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Telecenters and Internet Cafés: The Case of ICTs in Small Businesses

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Abstract

Telecenter initiatives run by non-profit agents are widely believed to be critical access points for digital inclusion. By contrast, Internet or cyber cafés are generally viewed merely as commercial sites, thus falling outside the purview of non-profit initiatives promoting e-literacy. From a contextual study of Internet cafés in urban and suburban Mumbai and in peri-urban small towns of Maharashtra state, India, we report on the localization of information and communication technology (ICTs), including how Internet cafés ferret out survival niches and how they often serve as reasonably priced initiation nodes for first time users. This article discusses a variety of context specific and commercial instances of ICT services as manifest in everyday commerce. We argue that for-profit spaces like Internet cafés make a major contribution to digital immersion in information poor contexts and that these so-called non-developmental (read commercial) spaces successfully use ICTs to sustain businesses, to generate regular clientele and to adapt to local demand. In an effort to open up debate around telecenters as privileged sites of digital inclusion, the functions of Internet cafés are then compared and contrasted with processes and behaviors associated with telecenters.

Keywords: Internet café, telecenters, ICTD, digital divide, e-literacy, small business

This article addresses two arguments: (1) information and communication technologies (ICTs) by nature require immense technological infrastructure and relatively sophisticated user skills, and thus create barriers to adoption by the poor in all social contexts; and (2) donor-driven spaces like telecenters are singularly privileged arenas for meeting community ICT goals for digital inclusion. These two propositions are explored through an ethnographic study of one important node for technology immersion, the small and struggling commercial space of Internet cafés. We will examine the business strategies and survival techniques of Internet cafés that offer affordable e-literacy services and contrast those sites for Internet access with the experiences of telecenters.

Our research was conducted in India, a testing ground for information and communication technologies for development in which efforts to bring useful and valuable ICTs to rural communities have produced only marginal gains due to inadequate support structures and the lack of e-services of local relevance. Moreover, because there are so few published evaluations of ICTs for community development, little clarity exists about the impact of ICTs on desired social and developmental goals. Of particular interest for this article are the approximately 50,000 Internet cafés (Haseloff, 2005) that are in business in India's urban centers and that reportedly are expanding to those smaller towns with adequate telecommunication infrastructure. Many Internet cafés are apparently able to sustain and make small profits through the hard work and business acumen of their owners. While this article examines Internet cafés in some detail, it does not seek to replace the ideology of telecenter initiatives with one that exclusively favors small café businesses. Rather, we will review e-literacy opportunities that Internet cafés provide in the belief that, as digital inclusion becomes the mantra of national progress, small self-sustaining information and communication businesses that mediate and deliver technology

literacy will require increased attention from state governments and ICT development practitioners.

Defining Telecenters and Internet Cafés

Telecenters are adjudged privileged sites that by charter operate in rural and resource-stressed contexts and attempt to bring affordable ICT-driven services requiring significant infrastructural investments to underserved and information poor communities (Best & Macaulay, 2002; Maddon, 2005). More importantly, while telecenters generally bring communication services at negligible cost to users, the telecenter project comes most often at a substantial cost and effort for donors and patrons. Roman and Colle (2002) refer to the expression "telecenters" as

> a rather loosely used word to describe places that offer the public connectivity with computers and networks… a public place where people can get a variety of communication services, and where a major part of the operators' purpose is to benefit the community (p. 3).

Telecenters offer shared premises where the public can access information and communication technologies and function largely within the ideology and vision of bridging the digital divide (Colle, 2005; Whyte, 2000). More importantly, telecenters are set up to enable various community welfare schemes by adapting information technology to deliver focused deployments of ICTs in pursuit of development goals. Telecenters may offer a range of services, including telephone, training for ICT literacy, local access to online government information and services, the possibility of partnerships with community welfare schemes in health and education, and sometimes even support for commercial activity. The telecenter vision emphasizes communal good over individual gain and collective or patron-driven process over private ownership of means. It measures success based on impact in the community rather than on private parties. Other concerns such as enterprise sustainability and viability are often ignored.

By contrast, Internet or cyber cafés are generally considered to be more similar to any other

small commercial venture in an urban locale. Internet cafés can be thought of as a niche business in urban areas with fairly mature ICT infrastructure and a demonstrated local demand for communication services. The only large-scale study of Internet cafés in India (Haseloff, 2005)) defines cyber cafés as

> for-profit facilities, open to the general public to access the Internet, other network facilities and/or a variety of information technology tools on a temporary contract basis (pay per use) without the necessity for users to own hardware or software themselves (p. 54) .

As Haseloff's definition makes clear, in countries like India with low levels of teledensity, low penetration of PCs in homes, and high costs of hardware, Internet cafés readily become high-tech access nodes. As a result, Haseloff argues explicitly for a view of Internet cafés as development tools.

Moreover, in an article evaluating telecenter "myths and opportunities", Proenza (forthcoming) contends that telecenters could learn important lessons from the business plans of Internet cafés. Although cybercafés are often deemed not development oriented, these "small businesses have been expanding very rapidly worldwide, need little donor/patron support and [are] sustainable as a system" (p. 4). Discarding cybercafés as potential sites for ICT immersion ignores, says Proenza, "the most replicable and sustainable governance structure known, the privately owned businesses" (p. 4). Moreover, since telecenters are primarily run by not-for-profit, non-governmental organizations (NGOs) and rely heavily on donor funding for investment costs they "have a hard time finding long-term sustainability" (p. 4).

Similarly, in a well-known memorandum written for telecenter planners, Colle (2005) proposed a nine point plan concentrating on human and material capacity building, sustained support through training and creative partnering with stakeholders for relevant local content and services. Colle's eighth point suggests creating a robust business strategy and financial plan to

keep telecenters healthy and afloat by learning from their cousins, the Internet café. The findings of our ethnography in Western India presented below will show several correspondences with Cole's lessons for sustainable ICT access points and micro-entrepreneurship models recommended for telecenters.

Two additional studies lead support to the notion of for-profit ICT enterprises (Maddon, 2005; Salvador et al., 2005) and report on telecenter projects such as small phone shops in parts of Africa, Asia and Latin America that are typically run by small entrepreneurs who provide revenue-generating, basic telephone services. In a related study, Nisbett (2005) makes a sociological argument in favor of commercial sites like Internet cafés that provide ICT services. Nisbett found two kinds of socialization taking place in Internet cafés: first, many of the young people who flock to the cafés learn a great deal about information technology trends in the Indian job market, and second, these youths learn ways to find work in the IT sector. Taken together, these three studies lend support to Heek's (2005) conclusion that Internet cafés can be a positive space for ICT immersion.

Telecenter Dogma and Its Critics

Much of the expansive and often-normative literature on telecenter initiatives focuses on their fit with an ideology that privileges community development. Primacy is accorded to digital inclusion as the preeminent goal despite the diversity of communication ecologies and infrastructural resources in telecenter contexts. Many telecenter initiatives ground their legitimacy in international, inclusionary statements and charters such as the Okinawa Charter on the Global Information Society (Government of Japan Charter, 2000) and the G-8's Digital Opportunity Task Force (Hart, 2004).

Telecenters were born with the agenda to introduce, immerse and empower. Important agents,

such as government agencies, NGOs, and development experts view telecenters primarily as "engines of development." ICT immersions were envisaged as tied to a nation's development processes, thus requiring community or state ownership with collective goals driving contextual adoptions. Donor funding is understood as a foundational imperative (Colle, 2005). Despite differences among individual telecenter initiatives, contextual practice and local impact, we find a common imagination underpinning these initiatives, namely that telecenter efforts should be justified by invoking a strong vision of development goals built around community good.

Nations often envision telecenters as powerful instruments enabling democratic, accountable, and transparent public sector-civil society transactions by providing privileged access points in rural communities (Kumar, 2004, Pringle & David, 2002; MSSRF, 2004). For example, in Africa (Mayanja, 2003), in Latin America and the Caribbean (Delgadillo & Stokk, 2002) and India (Bhatnagar, 2000; Rao, 2005; IIITB, 2005) telecenter advocates hoped to advance e-governance and to reform and facilitate delivery of a variety of public and private information-based goods and services to rural communities. The Mission 2007, "Every Village a Knowledge Center", in India (MSSRF, 2004) exemplifies this vision. Indeed, among key players in India, there is a widespread belief that ICTs will support economic and social development by facilitating participation in global markets, promoting political accountability, improving delivery of basic services and enhancing local development opportunities. Multiple agents from corporations to non-profit organizations have staked a claim to shaping the course of ICT for development. The corporate giant Indian Tobacco Company's e-Choupal program has drawn on a for-profit business model for long term sustainability. By contrast, most non-profits argue for large donor-funded infrastructural investments to kick start and sustain telecenters for a considerable period of time until they are able to sustain themselves through income generation

from services.

The telecenter vision of ICT expansion and adoption has of course not gone unchallenged. The research literature in general has called attention to the difficulties inherent in national projects dedicated to digital equality for its citizens (Colle & Roman, 2001; Dagron, 2001); and, taking their cue from Colle and Roman, critical evaluations of telecenters in many parts of the developing world have been published. Proenza (2005), for example, claims that telecenter initiatives actually exacerbate the digital divide and his survey of 14 telecenters in Peru showed that benefits accrued almost exclusively to those who already had the money, social clout, and skill to interact with telecenter technology. Regardless of whether financial support for telecenters comes from the government, the private sector, or multi-actor partnerships, externally funded telecenters have been hobbled by a "deterministic view of how information technology can lead to socio-economic development" that ignores larger issues of local relevance and that fails to build models of consistent impact (Whyte, 2000).

These challenges and criticisms were largely substantiated in a comprehensive two year study of three hundred rural ICT telecenters across India. Kiri and Menon (2006) found that deployments of ICTs for development generally did little to generate ICT literacy or to raise levels of social prowess among villagers, first because of inconsistent provision of ICT hardware and maintenance and second, because little attention was paid to the institutional and practical contexts of technology use.

As an alternative to the (unspoken) assumptions inherent in the telecenter vision and practice, some in the development community have promoted commercial diversification as an alternative. In India, for example, one of the early models, the n-logue project, grew out of a partnership between academia, the government and the private sector (Jhunjhunwala, 2001; Dhawan, 2004).

The n-logue project has however had only mixed success mainly due to the enormity of the task of digital inclusion and community development through a rural ICT kiosk model (Dhawan, 2004; Toyama et al., 2004; Kiri & Menon, 2006). Similarly, the Indian Tobacco Company's e-Choupal was one of the first corporate driven attempts to foster an ICT initiative in the form of for-profit telecenters in rural India. While the e-Choupal model was never understood to be an not-for-profit ICT for development initiative, there no gainsaying the fact that the e-Choupal strategy has brought information and communication technologies to thousands of villages and enhanced the profits of small farmers selling home-grown produce (Kumar, 2004).

A somewhat different approach was taken by Singh and Kendall (2007) who put forth a "sustainable franchise model" that combines infrastructure support and resource co-ordination with market-based delivery of services to end users. Starting with initial support for infrastructure and organizational development from governments, NGOs, or multilateral partners, the model calls for telecenters to transition to greater entrepreneurial activity and market mediation when services are delivered to end users. Although the model predicts that, in the long run, small for-profit businesses could become self-sustaining if they were nimble enough to quickly provide services for which end users were willing to pay, Singh and Kendall found that few of the nearly one thousand telecenters they studied had made significant progress toward developing sustained revenue streams and thus remained dependent on the donor community.

Commercial diversification had actually been recommended earlier by Colle (2005), who argued strongly that to be fully effective telecenters must become community-oriented information and communication institutions, providing opportunities seemingly unrelated to development such as facilitating communication with friends and relatives and offering access to video and other entertainment media. Recognizing the dilemma of being sustainable while

providing public goods for the poor, Colle suggests that sustainability rests on factors such as community awareness of the telecenter's offerings, community tolerance for the content provided, and the presence of a well-trained ICT staff; and he encouraged telecenter operators to identify modes that could generate income, e.g. remittance transfer, membership fees, and partnerships with e-commerce sites.

Of special relevance to our study is the particular framing of telecenter sustainability proposed by Heeks (1999, 2005) in which he proposed an e-readiness index as the key measure of telecenter sustainability. Heeks' e-readiness index is composed of measures of ICT infrastructure roll-out, personal income, and ICT skills. Heeks reports that high e-readiness locations are likely to be urban, while rural regions generally score low on e-readiness. Heeks also contends that greater emphasis should be place on looking at telecenters as part and parcel of the information technology economic sector business and "recognizing a telecenters greatest impact may be in the jobs, incomes and skills it creates for those who run the telecenter and those who use its technology as the core of a micro-enterprise" (2005, p. 2). Taking this point further, we will demonstrate in the analysis that follows that, as part of the information technology sector, Internet cafés in urban and peri-urban areas are overwhelmingly e-ready and are poised to initiate and provide the most, perhaps only, access to e-literacy for the vast majority of Indians.

The World of the Internet Café

This section describes our contextual study of small Internet cafés and makes the case for their substantive contribution towards ICT immersion in underserved locales. Questions of financial stability, enterprise expansion, and attraction of first-time users of ICTs will be considered. Our stories from the field offer rich data that suggests finer and more luxuriant

linkages through the nitty-gritty of everyday businesses. From August 2006 to July 2007, we interviewed a geographically diverse, convenience sample of owner-managers in a total of 42 small Internet cafés in Mumbai city, Mumbai's suburbs and outer suburbs, and from small towns, between 100 to 300 kilometers from Mumbai. Participant observations were carried out in all 42 Internet cafés. Twenty-four of the cafés were located in the city and suburbs of Mumbai, with 6 from slums in Mumbai and 12 from small towns in the surrounding Maharashtra state.

Throughout India, PC penetration is low even in urban settings, especially in those neighborhoods where the bulk of urban poor lives and works in make-shift and informal economies. It is no surprise therefore that factors hindering ICT deployment and immersion in rural India also act as barriers in peri-urban and outer suburban regions. Power cuts, for example, are frequent in both settings and there is little by way of e-government services that might attract average citizens to ICT use. Indeed, incorporating ICTs into a small business is strongly dependent on larger public policies and state initiatives bringing telecom infrastructure. Nevertheless, we found Internet café start-ups even in low-income neighborhoods, where housing and the overall infrastructure were poor. While the exact number of Internet cafés in Greater Mumbai is unknown, we believe, based on our observations that the population of Internet cafés, especially those of the "mom and pop" type, has grown. We interpret this observation as indicating that small businesspersons have sensed a mushrooming demand for Internet connectivity and that owners have discovered ways to work around social and infrastructural constraints. As we will show, café owners sustain and grow their businesses by running both related and unrelated business in café premises, by upgrading their own computer skills, and by relying on friends and associates to manage and maintain hardware and software.

Tables 1 and 2 contain data about both the characteristics of the sampled Internet cafés and about selected attributes of café owners. The café managers we interviewed were uniformly young and well socialized into the age of information technology. The youngest in our sample was 17 and the oldest was 38. Thirty-one of 42 owner-managers were computer literate and said they knew computer networking, trouble shooting, and hardware maintenance. The remaining 11 got IT support from friends and IT trained relatives. Of the thirty-one owner-managers, 11 had training from small post-high school institutes, 11 had college degrees, 2 were under-graduate students, and 18 received hands on training on the job or from informal sources.

All of the 42 Internet cafés studied experienced varying infrastructural stresses depending on particular geographic contexts. For example, one of the two Internet cafés in Mumbai city had 35 PCs, the largest number of PCs in any of the Internet cafés in our sample. The second cyber café in Mumbai had an installed PC base of eight, also a large number roughly comparable to what we found in suburban Internet cafés. Perhaps of greater significance, neither of these Internet cafés offered photocopying or computer printout services, suggesting that enterprise survival was possible without the provision of additional ICT services. By contrast, Internet cafés in Mumbai's suburbs or outer suburbs generally had fewer PCs on site, but were more likely to offer a broader range of Internet related services. Seventy percent of the suburban Internet cafés studied sold computer time for gaming and an even greater proportion (80 %) of cafés n Mumbai's outer suburbs supported game play. Internet cafés in Mumbai's slums and in the small towns of Maharashtra state had approximately the same number of PCs for rent as did cafés in Mumbai's outer suburbs. All of the slum-based Internet cafés in our sample sold computer printout and photocopying services and half had gaming available. These findings suggest that there is a strong and generally well-serviced market for Internet cafés in slum

settings.

As to the owner-operators of Internet cafés, many had broken with family tradition to train themselves and to start up their café business. Thirty-three year old Sanjay who runs a café in suburban Mumbai said, "We deal with the 'paan' [betel leaves] as family business. I wanted to do something with computers and taught myself the basics". Sanjay also mentioned the impossibility of a stand alone café: "I run a hardware shop selling mobile phone services, and also a fast-food catering service, all from here. The café business gives me just enough. But, I now want to assemble PCs and expand this trade". This quote points to some of the difficulties of the Internet café business, especially how to manage a multi-PC café without fairly detailed knowledge of computing software and networking. Sanjay's remark also illustrates a recurring theme: IT skills, like other craft or service related know-how, are a major resource, but it is not necessarily acquired as part of intergenerational teaching by family or social tradition. Rather it is attained through purchasing comparatively expensive courses or by hiring already trained personnel.

Internet café owners and managers were quick to tell us about their innovative business plans. Vinod, 36, for example, who runs a suburban Mumbai café and who assembles and sells PCs in his l neighborhood said:

> [J]ust an Internet café is not a good revenue earner. You need some other business in parallel. For example, in my case selling hardware would bring me profit and café earnings would manage the expenses….. I switched to assembling PCs and that is doing better business. I sold 50 the last year… and my browsing rates have come down by 30 percent.

Another respondent, 34-year old Ganesh runs his family book dealership and has now attached an Internet café to his shop. He said, "I have special browsing rates for regular customers. I even allow happy hours with reduced rates!" Twenty-four year old Pankaj owns an Internet café in the

heart of South Mumbai, near the Stock Exchange. During work hours, the seven PCs in his shop houses are all abuzz with customers doing online stock trading. Idle PCs and the potential of selling Internet in his locality that has no cafés led Pankaj to open his café to the general public after the stock exchange has closed for the day. "Money from the café essentially helps me maintain the PCs," says Pankaj. In summary, then, we would note that even in urban locales sustainability remains an issue. However, the urban context may provide the wherewithal to diversify or to attach other businesses to sustain Internet cafés and those opportunities in turn appear to motivate café owners to persist or even expand their café businesses.

Shantytown Cafés

We studied 6 cyber cafés in Mumbai's slums, including 5 in Dharavi, where the population density of 50,000 people per square kilometer is six times greater than that of daytime New York City (Chatterji, 2005). What we found was strong evidence of commercial adaptability. Access to the Internet attracted the greatest number of customers, mostly young men between 18-30 years old who enjoyed the informal ambience of the café and its relatively unconstrained rules about Internet browsing (Rangaswamy, 2007). In the slum of Dharavi, we observed how Internet cafés bring ICT experiences where no other avenues exist and we were told by the café managers we interviewed about their deep desire to persist and expand their business despite obvious difficulties. In fact, we found these issues of survival enmeshed with broader non-formal business practices: the use of pirated software, dubious methods of accounting, the assembling of PCs from the "grey" hardware market, and multiple businesses running under a single business title.

Typically, Internet cafés in Mumbai's slums were owned and managed by business persons who were also simultaneously involved with a family business such as catering, cloth

merchandising, or printing. The situation of twenty-seven year old Edwin exemplifies this finding. Having migrated from Southern India to Mumbai more than two decades earlier, Edwin's family has a retail cloth business. Edwin works in that business but also operates a cyber café, fully air-conditioned with a stylish new furniture, making it what locals consider to be the fanciest Internet café on the arterial 90-foot road in Dharavi. As Edwin explained:

> We invested 2300 U.S. dollars to begin this café, a year ago. I have no knowledge of computers and my cousin here, who learnt about computers in our home town, manages everything … We have a million people living in Dharavi with no Internet access until two years ago. I got interested to begin this as side business as I thought I will be one of the earliest to wake my community to Internet … I began with four PCs and found a lot of youth thronging to use the Internet. I even drop rates and give discounts to regular clients… I've now installed air-conditioning and good furniture. I have eight PCs now though the space crunch continues.…

By contrast, two of the five cafés we profiled in Dharavi were managed by teenaged college students who saw the Internet café as way out of working in the family business. Ram Kumar, age 17, who manages a café called Devi Communication, said:

> [M]y brother and I are handling the café on our own. We alternate and sit in the café to manage our college timings. We want to get a bigger a better place, as this is too small and can barely accommodate four computers. Our grandpa came here 40 years ago to make a living to start a small restaurant. We were born and brought up in Mumbai but did not learn the craft of our family business. We studied and took computer coaching and ploughed money into this café. We can network, trouble shoot, and manage the PCs…. better than running a food-joint eh! Having started the café we surely have had a boost in our reputation People find it nice to see us, so young and all, handling a business … …we now have second hand and assembled computers, but in the future we want new PCs and provide web-cams, better systems, etc. Right now our focus is to finish studies…

Another informant, 18-year old Judith, who is studying IT in a local college, runs a three-PC Internet café and a public telephone service in the small space that previously had been occupied by her family's cloth store business. Judith's family wanted to shift business and saw the Internet café as an opportunity to be in tune with IT driven businesses. Judith explained:

> We did not do it for just the money… I wanted to study computers and that's the in-thing today in our country, we earn around twenty-five US dollars per day without including expenses from the café and the telephone booth. This is the era of computers. Today's education system is all about computing… now every student comes here for computer access for their project work…. Actually I have an idea to expand this business. My father says once I finish studies I can completely handle the business. I am planning to do something different. Like the cabins should be new and look nice! When a person looks at the café they should feel like coming inside to use the café. They should get value for money. We need to install better hardware/software .We need broadband and faster connections. There will be much more activity for clients. It's now painfully slow when shared… But what can we do in this matter.

The entrepreneurial spirit we found among owners of shanty town Internet cafés is illustrated by our conversation with twenty-eight year old Edward, who had started the St. Mary Internet café a year earlier. So far, Edward's profits had been small, but he was determined to keep going by diversifying business:

> NR: Is this place yours?
> E: No it's rented. I did a hardware course and there after thought of starting an Internet café.
> NR: And the hardware course you took is recent?
> E: Yes. Just did it a month back.
> NR: What were you doing before that?
> E: Before that I had gathered some knowledge from my friend circle.
> NR: About what?
> E: About repairing computers.
> NR: Ok, so your interest developed due to your friends? By watching them?
> E: Yes.
> NR: And why did you think of doing computers? The hardware course and then the business, why did you plan to start it?
> E: Actually I am interested in doing paper printing, books, cards etc and have a café on the side. This way I use my computing skill, earn money and attach another business.

In sum, the Dharavi ethnography indicates café businesses emerging and surviving amidst grinding poverty. Café entrepreneurs, we discovered, are driven by a strong will to survive, even if it means a certain amount of dalliance with supra-legal and non-formal work ethics and practices (for more discussion of non-formal practices in Dharavi Internet cafés, see

Rangaswamy, 2007). Most cafés were making small profits from a youth clientele who browsed, e-mailed, chatted and played games for hourly rates. We conclude therefore that shantytown cafés are by and large able to localize and adapt content and services to available resources and to meet client demands.

Narratives from a Small Town Café

From our interviews and observations, it is clear that small town businesses also are beginning to see opportunity in the commercial Internet. Broadband connectivity is virtually unavailable in small towns, but nevertheless it is the most sought after information technology. Moreover, in spite of this lack of broadband, local business owners do make money selling dial-up access, especially if their small town has a critical mass of migrants, tourists, or educational institutions and if there is a clearly identified commercial district. We will now relate the story of two cyber cafés in a small town, Shirdi, population 26,000, located 296 kilometers from Mumbai. Both of Shirdi's Internet cafés were run on a for-profit basis and were the only Internet facilities within a radius of 20 or 25 miles. One reason we chose Shirdi for fieldwork was its contextual features: it was a very small town with a two square kilometer commercial district and a tangle of picturesque by-lanes that attracted thousands of tourists daily during the peak summer months (Religiousportal.com, n.d.)

Twenty-three year old Parag who runs Apurva Computers in Shirdi received post-high school training in software engineering from a private institute in Mumbai. Parag returned to Shirdi to farm his family's land and also to run his own business. Parag began with six computers and offered a course in basic Windows applications as a way for locals to acquire the mandatory qualifying diploma for state employment. In the evening, when no course was in session, Parag

opened up the computers for general Internet access. As he explained:

> I get a lot of tourists from cities who come in to surf the Internet, books railway tickets and even share-trade. Shirdi has no colleges or big educational institutes or industry. It is a big-time pilgrimage site. And that gets me clients.

Since his café is licensed by the state, Parag must use legitimate software and cannot attach other businesses or services to the café. "I sometimes allow games when students finish with their course-work," he explained. "All this is not strictly allowed. But it gives me business".

Parag also shared his concern over the lack of competitive telecommunication service providers. He said:

> There is BSNL, the government network, but it is so slow... I keep my café open for 16 hours a day so that it will get enough clients to use the slow network. We eagerly await broadband. That will really make a difference.

Asked how he compared small town living to his experience in Mumbai, Parag replied:

> Here, I began a new business and also took care of my family lands. I am also very pleased to teach computers ... When you teach a candidate you make an image for yourself, you grow... There is so much demand for this course due to job opportunities. There is no escape from Internet technology. We have to learn it.

Another informant, Milind, a 33-year old hotelier, runs the second Internet café in Shirdi. It's located inside one of the three tourist hotels he also manages. Milind said he opened the café to introduce Internet to his hometown:

> Initially I wanted people to experience this technology and kept my surfing rates low. I spend a lot on this dial-up connection. I think of this as social service… My friends urge me to improve and expand services since there is so much demand for Internet.

Surprisingly, given what Milind perceives to be the demand for connectivity, he had installed only one PC in the café, although he does keep his café open almost around the clock. Milind himself is not interested in acquiring a technical education, having learned how to run hotels on the job in his family-run hospitality businesses. But Milind does see the educational sector as important to his internet café:

> Now two colleges have opened in town. That will bring me student clients. I want to gradually expand when I get time from my hotel business. I can introduce many on-line services if we have proper connectivity. There are many tourists who need to access Internet every day. But, for a job of five minutes it takes over an hour… we have a speed 56 kbps. Even the Yahoo! Log-in page refuses to open.

Interestingly, both Milind and Parag say that they want to offer software solutions for hoteliers in Shirdi. "They pay a lot to companies in Mumbai and Pune for software packages. We could fulfill this demand locally by floating ventures," explained Parag.

As these remarks indicate, Internet connectivity came to the town of Shirdi through entrepreneurial effort and a local logic of supply and demand. The two café owners we interviewed are independent entrepreneurs who understand technology and are willing to apply their skills to sustain an Internet café business despite other lucrative pre-occupations. We note however that Parag and Milind exhibit very different social profiles: one was educated in a big city, has studied ICTs, and has the social capital and training to start up a new business; the other, with no education or training in computers, nevertheless had the financial and social capital to establish and maintain an Internet café. Both entrepreneurs had worked around sparse infrastructural provisions to pull Internet technology into their social geographies. Above all, like their peers in Greater Mumbai, both Parag and Milind were determined to persist with their faith in ICTs, to stretch their businesses to meet local demands, and to endure technology-stress today in the hope of a better tomorrow. However, Milind and Parag do differ from their Mumbai counterparts because these two cyber café owners of Shirdi must compete in a significantly less technologically-enabling environment. Still, the Internet cafés of both Shirdi and Mumbai share the characteristic of being primary spaces bringing ICTs to the uninitiated.

Conclusions

Barriers to Internet access and adoption in developing countries like India are often traced to

the high cost of hardware, the resulting low rates of personal computer ownership, and to cognitive barriers such as inadequate levels of literacy or poor English language and ICT skills. Based on our fieldwork, however, we contend that Internet cafés have the potential to successfully address most and perhaps all of these barriers. Our research clearly demonstrates that Internet cafés can bring sustainable ICT access to even the poorest neighborhoods. Our research also advances the argument that commercial enterprises need not be dependent on donor support and that, through clever strategies and close attention to local demand, Internet cafés even on the fringes of urban centers can begin to overcome perennial shortcomings of ICT infrastructure. Stiff competition to keep browsing charges low and a constant need to be alert to client demands even if it means skirting the edge of illegality are significant challenges. However, a slow but steady increase in broadband coverage and a cheap grey market for cannibalized PCs will further entrench e-literacy skills and make Internet cafés easier to start up and to sustain. It is important, we believe, to think of cybercafés as being largely access-driven, for-profit ventures. In fact, this study demonstrates that Internet cafés might generally get along with little external funding from development or political initiatives. Indeed, our data suggests that this potential exists even for the ever-increasing number of Internet cafés in slums and shanty towns and for cafés with a preponderance of youth clientele.

We follow-up our view of cyber cafés as organic, market driven and self-sustaining spaces popularizing ICT literacy and skills with two recommendations to government policymakers: (1) Grant special status to Internet cafés and do so without forcing on them a development agenda as a prerequisite. Such privileges might include the provision of cheaper, faster Internet connectivity and the issuing of special, more easily-procured business licenses; and (2) Offer financial and other incentives to make it attractive, but not mandatory, for Internet cafés to

enlarge their e-literacy services. Cybercafés are arguably the most ubiquitous, affordable, self-sustaining form of public Internet access in urban areas of the developing world. What differentiates Internet cafés from telecentres is that the cafés exist in a fully commercial space and allow unencumbered Internet usage based on popular demand. As we noted, Internet cafés are the only access points in urban regions with no donor or state underwriting and yet they are increasingly able to meet a growing demand for Internet and computing experiences. As such, demand-driven commercial settings such as Internet cafés show significant potential for expanding ICT adoption, narrowing digital divides, and becoming access points for a range of e-literacy engagements.

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Table 1: Profiles of Internet cafés in Mumbai slums and nearby small towns

	Slums (6)	Small Towns (12)
Mean No.PCs	6.3 (s.d. =2.3)	6.8 (s.d. =3.4)
Attached Businesses (%)		
Telephone Kiosk	100%	40%
Computer related	-	30%
Miscellaneous	50%	40%
None	-	-
Popular Internet Services (%)		
Internet	100%	50%
Gaming	50%	50%
Computer Printouts	100%	30%
Photocopying	100%	30%
Mean Age Café Managers	23.2 (s.d. = 4.9)	27.2 (s.d. =7.3)
Café Managers' Education (%)		
High School	-	47%
College	20%	25%
Private Tutoring	80%	28%

Table 2 : Profiles of Internet cafés in Mumbai city and suburbs

	City (2)	Suburbs (14)	Outer Suburbs (8)
Mean No. PCs	21.29 (s.d. = 19.1)	9.1 (s.d. = 2.6)	6.5 (s.d. = 3.3)
Attached Businesses (%)			
Telephone Kiosk	-	24%	17%
Computer related	-	40%	17%
Miscellaneous	100%	16%	50%
None	-	8%	24%
Popular Internet Services (%)			
Internet	100%	90%	90%
Gaming	50%	70%	80%
Computer Printouts	-	70%	80%
Photocopying	-	30%	50%
Mean Age Café Managers	22.5 (s.d. = 2.1)	30 (s.d. =5.6)	26.25 (s.d. =6.7)
Café Managers' Education (%)			
High School	50%	24%	50%
College	50%	40%	50%
Private Tutoring	-	36%	-