatics to Transform Regions*. Idea Group Publishing, London, pp. 115-131.
- Byrne, B.K. and Wood-Harper, T. (2000), "Community Regeneration and ICT: Is this the answer?" In *Proceedings of the Australian Conference for Information Systems (ACIS)*. Brisbane 6-8 December . Website accessed December 2004 at: http://www.fit.qut.edu.au/ACIS2000/full_papers.html.

- Capricornia. (2004), *Capricornia Online*. Website accessed December 2004 at: <http://capricornia.org/>.
- COIN. (2004), *The COIN Internet Academy*. Website accessed December 2004 at : <http://capricornia.org/coin>.
- CQSS. (2000), *Central Queensland Social Survey*. Population Research Laboratory, Central Queensland University, Rockhampton, Queensland, Australia .
- Day, P. (2001), *The Networked Community: Policies for a Participative Information Society*. University of Brighton, Brighton, UK.
- DOTforce. (2001), *Digital Opportunities for All: Meeting the Challenge*. Website accessed December 2004 at: www.g8.utoronto.ca/summit/2001genoa/dotforce1.html.
- e-Bario. (2004), *e-Bario*. Website accessed December 2004 at: <https://www.isiti.unimas.my/home/isiti-ebario-history>.
- Gurstein, M. (2000), *Community Informatics: Enabling communities with communications technologies*. Idea Group Publishing, Hershy, USA.
- Gurstein, M. (2003), "Perspectives on Urban and Rural Community Informatics: Theory and Performance, Community Informatics and Strategies for Flexible Networking". In S. Marshall, W. Taylor, and X. Yu (Eds.), *Closing the Digital Divide: Transforming Regional Economies and Communities with Information Technology*. Greenwood Publishing Group, Westport, CT. USA.
- Harkavy, I. (1998), "School-Community-University Partnerships: Effectively Integrating Community Building and Education Reform". Paper presented at the *Connecting Community Building and Education Reform: Effective School, Community, University Partnerships - A Joint Forum of the U.S. Department of Education, U.S. Department of Housing and Urban Development*, Washington, DC. USA.
- Harris, K. (1996), "Social Inclusion in the Information Society". In D. Wilcox (Ed.), *Inventing the Future: Communities in the Information Society*. Partnership Books, Brighton, UK.
- Harris, R. (2001), "Research Partnerships to Support Rural Communities in Malaysia With Information and Communication Technologies". In J. Lazar (Ed.) *Managing IT/Community Partnerships in the 21st Century*. Idea Group Publishing, Hershy, USA.
- Horrigan, J.B. and Wilson , R.H. (2001), "Telecommunications Technologies and Urban Development: Strategies in US cities". *Pew Internet and American Life Project*. Website accessed December 2004 at: [http:// www.pewinternet.org/papers/index.asp](http://www.pewinternet.org/papers/index.asp).
- ITU. (2004), "Internet indicators: Hosts, Users and Number of PCs". *International Telecommunication Union*. Website accessed December 2004 at: <http://www.itu.int/ITU-D/ict/statistics/>.
- Marshall, S., Taylor, W., & Yu, X. (Eds.) (2003), *Closing the Digital Divide: Transforming Regional Economies and Communities with Information Technology*. Greenwood Publishing, Westport CT, USA.
- Marshall, S., Taylor, W., & Yu, X. (Eds.) (2004) *Using Community Informatics to Transform Regions*. Idea Group Publishing, London.

- Nyden, P. (2001), "University and Community Engagement: The view from Chicago and the US ". Keynote address presented at the *Inside Out: Higher Education and Community Engagement Conference*, 16-19 July 2001. Community Service and Research Centre, University of Queensland, Ipswich, Australia.
- O'Neal, D. (2001), "Merging theory with practice: Toward an evaluation framework for community informatics", paper presented at *Internet Research 2.0: INTERconnections, the second conference of the Association of Internet Researchers (AoIR)*, October 10-14, The University of Minnesota, Minneapolis, Minnesota.
- Pigg, K. (1999), "A Demand Side Policy Needed to Extend the Information Superhighway". *Community Technology Review*. Summer-Fall 1999, pp. 45-46. Community Technology Centres Network, Newton, MA. USA.
- Putnam, R. D. (2000), *Bowling alone: The Collapse and Revival of American Community*. Simon & Schuster, Brisbane, New York, USA.
- Rosenbaum, H and Gregson, K. (1998), *A study of State-Funded Community Networks in Indiana: Final Report*. Submitted to the Indiana Department of Education, Center for School Improvement and Performance.
- Schuler, D. (1996), *New Community Networks: Wired for Change*. Addison-Wesley, Reading, MA. USA.
- Schuler, D. (2001), "Cultivating Society's Civic Intelligence: Patterns for a new world brain". *Information, Communication and Society*, 4 (2), pp. 157-181.
- Songan, P, Harris, R., Bala, P., & Khoo, G. L. (2000), "Awareness and usage of information technology in a rural community of Bario, Sarawak". In M. Leigh (Ed.), *Borneo 2000: Politics, History & Development*. Universiti Malaysia Sarawak, Kota Samarahan, Sarawak, Malaysia. 560-575.
- Songan, P., Alvin, Y., Gnaniah, J., Zen, H. & Hamid, K. (2005), "Lessons Learnt from the Implementation Approaches of the E Bario and E Bedian Projects". In S. Marshall, W. Taylor and X. Yu (Eds.), *Encyclopedia of Developing Regional Communities with Information and Communication Technology*. Idea Group Reference, London.
- Taylor, W. & Marshall, S. (2002), "Collaboration: the Key to Establishing Community Networks in Regional Australia". *Informing Science*. 5, pp.155-162. Website accessed December 2004 at: <http://inform.nu/Articles/Vol5/v5n3p155-162.pdf>.
- Taylor, W. & Marshall, S. (2004), "Community Informatics Systems: A meeting place for useful research". In P. Day & D. Schuler (Eds.), *Community Practice in the Network Society*. Routledge, London.
- Taylor, W., Zhu, G., Dekkers, J. & Marshall, S. (2003), "Socio-economic factors affecting home internet usage patterns in Central Queensland". *Informing Science*. 6, pp. 233-246.
- UNDP (2001), United Nations Development Programme. *The Human Development Report*. Website accessed December 2004 at: <http://www.undp.org/dpa/publications/index.html>.

UNDP Barbados. (2003), Information & Communications Technology. *UNDP Barbados and the Organisation of Eastern Caribbean States (OECS)*. Website accessed December 2004 at: <http://www.bb.undp.org/ict.html>.

WSIS. (2004), *The World Summit on the Information Society*. Website accessed December 2004 at: <http://www.itu.int/wsisis/>.

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