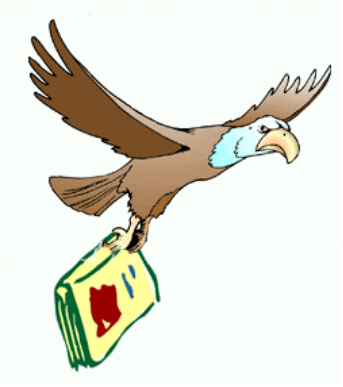

Mobile Libraries:

Where the Schools Are Going to the Students

***Sarah Lucas**, Education Consultant-[1] srl35@columbia.edu*

From the horse-drawn library wagon in the United States in 1907, to the 21st Century 'Malaysian Mobile Internet Unit,' people have been finding innovative ways to provide educational access to all, despite difficult conditions or scarce resources. For example, we heard about Zimbabwe's "Big Blue" in the July/August issue of *TechKnowLogia* [http://www.techknowlogia.org/welcome.asp?IssueNumber=12]—a 15-foot van that carries 10 computer workstations over rough rural terrain to underserved populations. Big Blue can operate the computers for a week at a time using power supplied by its own generator, and it connects to the Internet using dial-up or wireless connections as available. More than a library, Big Blue is essentially an extension of rural public schools that cannot afford to all be equipped with a computer lab, and is just one example of the innovative ways that educational and technological resources can be brought to specific audiences. This article takes a look at some examples of mobile libraries, and the variety of ways they can be enhanced and operated using the newest communications technology. You will find that there are as many ways to design mobile library services as there are communities to benefit from them, and more and more mobile libraries are becoming *global* libraries.

Why Mobile Libraries?

The underlying assumption that drives these ambitious projects is that people have always had need for information and a desire for literacy. The importance of library services in particular has been proven in international comparative surveys that rank the educational achievement of countries according to various indicators such as test scores, teacher qualifications, completion rates, etc. According to UNESCO, the factors that distinguished high-performing countries on these tests were "large school libraries, large classroom libraries, regular book borrowing, frequent silent reading in class, frequent story reading aloud by the teachers and more hours spent teaching the language."[2] To debate the worth of information or the need for knowledge is less useful, however, than to bring awareness to an old but underused and understudied innovation, and that is the purpose of this article. Additionally, new technologies are expanding the potential for mobile libraries to offer more than just books and periodicals, but also Internet and computers. With the new technology comes new information for new needs, such as training or retraining for teachers and health care workers.

The rationale for providing *mobile* library services is illustrated well in the case of Mongolian "Mobile Resource Centers."[3] These mobile libraries respond to the unique conditions of Mongolia's culture and geography in the following ways:

- The population is disparate enough that very few libraries could be located in areas accessible by everyone in a reasonable amount of time.
- Resources are too scarce to build permanent stationary libraries for limited use.
- Populations are nomadic, and so demographics are constantly changing, which affects the demand for fixed library services.
- Though separated by large distances, populations are dense enough to provide a reasonable demand for library services in most major towns.
- There is a desire for communication and education among rural populations, demonstrated by Mongolia's high literacy and new government policy related to ICTs and education.

A study comparing the cost of mobile library service in Zimbabwe with that of the fixed-library equivalent found that although initial capital costs and recurring costs (fuel and repairs vs. cleaning and decorating) were higher, savings were made in staffing and book stock such that the mobile libraries were about a third of the cost to operate.[4]

Mobile Resource Centers in Mongolia were actually not designed to function solely as public libraries, but rather as teacher training units and public outreach for the *School*

2001 Educational Reform Project whereby core team teachers from partner schools travel periodically to deliver in-service training workshops to other schools. The project provided vans, equipment and learning materials for six regional education centers (regional branches of the Ministry of Education.) The project was designed so that vans would visit each village in the region at least twice during the year, at intervals of at least several weeks; during the first visit, books would be checked out by local teachers and citizens, and during the second visit they would be returned or exchanged for new books.

However, some of the same conditions that make mobile libraries a necessity also make implementation extremely problematic. Certain villages are so far apart that it takes at least a day to travel from one to the next; road conditions are extremely poor, and require durable vehicles and frequent repairs; demand for books (especially in Mongolian language) far exceeds the scarcity of resources and in many cases there aren't enough books to loan out from town to town before the vans are empty. Mongolia is also a good example of a country that may 'leap-frog' communications technology, since existing land-lines for telephone services are rare, making it an appropriate candidate for wired mobile library services using new technologies.

Other countries have found ways to adapt mobile library services to their particular resources and constraints, for example:

- The donkey cart library in **Zimbabwe;**
- The Camel Caravan service of the National Library in **Kenya;**
- The Mobile Floating Library in **Thailand**: Since 1999, the Mobile Floating Library has operated along rivers and canals to promote reading and water conservation and environmental education through books, toys and exhibitions. Volunteers also carry books inland to those who cannot reach the floating library themselves;[5]
- The Library Wagon in **Mali**: Since 1980 the library-wagon makes 11 stops on the railroad between Bamako and the Senegalese border. The newest 40-ton wagon contains 3,000 books and 300 videotapes. The wagon stays for two days in each town and uses solar energy for multimedia projections. As part of the Public Reading Operation, the library wagon also provides training and services to public school libraries, helping to create a nationwide network of public libraries;[6] and
- **Greece's** "Blue Sack" can hold up to 150 books and audiovisual materials divided according to the Dewey Decimal System. It visits Greek schools (presumably, with someone carrying it) to present a different subject to students and allowing them to borrow books until the next visit.

What's New?

Of interest to ***TechKnowLogia*** readers will be the latest innovations combining mobile library services with IT services, making them mobile community telecenters. The donkey cart mentioned above, for example, will soon become a "donkey-drawn mobile electro communication library cart," offering such services as access radio, television, telephone, fax, e-mail and Internet.[7]

The Mobile Internet Unit (MIU) in Malaysia (http://www.miu.nitc.org.my) was designed entirely by local designers, engineers and IT experts and contains 20 Pentium III workstations with CD-ROMs and headsets, a color printer, a fax machine, foldable seats, bookshelves, a television, projection screen and slide projector, a refrigerator and a toilet. Generators provide power, air conditioning and an alarm system. The objectives of the MIU are to promote ICT training and computer literacy to students and teachers, and to assess the impact of ICTs on the learning environment. The MIU was initiated as a joint project between the National IT Council (NITC), Education Ministry, United Nations Development Programme (UNDP), Mimos Berhad and Automotive Corp (M) Sdn Bhd. The total cost of the partnership between UNDP, the government and other private sponsors is US$420,000. A similar project initiated at the Universiti Malaysia Sarawak is building a Mobile Internet Boat to expose rural children to ICTs. In August 1999 the project began visiting 20 low-resource rural schools to give a series of 10 one-hour lessons designed to help students and teachers acquire ICT skills. The Malaysian government has been so pleased with the project that it plans to invest in up to 20 additional Internet Units. Mimos Berhad also expanded the impact of the project by donating one computer with free Internet access to each of the participating schools so that they could continue to learn while the MIU was away.

Mobile Community Telecenter in Nigeria is a van that will carry laptops as well as library books on specified weekdays to the rural villages where users can access IT training, reading materials and the Internet (see image above). This mobile telecenter emerged out of a stationary community learning center (CLC), and targets health professionals in need of retraining. Where no Internet connections are available in the villages, copies of web-based materials are downloaded at the CLC and saved on the traveling laptops. Health and population statistics are also gathered and stored as the telecenter makes its rounds.

The **Mobile Telecenter-to-go in Ghana** is a project sponsored by UNDP as part of its Internet Initiative for Africa. Financed by a number of public and private sources, the telecenter is an example of the potential for partnership between the government, the private sector and NGOs. The goal of the telecenter-to-go, which has been in operation since August 2001, is to bring ICT training and e-services to schools, businesses, farms and health clinics. UNDP's Web site in Ghana is at:

http://www.undp.org/dpa/frontpagearchive/2001/august/13aug01/index.html

There are also plans to create an "**info-thela," or cyber cafe on wheels in India's** Utter Pradesh region. The partnership between the Indian Institute of Technology and the Massachusetts Institute of Technology as a part of the "Media-Lab-Asia" will provide *battery* ICT services on "tricycles" to remote villages whose users will benefit from up-to-date weather and economic information.[8]

How does it work?

Aside from ever-present financial limitations, there are few spots on the globe that do not have the potential for Internet access at present — (as a matter of fact, I submitted this article via the Internet from eastern Democratic Republic of Congo, in a town surrounded by several armed groups occupying territory in a country at war, cut off from international cooperation and with extremely poor transportation infrastructure). According to the International Telecommunications Union (ITU) (http://www.itu.org), in at least thirty countries today, the number of mobile subscribers is greater than the number of fixed telephone subscribers, and mobile phones are beginning to exceed fixed lines in a growing number of developing countries. Wireless Application Protocol (WAP), is a technology that allows mobile phones to browse Internet sites that are specially adapted to fit the mobile phone screen. Additionally, it is now possible to use a mobile phone for dial-up service at speeds equal to or faster than fixed-line dial-up.[9]

Radio connectivity is another option and one provider is TETRA [http://www.simocodigital.com/default.asp]. VHS or UHF wireless solutions can transmit over 200 KM distances and provide upwards of 9.6 Kbps connectivity.

Finally, there is satellite access, but the cost is still prohibitive for most Internet users. According to Best and McClay[10] the current cost of a VSAT system is anywhere from $4,000 to $10,000. Mobile units typically use existing power sources as part of the partnership with the community, but where this is not possible, mobile units can be equipped with their own generators or even solar power.

To sum it up…

While it may sound like an ideal solution, there are nevertheless a few important points to consider in the actual implementation of mobile libraries. These recommendations are mostly considered with simple mobile libraries, but the lessons can be applied to mobile ICT resources as well.

1) **The importance of policy and planning** cannot be overstated. True mobile libraries must be treated with the same importance as regular public libraries. They should ideally be dedicated to providing library services and remaining stocked every day of the year, and the temptation to use the vans as transportation for other business should be avoided. However, *service provision* through integrated library services can maximize the utility of ICT investments and provide practical reasons for people to become users.

2) **Emphasis on providing a service to the community** in the form of a dedicated and informed librarian, fulfilling requests and dependable scheduling can contribute to increased demand and financing of the vans, and overall quality achievement. In the case of mobile telecenters, providing useful computer-based services—like Big Blue's software offering training for the International Computing Driving License—can be a potential source of sustainable financing.

3) **Financing** should be obtained through private sources in addition to government funds. Private donors may contribute materials in kind, or they may help with operating costs; users may be charged membership fees or late fees, if possible. Providing additional services such as mail delivery, banking or health services can be an additional source of revenue, but may also interfere with dedicated library services, resulting in lower quality. Financing affects every aspect of the operation of mobile libraries, from recurrent costs like gasoline and staffing, to incidental costs for reparation and replacement of materials, and of course for adequately stocking the library with relevant resources.

4) **Examination of the existing context and identification of the target audience** must be undertaken in order to identify current information needs, existing sources of information and gaps in access. Library resources must be

relevant to the lives of the users, and must meet the literacy, language, professional and technological profile of the communities, while providing enough 'novelty' to keep them interested and involved. Although catering to many diverse needs is ideal, it can also complicate scheduling and diminish the quality of resources for each specific user. The Mobile Resource Centers in Mongolia are an example of targeting resources and processes to a very specific audience; although they may in some cases include resources for students or the general population, they were designed to provide resources for teachers, and the operating schedule reflected that mandate.

5) **Determining strategies and processes** to be followed in terms of the schedule of library visits and staffing is a major concern, and can only be determined on a case-by-case basis depending on the distances between target communities. For example, some mobile library services simply depart from a home base in the morning, and return in the evening to restock, traveling a different round trip route every day. Others may spend a week on the road before returning to restock, but this requires lodging for staff members and can be extremely tiresome. The duration of stops is another concern; the bus may stop only long enough for people to choose and check out resources, or it may have to stay long enough for everyone in the village to have a chance to read the materials that they are interested in, and return them before departure. If the quantity of books is limited, then this may have to be the solution, since the library risks emptying its stocks after just few visits if people are allowed to borrow the materials. Staffing strategies encourage include having a local community member be in charge of checking out, distributing and returning books that may be dropped off one box at a time, or chosen by the community member. Local trainers and maintenance staff should also be available at each destination, rather than relying on staff to travel with the van. And finally…

6) **Marketing and public awareness** is essential for making sure that users know exactly when and where the library will be on any given day, and what resources are available.

In addition to the above considerations, mobile telecenters and libraries offering ICT services have an additional set of factors to consider, including finding reliable power sources, keeping delicate equipment in good condition, and ensuring the security of personnel and equipment when valuable items are widely known to be circulating. An additional alternative to consider is accessing the Internet using different types of hand-held devices such as the Simputer (http://www.simputer.org) which can replace costly and delicate PC equipment. Finally, mobile internet services of any kind will not be possible without cooperation of the government in creating policies favorable to creation of ISPs and awarding affordable licenses.

Endnotes:

[1] Thanks to members of the listserv DLDC@yahoogroups.com and to the International Federation of Library Associations for their help in finding case studies for this article. Most information concerning the operation of mobile computer centers comes only from journalistic accounts available on the Internet. It appears that these vehicles have been in use for such a short time that in some cases no formal evaluations have been done, or project documentation is not made widely available. I would be happy to receive any such evaluative reports if they do exist for a potential follow-up article. This is by no means an exhaustive list, and recommendations for additions can be sent to the author at educationsp@hotmail.com

[2] Perraton, H. (2000). *Open and Distance Learning in the Developing World*. Routledge Studies in Distance Education. New York: Routledge.

[3] Part of a school reform and teacher training project sponsored by the Mongolian Foundation for Open Society (Soros Foundation). Data for this article were collected by the author during an assignment with MFOS in July-August of 2000 and are contained in: Steiner-Khamsi, G., Prime, T. & Lucas, S. (2000). *School 2001 Evaluation Report: Project Year 2*. Prepared for the Mongolian Foundation for Open Society: Ulanbaatar.

[4] Doust, Robin W. "Provision of School Library Services by Means of Mobile Libraries: the Zimbabwe Experience." *IFLA Journal* 25, no. 3 (1999): 148-51.

[5] Lerdsuriyakul, K., (1999). "Public Library in Thailand" Information Education Promotion Centre: Bangkok, Thailand. Paper presented to the 65th IFLA Council and General Conference, Bangkok, Thailand, August 20 - August 28. (http://ifla.org/IV/ifla65/papers/106-79e.htm)

[6] Diakite, F (1999). "Services of libraries and reading in Mali" Public Reading Operation Bamako, Mali. Paper presented to the 65th IFLA Council and General Conference, Bangkok, Thailand, August 20 - August 28. (http://ifla.org/IV/ifla65/papers/133-85e.htm)

[7] http://www.africaonline.co.zw/mirror/stage/archive/990716/national19753.html

[8] According to Sharat Pradhan, Indo-Asian News Service, 12 Feb. 2002, via the GKD list-serve.

[9] Michael Minges, Mobile Internet for developing countries. International Telecommunications Union, http://www.isoc.org/inet2001/CD_proceedings/G53/mobilepaper2.htm

[10] Community Internet Access in Rural Areas: Solving the Economic Sustainability Puzzle (http://www.cid.harvard.edu/cr/pdf/gitrr2002_ch08.pdf)