REVIEW OF RESEARCH ON RURAL PC KIOSKS

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Keywords: rural kiosks, telecenters, ICT4D, IT policy

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Summary

Rural PC kiosks and telecenters are perhaps the most-discussed form of ICT4D, or "information and communication technologies for development." Rural kiosks are shared-access computer centers, run either as community centers or as businesses that seek to deliver services to support socio-economic development of rural areas. Proponents of rural kiosks hope that these centers can be used to support health, banking, governance, agricultural, and other applications that contribute to development

agendas.

This chapter provides a condensed compilation of research findings based on over three years of research from 2004 through 2007. The table of contents provides an overview; section titles are worded to provide one-sentence summaries of each section.

1. Introduction

Rural PC kiosks and telecenters are perhaps the most-discussed form of ICT4D, or "information and communication technologies for development." Rural kiosks are shared-access computer centers, run either as community centers or as businesses that seek to deliver services to support socio-economic development of rural areas. Proponents of rural kiosks hope that these centers can be used to support health, banking, governance, agricultural, and other applications that contribute to development agendas.

Many entities are involved in the set up of rural kiosks – governments, academia, multilateral organizations, corporations, and non-profits, and all have channeled substantial investment into rural kiosk projects around the world. Despite the attention, much remains unknown about rural kiosks, and rigorous studies that lead to generalizable conclusions are few.

During the period April 2004 through August 2007, researchers from Microsoft Research India, University of California, Berkeley, and London School of Economics have undertaken several formal studies of kiosks and participated in numerous informal discussions with stakeholders. With the goal of understanding social, cultural, economic, and technical aspects of kiosk projects, we have undertaken qualitative and quantitative studies involving…

- Surveys of 300 kiosks, 1000 kiosk customers and non-customers
- In-depth interviews of 100 kiosk operators
- Conversations with 60 proponents, observers, agencies, government officials,
- Site visits to 200 kiosks spanning 20 kiosk agencies
- Intensive participant observation of 30 kiosks in operation
- Software-based logging of kiosks in 13 kiosks
- Reviews of relevant literature in social science, development, and technical journals

These studies have been conducted in India, Ghana, and Kenya, with a focus on projects in India, where the most kiosk experiments have been conducted.

This chapter synthesizes our main findings to-date in an easily digestible format. Although we have strived for accuracy and completeness wherever possible, our broad brush strokes necessarily hide some details. Moreover, due to the diversity of approaches to kiosk projects, it is rare for generalizations to be without exceptions; even our large sample sizes do not guarantee statistical significance due to biases in the sampling process. We hope the reader will refer to the bibliography for further published results.

2. Rural PC Kiosks are difficult to Sustain

Rural PC kiosks face many significant challenges, and the recent research literature on kiosks is increasingly skeptical of their long-term value [Heeks, 2003; Keniston 2002; Toyama et al., 2005]. The following are just a sample of problems that are well-known to practitioners:

- Economic barriers: Kiosks often charge per transaction or per service, and these costs are often greater than many rural villagers are willing to pay.
- Social barriers: Discrimination against some customers or avoidance of the kiosk by potential clients due to caste can keep a majority of a village away from a kiosk.
- Confused branding: Many kiosks try to be all things to everyone, but e.g., farmers may not seek agriculture advice from a place where children play computer games.
- Educational barriers: Many villagers will be either illiterate or without sufficient education to fully take advantage of knowledge in document or online form.
- Mistrust and overabundance of information: Farmers, e.g., are bombarded with information, from salesmen, extension workers, neighbors, and so on. They can't tell sources of information apart, and a kiosk is just another – perhaps more alien – source.
- Lack of information in a familiar form: Available information is not in their local dialects, not specific to their geographic region, etc.
- Poor infrastructure: Electricity and phone lines for connectivity are not consistent.
- Frequent maintenance needs: Qualified maintenance service can be unavailable or costly.

In addition, there are other issues which are discussed in the remainder of this document: For kiosk projects which hold dual goals of both financial sustainability and social development, there are natural tensions that make it difficult to fulfill both simultaneously [Kuriyan et al., 2006]. It is often the case that the stated goals of a kiosk project differ from the desires of the local residents [Bailur, 2007a]. Kiosk operators frequently lack the talent and training required to run these challenging operations.

If individual kiosks are difficult, scaling to large numbers is a proportionately greater challenge. Despite the considerable energy and resources brought to bear by well-known kiosk agencies, estimates for the number of PC kiosks in India currently hover at a low count of only 15,000 kiosks, set up over ~7 years [Toyama et al., 2004]. ITC, a well-resourced conglomerate and the most aggressive implementer of kiosks – known as "e-Choupals" – during its expansion period, had a considerable staff of dedicated employees who set up approximately six kiosks a day. At that rate, it would require 45 years to set up 100,000 kiosks. Alternatively, 20 ITC-like giants might be able to set up 100,000 kiosks in a little over two years, but this would require the concerted effort of all 20 of the corporations in India that match ITC in overall size.

3. Successful Rural PC Kiosks fall into Several Categories

Despite the difficulties faced by rural kiosk operators, there are several types of rural PC kiosks which appear to be sustainable with some consistency. These are as follows:

- Computer-education centers: Even in remote rural areas, computers signify wealth and upward mobility. As a result, customers are willing to pay significant amounts to learn computer fundamentals. These courses usually teach use of the mouse and keyboard, simple word processing, and basic use of office applications such as spreadsheets. Students are typically young adults or children of wealthier parents. Depending on the local demographics, entrepreneurs can make a tidy profit from running computer-education courses.
- Regular Internet cafés: Particularly in towns or villages straddling a busy road, some kiosks evolve to become regular Internet cafes. These have clientele and usage statistics that are very similar to the "mom and pop" non-franchise Internet cafes found in urban areas. Customers come for browsing the Internet, for minor business processes and desktop publishing, for music, games, and entertainment, and also for viewing adult content. (It should be noted that Internet cafés themselves are very difficult to make viable as businesses.) [Kiri & Menon, 2006; Veeraraghavan et al., 2006]
- Government service centers: Some kiosks mainly provide government services (e.g., birth and death certificates) and related services (e.g., paying electricity bills [Kuriyan, in prep.]). Of these, entrepreneur success is far more likely, if the government actively endorses these centers and additionally closes all other means of providing the particular service offered by the kiosks. This latter point is critical, as keeping services available through traditional channels means that the kiosks will not gain a critical mass of customers. When things go well, the kiosk operator becomes a go-between between the rural customer and the government office in a way that spans caste and income brackets; customers appreciate the efficient service, and the government benefits by effectively "outsourcing" the service.
- Photo Shops: There are many instances of photo shops which use computers to enhance their services. Digital still and video cameras are increasingly available, and even rural villagers will spend lavishly on special events such as weddings which are given to photo and video services [Rangaswamy, 2006]. In addition, customers will pay considerable amounts to have photographs modified by the addition of artificial backgrounds and religious themes.

Apart from these, there are few patterns of consistently successful models of rural kiosks, despite considerable experimentation by kiosk agencies in the last decade. This is not to say that other sustainable models do not exist, but they seem to be difficult to identify.

4. Meeting Business Needs and Social Development Goals simultaneously is Difficult.

If there is one thing that separates most rural kiosk projects from the isolated Internet

cafés that spontaneously pop up in rural areas, it is the desire to drive socio-economic growth. Agencies that drive rural kiosk projects want to make a positive difference in society, usually beyond the simple establishment of a private business.

Thus, most kiosks are saddled with two goals: one, to contribute to the socio-economic growth of the village and one, to sustain itself as a business or community centre.

Our research finds that the dual goals of financial sustainability and social development are difficult to achieve simultaneously [Kuriyan et al., 2006]. There are natural socio-cultural tensions that occur at multiple levels. All of the following observations were made specifically in the context of an ethnographic study of Akshaya kiosks, but we feel they also apply to many other rural kiosk projects.

At the level of customers and clients, people in need of development services – usually the lower-income families in a village – are distinct from customers who will pay for more lucrative services. Those from poorer strata in rural villages are comfortable visiting certain institutions, but less comfortable where wealthy patrons might look for state-of-the-art technology; conversely, wealthy patrons are drawn to glitz and glamour and not necessarily drawn to institutions serving the poor.

That there are at least two classes of customers means tricky tradeoffs for kiosk operators. On the one hand, kiosk operators must recover their costs, which require selling to wealthier clients who are more educated, more experienced in computer use, who expect a state-of-the-art facility with high-end services, and who are interested in more advanced offerings.

On the other hand, kiosk operators are often expected also to serve the poor, who often require extensive outreach before relevant applications can be found.

Doing both is a difficult task. In addition, kiosk operators face a branding decision… whether to market to higher-income consumers or to lower-income clientele; marketing to one tends to alienate the other.

Finally, these tensions propagate even up to the state level, where opponents of a particular kiosk project may rally sentiment against proponents for either failing to serve those most in need of social services or ignoring the practical considerations of long-term sustainability.

As an analogy, we imagine that similar challenges would be faced by someone trying to run a soup kitchen for homeless people in the same space as a five-star restaurant.

What is most interesting is that social goals are often imposed from outside of the village, even if they are ultimately internalized by the kiosk operator.

That is, local entrepreneurs, left to their own devices, seem to downplay services to the poorest in their communities, in favour of catering to wealthier clients.

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