# The Cameroon Rural Hope Initiative: Extending Vygotsky's Social Development Theory to a Global Learning Context through Socio-Enabling Computing

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## Abstract

Vygotsky's social development theory is built on the idea that an individual's cognitive development is dependent on social interaction. When social interaction occurs through technology, it is also necessary to consider the effect of Transactional Distance (TD) on the learning process. By integrating Moore's theory of Transactional Distance into Vygotsky's concept of social development, Vygotsky's theory can be extended to a global learning context. This global learning concept is embodied in the Cameroon Rural Hope Initiative (CRHI). CRHI uses socio-enabling computing to increase computer literacy, cross-cultural interaction, and HIV/AIDS prevention, thus establishing a global 'community of learning' that transforms each participant's traditional social context for learning. The various levels of interaction within this learning community are articulated through Vygotsky's original model which envisioned collaboration and peer instruction within a shared physical space. Socio-enabling computing embraces Vygotsky's idea of shared physical space by creating a learning environment that incorporates virtual space through the use of ICT. Thus, CRHI moves beyond the traditional classroom to a medium in which temporal and spatial limits do not exist.

*Keywords: Information and communication technology, digital divide, social computing, socio-enabling computing.*

## Introduction

In his social development theory of learning, Vygotsky demonstrates that an individual's cognitive development is dependent on social interaction. Connections between individuals and the cultural context in which they act and interact in shared experiences are therefore an integral part of the

learning process (Crawford 1996). Performing specified tasks in collaboration with 'more capable peers' (Vygotsky 1978) or with individuals who possess different skill sets allows a learner to bridge a specific knowledge gap while being part of a learning community. Before the introduction of information and communication technology (ICT), this learning community was limited by temporal and spatial constraints. The recent advent of ICT has made it possible for a virtual learning community to exist without temporal and spatial limits.

When learning occurs virtually, a physical, psychological and communicative distance exists between the instructor and the learner. The term *transaction* has been used in the distance education literature to denote the special nature of this relationship (Moore 1993; Stirling 1997). Transactional Distance (TD) refers to the actual physical separation as well as the concomitant psychological and communicative gap that exists when distance learning is in progress (Moore 1991; 1993). The physical and psychological distance between teacher and learner can be reduced in such a way that a meaningful learning environment is generated. Meaning in such an environment evolves through the virtual conversation that occurs during the 'dynamic interplay between learner and instructor' (Hausfather 1996; Stirling 1997).

Knowledge Transfer Beyond Boundaries (NABU), a non-profit, non-governmental organization, which was founded in 2003, uses Information and Communication Technology to embrace simultaneously Vygotsky's ideal of bridging the knowledge gap, albeit on a global level while creating a meaningful learning environment as envisioned in the transactional distance theory.

NABU's goals are to employ socio-enabling computing to contribute to the world effort to reduce, if not close the gap between developing and developed countries, using the Millennium Development Goals as a guideline. The guiding principle behind NABU's commitment to sustainable development is the implementation of distance education to reach and interact with ethnically and geographically diverse populations. NABU works in partnership with the United Nations Fulbright Fellowship Program and the New York City Chapter of the Fulbright Association. It is a 100% volunteer-driven project. Volunteers are invited based on

the type of project and the skills or knowledge needed for each project. Most of the volunteers are students, teachers, programmers, consultants, researchers and industry experts. While there are a number of government initiatives like the National e-Mexico System (http://www.e-mexico. gob.mx/) that address the digital divide, NABU's main focus is local issues that can be addressed by developing a sustainable model, which, in turn, can be adopted by the inhabitants of a particular region. This model is being developed by taking into account the local culture, customs, languages and level of technology penetration. It is important to recognize that most of the people in underdeveloped regions are living on under two dollars a day. Efforts to introduce technology to these regions are often hampered by the lack of infrastructure or basic needs.

There is no one-size-fits-all treatment of region-specific problems, such as HIV/AIDS prevention education, gender equity, and policy reform. Local needs and conditions are taken into account during the project development phase, and the project director of every project is a native of the area where the project will be implemented. This allows NABU to address many of the cultural issues that volunteers may not be familiar with and provides an opportunity for NABU volunteers to learn about different cultures, economies, politics, and other complex issues surrounding the local problem. The close collaboration between NABU volunteers and locals thus allows for a high degree of interpersonal and intercultural interaction. Moreover, a knowledge gap is bridged on all fronts.

NABU's pioneer project, the Cameroon Rural Hope Initiative (CRHI) is an example of how Vygotsky's theory can be implemented to address two critical issues simultaneously: (1) bridging the digital divide and (2) bridging the knowledge gap in the area of HIV/AIDS prevention education in Cameroon. In the case of CRHI, Vygotsky's traditional classroom is replaced by a virtual classroom. The virtual classroom is essential within the context of CRHI because the anonymity provided by the Internet allows HIV/AIDS prevention education to occur without having to confront cultural taboos that could hinder learning.

CRHI utilizes the anonymity and availability of information provided by the Internet to deliver HIV/AIDS education to a particular segment of the Cameroonian population: the Dschang University Community.

Simultaneously, CRHI provides computer training and enhances Internet access to members of this community. This dual focus of CRHI will improve computer literacy while curtailing the spread of HIV/AIDS in an area of the world whose economy has been undermined significantly by the spread of this debilitating disease and social unrest.

The project model, as seen in Figure 1, encompasses the following idea: when knowledge is transferred and adapted to the needs of local communities, the utilization of the transferred knowledge can empower these communities to ameliorate their situation.

## Figure 1. NABU–CRHI Project Model
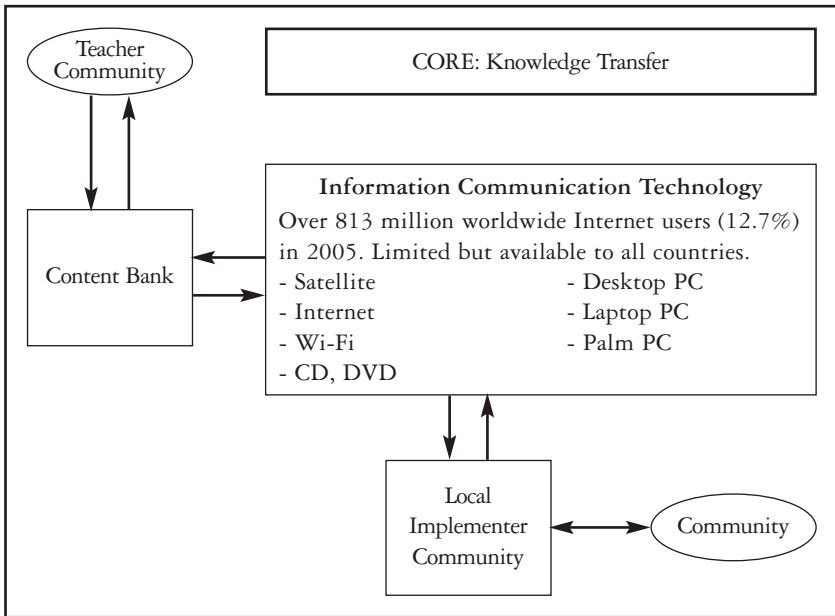


CRHI's utilization of the Internet to disseminate information about HIV/AIDS prevention and treatment will provide Cameroonians with answers to questions they might have been uncomfortable asking in person. The unregulated nature of the content of the Internet provides a unique opportunity to address taboo subjects. The Internet also has the advantage

of being able to relay information on demand, meeting health clients' immediate needs or answering questions when their needs occur. Furthermore, the Internet's uniquely intermediate status between a mass medium and interpersonal communication also makes it an ideal venue for communicating sensitive information also allows audience segmentation. For example, it is a cultural taboo to discuss sex in public.

CRHI will also contribute to the reduction of the digital divide. ICT plays a critical role in developed countries ability to provide support to a diverse group of communities in these countries, as seen in Figure 2A. Figure 2B depicts the disjointedness of technology in developing countries, where only a small percentage of the population have access to and can benefit from ICT. The impact of ICT on the society as a whole is quite limited. Figure 2C shows the lack of connection among different organizations in least developed countries where ICT plays little or no role.

**Figure 2.**



B: Businesses, C: Communities, G: Governments,
N: NGOs, O: Others, U: Universities
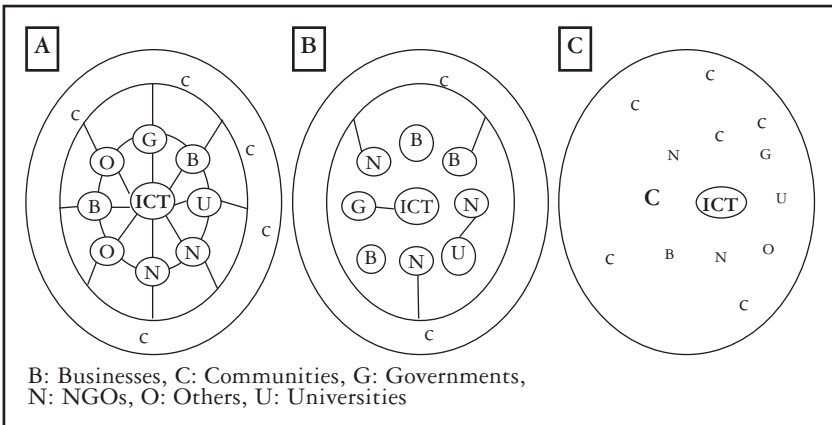
Cameroon is one of the African countries that are lagging behind the rest of the world in the use of information and communication technology. In 2001, the number of Internet users in Cameroon was estimated to be 45,000, less than 0.3% of the population (International Telecommunications Commission 2002). Internet access has been available at the University of Dschang since the 2003/2004 academic year. The bandwidth

is low (128kb), and only a limited number of computers are currently connected to the Internet. But the Cameroon government is committed to developing and promoting information and communication technology, especially in the field of education. The 2001 Law on Higher Education, which recognized the possibility of using ICT in the national training system, and the decree creating a National Agency for Information and Communication Technology (ANTIC) in April 2002 are just two examples of the government's commitment to ICT.

Thus, CRHI is working in an environment that is supportive of ICT. As mentioned earlier, CRHI will attempt to increase Internet access and computer literacy throughout the Dschang University Community. This process will be facilitated by CRHI's Project Director, who is currently employed in the Division of Infrastructure Planning and Development at the University of Dschang. The project director's insider status and knowledge of the University's computer centre, his access to key decision makers at the University, his network of skilled professionals and academics in the United States, and his role as a computer instructor make him the ideal candidate to lead the project. In fact, his insider knowledge of Cameroonian society and his knowledge of the country's infrastructure were critical during the project development phase. His insider status has other advantages as well. For example, he is less likely than his American colleagues to be seen by his Cameroonian colleagues as an outsider attempting to impose his will on the University's development.

CRHI's Project Director is supported by a NABU-CRHI advisory composed of three IT specialists, an international education specialist, a biomedical researcher, a sociologist and student volunteers. The sociologist is also from Cameroon. Throughout the project development phase, during which the Project Director was completing his M.S. degree in Information Systems in New York City, this team mentored him, providing advice, connections, and other resources that allowed him to develop the project. The interpersonal interaction between the project director and the NABU-CRHI team enabled both parties to understand and address cultural as well as technical issues that would affect the success of the project.

The next step is for CRHI to be implemented at The University of Dschang, a land-grant type university built with the support of USAID,

and one of six institutions of higher learning in Cameroon. The University has three campuses, all of which are located in rural areas. Dschang is one of the most densely populated and least HIV/AIDS-infected regions of Cameroon. It is also one of the lungs of Cameroon agriculture and one of the most popular tourist destinations in the country. CRHI hopes to reach this area and contain or reverse the spread of HIV/AIDS before it reaches the high levels that prevail in other regions of the country. Within Cameroon, members of the university community, are highly respected and can have a positive influence on other members of society. CRHI believes that these individuals will have a multiplier effect. As they lead the fight against HIV/AIDS by teaching others about prevention and leading by example, i.e. by employing safe sexual practices themselves, others will follow.

As the project proceeds, it is important to ask whether this model is transferable to other locations, what challenges exist when transporting a model from one culture to another, and what changes will have to occur in order to transport the model to other locations successfully. Predicting the results of knowledge transfer in advance is a daunting task. If we attempt such a task and carry it through, it is essential to have advisors and project directors from the culture to which the project will be transferred. This might have the effect of maximizing the chances of the project's acceptance among the local population while minimizing the perception by locals that outsiders are intruding.

## Conclusion

As the CRHI project has demonstrated, socio-enabling computing can provide the learning environment that Vygotsky envisioned in his social development theory. Specifically, socio-enabling computing creates a learning environment that enables a community to address a relevant and—in the case of CRHI—a life-threatening issue. ICT is readily available to developed countries and thus has allowed them to make a smooth transition into an information-based society. On the other hand, developing countries struggle with basic needs and lack the necessary infrastructure, such as

reliable sources of electricity. This divide will grow even further as developed countries embrace information as a commodity.

Thus, it is critical to use ICT as a tool to address and find viable solutions to societal challenges at the local level. Yet ICT cannot be used in isolation. Individuals from developing and developed countries need to work together, each contributing their specific skills and knowledge to address the critical issues at hand. Addressing and creating solutions to community issues requires an in-depth understanding of the community's culture. Neither knowledge nor technology can create solutions to community problems without taking cultural issues into account. It is essential to find the appropriate combination of technology, culture and knowledge to develop a self-sustaining community.

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