Infomediaries: Brokers of Public Access

Final Report from a Three-Country Study

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ABSTRACT

This study investigated the role of infomediaries in shaping outcomes for users at Public Access Venues (PAVs) in Bangladesh, Chile, and Lithuania. We examined the extent to which technical skills and empathy are relevant to and appreciated by different types of users, and whether differences in infomediaries are evident across different types of PAVs. We asked whether particular infomediary behaviors were associated with significant changes as reported by PAV users. We learned that infomediaries provide the human face for the information age by taking on the functions of facilitation, coaching, referral and teaching and assuming the role of a trusted gatekeeper. The process of infomediation turned out to be of prominence within which the infomediary is a key component. In the absence of infomediaries, those left behind (or excluded due to their age, socio-economic status, level of education/literacy, gender, disability or caste) will face additional, perhaps insurmountable, barriers.

KEYWORDS

public access, information and communication technologies, ICT, ICTD, infomediary, infomediation, brokering

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GLOSSARY

- **Biblioredes:** A national program for digital inclusion in 412 public libraries and 18 regional laboratories across Chile www.biblioredes.cl/
- **CIISOC:** Centro de Investigaciones de la Inclusión Digital y la Sociedad del Conocimiento [Research Centre on Digital Inclusion and the Knowledge Society] Universidad de la Frontera, Temuco, Chile www.ciisoc.cl
- **Co-PI:** co-Principal Investigator
- **CRT:** Country Research Team
- **D-Net:** Development Research Network, Bangladesh http://www.dnet.org.bd/
- **GIS:** Global Impact Study
- **GISNS:** Global Impact Study Non-user Survey
- **GISUS:** Global Impact Study User Survey
- **GISVS:** Global Impact Study Venue Survey
- **ICT:** information and communication technology
- **ICTD:** information and communication technology for development
- **Infolady:** a trained rural young woman in Bangladesh, who cycles about five to ten kilometers a day and offers variety of ICT-based and other services at the door-step of rural community she lives in[1]
- **Infomediary:** a person who combines a set of technological resources and coaching to meet users' information needs and communication capabilities
- **Infomediation:** a process that combines a set of technological resources and coaching (by an infomediary and/or by peers) to meet users' information needs and communication capabilities.
- **KB:** knowledge broker
- **LILRS:** Libraries for Innovation Lithuanian Residents Survey 2009
- **LILSOS:** Libraries for Innovation Libraries Staff Opinion Survey 2009
- **PAC:** Public Access Computer
- **PAV:** Public Access Venue
- **S4id:** Society for Information and Development, Lithuania www.s4id.lt

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[1] Adapted from www.stockholmchallenge.org/project/2010/infolady-ict-based-women-entrepreneurship-rural-communities-bangladesh

EXECUTIVE SUMMARY

The central question of this study is this: *How do the roles of infomediaries affect the outcomes for users at public access venues?* We worked from the following initial definition: An infomediary is a person working in a public access venue who combines a set of technological resources and coaching to meet users' information needs and communication capabilities. In service of answering the central question, we sought to address these pieces of the bigger picture:

- What specific infomediary capabilities and behaviors were observed? What was it about the infomediary that engaged the user?
- What about the infomediary's particular public access venue (type, location, and age of venue) might have driven her or him to act the ways that s/he did?
- What, if any, effect did the infomediation have on outcomes experienced by users?

Informing these questions is the notion that infomediaries must act as knowledge translators to assist users in learning how to use ICTs. This process requires infomediaries to take on many functions, such as facilitating both access to and understanding of complex information, and providing brokering services as appropriate. To provide brokering services, infomediaries must be trusted gatekeepers; i.e., they must embedded in their local community and offer the services needed to minimize exclusion. But to play the role of a trusted gatekeeper, the infomedition process must go beyond well-defined functions and roles: There must be empathy. This study explores the many manifestations and combinations of empathy as evident in what it takes to help different kinds of ICT users, its variation by the context of the public access venue, and how that affects outcomes for venue users.

This study comparing Bangladesh, Chile, and Lithuania incorporated infomediary interviews, user focus groups, library manager interviews, field visits by the co-PIs, ethnographic studies, surveys from the Global Impact Study in Bangladesh and Chile, and surveys from the Libraries for Innovation project in Lithuania. In each country, preliminary findings were shared with panels of users, infomediaries, and policy makers.

In all countries, users confirmed the need for assistance, in different ways and to varying degrees. The most important reasons why users visit public access venues in Bangladesh and Chile are equipment related; e.g., there are no alternative means of computer or internet access, or the equipment at the public access venue is better than available alternatives. First time users of public access venues, in particular, visit the venue (especially in Bangladesh) primarily to seek assistance from staff, and far less often from other users. In Lithuania, where internet access is more widespread, rural public access venues were often viewed as places for meeting and socializing, especially among youth. From the point of view of the Global Impact Study, our evidence confirms a pattern of *complementarity* more than substitution with regards to private and public access.

One surprising finding is that it is not only the beginners who need the public access venue to be an encouraging and understanding environment in which to develop their ICT skills. In fact, although the technical abilities of the venue staff are consistently rated as more important than their empathy, our data show that infomediary empathy is important for novice *and* advanced users. Empathy can be a trait, a state, a process, a relationship, or a demonstration of caring. Its manifestation lies along a continuum, with the intellectual and cognitive at one end, and the affective and the emotional at the other. Various combinations may be appropriate for different user groups, perhaps with special sensitivity in their application for patrons who may have experienced exclusion for reasons of education, social and economic status, gender, race, or religion. Empathetic services can include a combination of understanding a user's individual needs; offering a friendly and informal communication style; being

flexible about rule enforcement; and demonstrating caring, sympathy, politeness, respect, patience, and goodwill. Scanning the environment to determine appropriate interventions for various users is also highlighted. In all three countries, the empathetic competencies of the staff were particularly important for patrons with lower ICT skills. For novice users, empathy is more important than the infomediary's ICT skills; yet even for advanced users, to whom ICT skills are the most important infomediary trait, some forms of empathy are still also expected. There is evidence to suggest that this is true across the spectrum of public access venues. The Lithuanian study, in particular, suggests that the *kind of activity that a user seeks* is a more important variable than the type of venue (for-profit versus non-profit).

There was a weaker relationship than we expected between for-profit and non-profit venues and the degree of empathy exhibited by infomediaries. In none of the countries did non-profit venues encourage empathy more than ICT skills from infomediaries. The reason empathy is evident in all venue types is that responding to users' needs is good business practice. A user-comes-first orientation is present across all venue types, although the mix of technical skills and empathy to cater to different types of users does manifest itself in different ways. Instances of empathetic service range from giving a novice personalized attention to leaving an experienced user on her own or adjusting schedules, pricing, venue layout, and equipment to enhance patron satisfaction. What matters more than the type of venue (though differences do exist) is the extent to which the infomediary is granted and exercises the leeway to experiment and make adjustments. The policy challenge related to this insight is to identify the best criteria for staff selection, and to develop training curricula that enhance a range of skills and attitudes.

The capacity development and ICT confidence that are gained or enhanced at public access venues are important outcomes across venues of all types. The most *significant* outcomes of computing in public access venues are described by the users in social terms: the ability to stay in touch with family and friends, to meet people virtually and physically, and to pursue leisure activities. Instrumental benefits are most evident in education and, in the Bangladeshi case, in the ability to access the resources and skills to find work. The more positive association between empathetic infomediation practices and significant changes in users' lives that we observed in Bangladesh may be because public access venues constitute the first point of access for a larger proportion of that country's population.

The in-venue personal characteristics of infomediaries were often only a component of effective assistance. The infolady attached to a non-profit venue in Bangladesh, for example, was effective because she left the venue to visit the homes of women who were neither familiar with nor comfortable in a library-like setting. Similarly, the *Shidhulai Swanirvar Sangstha* program brings ICTs to those living in remote, riverine northern Bangladesh. The accumulation of similar observations of outreach led us to emphasize effective *infomediation*, rather than effective *infomediaries*—i.e., the institutionalization of effective practices, roles, and skills.

Nevertheless, infomediaries provide many with a human face for the information age by taking on the functions of facilitation, coaching, referral, and teaching, and also assuming the role of a trusted gatekeeper. In their absence, those left behind (or excluded due to their age, socioeconomic status, level of education/literacy, gender, disability, or caste) will face additional, perhaps insurmountable, barriers.

A decision to fund or promote public access venues in the future may depend less on ICT indicators or policies, and more on our understanding of the contribution of public access to social change. While technology does not replace social relations, it influences how they evolve in time and space. As societies become ICT-literate, individuals gain insight into which technologies they wish to use and how they would like to use them. These people are then likely to seek communal spaces, where their concerns will be less about whether advice or access comes from a librarian or an attendant at a private kiosk, than about convenience; whether their friends will also be there; and additional services, pricing,

and location. The deployment and use of contemporary ICTs is not about replacing social relationships, but about generating environments which facilitate new forms of mediated interaction. This is consistent with the broader Global Impact Study, where the evidence suggests that public access is complementary to private access, rather than a replacement or an inferior option. The future of infomediation may even be "venue-neutral," with the qualities of an effective infomediary less dependent on venue type, and more on whether venues can adapt to technological developments and evolving user needs. We suggest from our experience in this study that users may also be more concerned over time with the infomediation process, rather than with the individual providing it.

INTRODUCTION

About This Study

This study emerged from prior experiences of the co-authors in contexts where the process of introducing citizens to information and communication technologies (ICTs) included trainers who coached users. In many instances, the programs that enabled communities to first access the internet included trainers alongside equipment and subsidized connectivity. A common feature across these experiences was how these individuals (some more competently than others) were able to ease users' fears and increase their skills and confidence. In one study, for example, intermediaries across different settings often created "moments of truth" when the users suddenly realized the potential of the new services (Ramírez, 2010). The co-authors had witnessed this phenomenon in a variety of public access venues, including libraries, schools, and telecenters, as well as telemedicine facilities in remote locations. Considering that public access venues were the focus of the Global Impact Study, it was fitting to propose a study about the human element of these venues. Thus, the co-authors proposed the *central question* of this study, "*How does the role of infomediaries affect the outcomes for users at public access venues?*"

Framing the Research

Although the term "informediary" is not common, the literature on knowledge translation and knowledge brokering does refer to it. For example, Fisher refers to "*information intermediaries or infomediaries*" who are "concerned with enabling access to information from multiple sources and engaged in informing, aggregating, compiling and signaling information" (2010, p. 10) . Through our literature review, we discovered that infomediaries play many more roles, often comprised of elements involving a logical, sequential, and technical side, along with an empathetic side (the intellectual/cognitive and the affective/emotional). We were curious to explore the combination of technical skills and empathetic behavior that would best suit the needs of different users.
Beyond the individual characteristics, we assumed that the type of public access venue would influence the job description and roles expected of an infomediary. One only had to contrast the role and behavior of a cybercafé operator with that of a teacher or a librarian. We assumed that the goals and nature of each venue would dictate the roles of the infomediaries; and perhaps, that the infomediaries would, in turn, also play a part in what the venue offered and how it was organized. An important distinction seemed to be between publicly-run and privately-run venues: We witnessed, for example, that some venues routinely followed government schedules, while some privately-run venues varied their hours, often staying open late.

A third dimension was that of outcomes from the perspective of users. Would infomediaries' most effective roles be reflected in the range of services offered at public access venues, for example, and would their actions affect the outcomes experienced by users? As we explored the above three dimensions, we were also aware that the consumption side (users) and the provision side (service providers) would require distinct attention, something which was also reflected in the Global Impact Study User Survey (GSIUS) and the Global Impact Study Venue Survey (GISVS).

To explore these three dimensions, we concentrated on three research questions that charted the actions and results of the infomediaries' interactions with the users at their public access venues:

- **Infomediary behavior**: To what extent were technical skills and empathy relevant and appreciated by different types of users?
- **Context**: To what extent did environmental/contextual factors (type of venue, location, age of venue) encourage or discourage different infomediary behaviors?
- **Impact**: To what extent were infomediaries associated with any significant changes reported by public access venue users?

Figure 1: Teaching a class in a public access venue in Bangladesh

LITERATURE REVIEW

The literature review is organized into the following sections: We first focus on *the social relationship between people and ICTs*. Second, we explore *the stages that people follow in accessing ICTs*, from mental access to effective use. In both these sections, we identify social interaction as a key "mediator" of access. In the third section, we explore *the different roles that staff play at public access venues* while assisting users; a typology of roles is evident from different literatures. A meeting point of the access literature and the knowledge-brokering literature is the notion of inclusion, where the mediator acts as a gatekeeper who opens doors to those who may otherwise be excluded from access. *Empathy* is flagged as a dimension that matters, and we explore its multiple manifestations from different literatures. We conclude the review with a summary of the salient features from the literature.

The Social Life of Information

Brown and Duguid (2000, p. xvi) position themselves against "the superficially plausible idea . . . that information and its technologies can unproblematically replace the nuanced relations between people." They refer to this as "information fetishism" and suggest that "designs that ignore social issues lead to fragile, opaque technologies" (ibid., p. xvii). The authors go on to argue that ICTs cannot substitute for social organization and the enduring need for interpersonal sharing of information. They add:

> Communications technology, for example, has not so much replaced the need for person-to-person encounters as rendered geography less coercive. Where many old technologies inherently forced people together in factories, office buildings, schools, and libraries, new ones tempt them to stay apart, working for organizations without working in one, joining schools or libraries without going to one. These technologies thus offer tremendous freedoms. *Nonetheless, for certain aspects of work and learning, encounters with peers or mentors, while no longer inevitable, remain invaluable*. Consequently, centripetal social needs, which call people together, compete with centrifugal technologies that allow them to move apart. Rather than simply taking place for granted or celebrating *placelessness*, people now must struggle with these conflicting forces, trying to find the best resolution for particular situations and specific needs. To play a helpful part in this struggle, designers of buildings, organizations, interactions and technologies will find the intricacies of the "lure of the local" more important that the simplicities of the death of distance. (ibid., p. xix; emphasis added)[2]

The authors provide examples of how people benefit from interactions in an office environment, where much of the benefit comes from "incidental learning" (ibid., p. 72):

> [I]n order for people to be able to work alone, technology may have to reinforce their access to social networks. The home worker, from this perspective, resembles not the frontier pioneer, striking out alone and renouncing society, but more a deep-sea diver. The deeper a diver works alone beneath the ocean, the sturdier the connections to the surface have to be. (ibid., p. 89)

The related notion we developed in an earlier study was that these public access venue users "compute around"—utilizing various "waystations" for access, depending on their needs and the features of various settings. While these needs were sometimes technical (e.g., a color printer) they were often social (e.g., companionship, or the assistance of a person with specific qualities; Gordon

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[2] The authors borrow the term from Lippard (1997).

et al 2003). The analogies we choose—frontier pioneer or deep-sea diver—are powerful in that they anchor our expectations and our assumptions.

In similar vein, Sawhney suggests that "a good telecommunications system is one which does not substitute but complements face-to-face communication" (1996, p. 309). Further, he says that:

> As we design the new electronic environment, we need to develop ways to design technological systems which facilitate both transmission and ritual modes of human communication. Although we cannot plan for ritual communication in a calculated premeditated manner, we can design an environment which fosters serendipitous and spontaneous contact. *What matters is not so much the telecommunications infrastructure which transports information but the overall environment within which mediated communication takes place.* Here we find a physical analogy in regional planning. While transportation is concerned with the movement of goods and people from one point to another, regional planning is concerned with the overall settlement pattern within which this movement takes place. A regional plan is critically dependent on transportation technologies and in many ways defined and limited by them. Yet, it is much more than transportation in the sense that it takes an integrated view of the lay of the land, transportation, settlement patterns and other environmental factors. (ibid., p. 308; emphasis added)

Along the same lines, Stewart (2000) emphasizes that cybercafés are best understood as community centers, as a social portal to the internet, as a place where people choose to socialize while accessing technology they have decided not to own.

Stages of Access to ICTs

In the vast "digital divide" literature, several authors explore the stages or the steps required for people to access technology (Gurstein, 2003; Selwyn, 2004; van Dijk, 2006). They all emphasize that access is not just about purchasing power and physical access. As Selwyn explains:

> [I]ndividuals' engagement with ICTs is based around a complex mixture of social, psychological, economic and, above all, pragmatic reasons. Engagement with ICT is therefore less concerned with issues of access and ownership but more about how people develop relationships with ICTs, and how they are capable of making use of the social resources which make access useable. (2004, p. 349)

Selwyn describes four stages in the digital divide, reproduced in Figure 2 below:

Figure 2: Selwyn's stages of access in the digital divide

Formal/theoretical 'access' to ICTs and content	Formal provision of ICTs in home, community and work settings that is available to individual in theory.
Effective 'access' to ICTs and content Use of ICTs	Provision of ICTs in home, community and work settings that individual feels able to access. Contact with ICTs in any form. May or may not be 'meaningful' use. May or may not lead to medium/long term consequences.
Engagement with ICTs and content	'Meaningful' use of ICTs. Use where the user exercises a degree of control and choice over technology and content. Use could be considered to be useful, fruitful, significant and has relevance to the individual.
Outcomes – actual and perceived Consequences – actual and perceived	Immediate/short term consequences of ICT use medium/long term consequences of ICT use in terms of participating in society. Could be seen in terms of: *production activity* *political activity* *social activity* *consumption activity* *savings activity*

The third stage, which refers to "meaningful" engagement, is consistent with Gurstein's notion of "effective use" (2003). This is a necessary stage before any outcomes (actual and perceived) become evident. Selwyn emphasizes the need for "localized face-to-face social capital" to facilitate this process, which requires some form of face-to-face interaction. He underlines the need to pay attention to a host of "post-adoption" issues: not just what is formally made available, but how the actual engagement with ICTs takes place.

Jan Van Dijk (2006) developed the "Cumulative and Recursive Model of Types of Access to New Media" which specifies four main types of access: mental, material, skills, and usage (Figure 3). This model resembles the one by Selwyn. In addition, the "recursive" nature of van Dijk's model illustrates how, as new technology and applications appear, users need to re-start the climb up the access ladder, deciding whether they need or want the new developments, and whether they wish to become familiar with them. We assume that, as users become more advanced, such cycles are likely to become shorter.
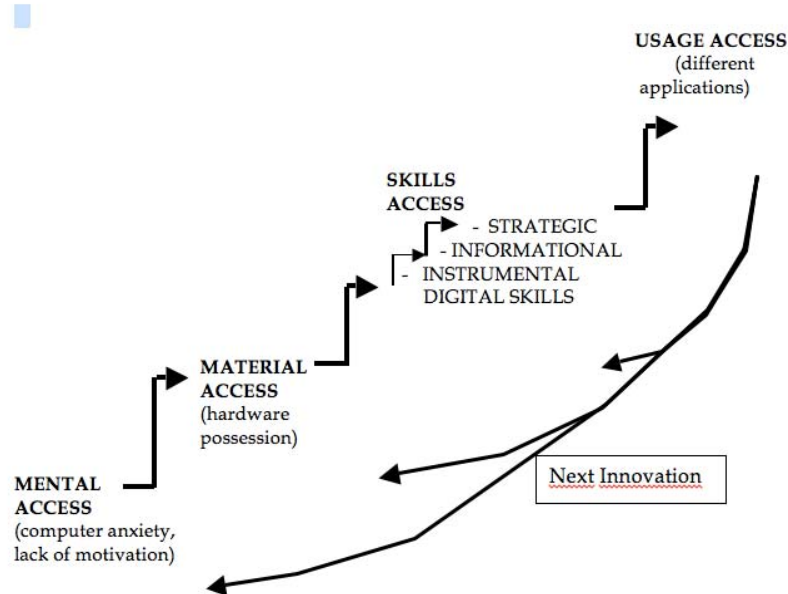
Figure 1: A Cumulative and Recursive Model of Types of Access to New Media

Source: Van Dijk (2006).

If, as Selwyn affirms, users need localized face-to-face social capital, it follows that a supportive infomediary will provide different forms of assistance depending on where users are along this continuum. This brings us to explore the different roles that an infomediary may play.

Infomediary Functions and Roles

Broadly, infomediaries serve as "knowledge translators." While this may be especially true for those with formal responsibilities as librarians and educators, various people may serve as infomediaries for information seekers, no matter what their formal role. Ward et al. (2011) capture the notion of *knowledge translation* with five loosely defined components that comprise a "knowledge exchange framework" (with associated actions or components in brackets)[3]:

- Problem identification and communication [identifying, reviewing, clarifying, focusing]
- Analysis of context [exploring, characteristics, personal, organizational, professional]
- Knowledge development and selection [locating, tailoring, assessing, classifying, identifying, relevance]
- Knowledge exchange activities/interventions [iterative, integrating, clarifying, negotiating, linkages, managing information, developing capacity, supporting decisions]
- Knowledge use [spreading, sustaining, practicalities, direct, conceptual, political]

More specifically, Stewart and Hyysal (2008) identify three core roles for infomediaries: facilitation, configuration, and brokering. They define each as follows:

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[3] While this framework is based on work in the mental health sector, some of the components speak to the experiences of infomediaries.

- **Facilitating** can be described as providing opportunities to others, by educating, gathering and distributing resources, influencing regulations and setting local rules. Facilitation involves "creating spaces" of various types: social (communities, networks), knowledge (skills and know-how resources), cultural (positive images), physical (a place or equipment), economic (providing funds), and regulatory (creating rules to guide activities and reduce uncertainty). (ibid., p. 306)

- [**Configuring**:] The creation of the space that facilitates appropriation by others and influencing the perceptions and goals of sponsors and users involves active processes of *configuration*. This includes configuring technology, often in a minor way; creating and configuring content; setting rules and regulations on use and usage, prioritising uses, the goals and form of projects, and the goals and expectations of other members of a network. (ibid., p. 307)

- The third activity of intermediaries in social learning processes is **brokering**. For example, intermediaries act to raise support for the appropriation process from sponsors and suppliers. They set themselves up to represent appropriating individuals and institutions, and negotiate on their behalf. (ibid., p. 308)

Knowledge brokering itself has many dimensions; Fisher (2010) refers to them as nested roles (Figure 4).

Figure 4: Nested roles of information intermediaries
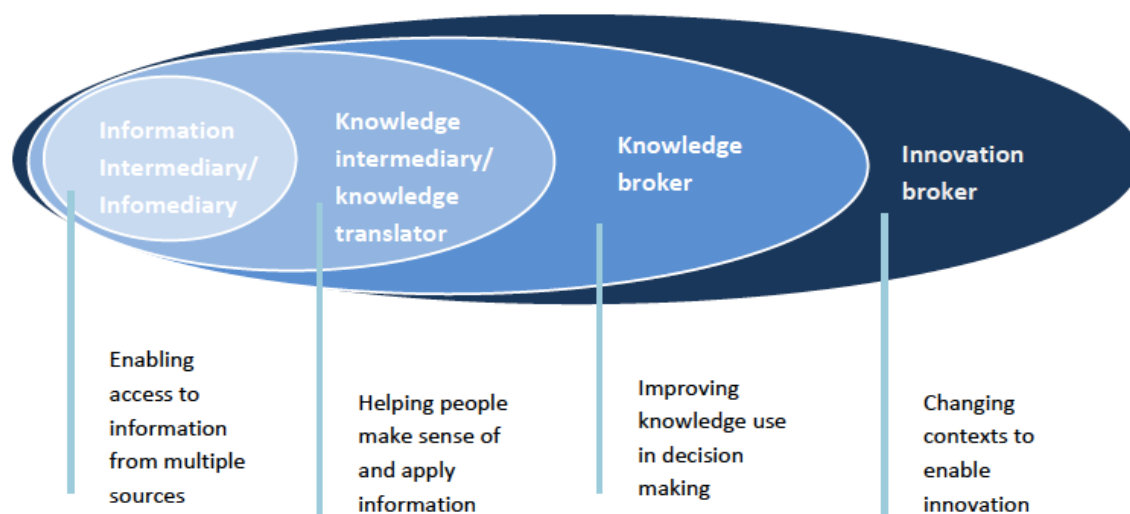
Fisher (ibid.) expands on the roles to include six functions: informing (disseminating content), linking (connecting expertise to need for a particular issue), matchmaking (bringing together expertise with need across different issues or disciplines), focused collaboration (building collaborative relationships around a particular issue), strategic collaboration (building longer-term, broader, collaborative relationships), building institutions (fostering sustainable, resilient institutions which can respond to multiple issues simultaneously), and behavior change and social learning by individual and institutions.

Learning how to manage and balance these various, often interrelated roles and functions is a challenge for infomediaries catering to different users at different stages of "access." Against this backdrop, Bailur and Masiero argue that infomediaries must be like gatekeepers who "construct their roles depending on those with whom they interact, as well as on those networks within which they are situated" (2012, p. 29). They add that "intermediaries are not passive entities; they navigate their way within these roles,

creating 'spaces of development' for themselves" (ibid., p. 38). In other words, infomediaries can be like chameleons: They respond to the context and "colour" themselves to work within it.

The importance of *trust* in the effective filling of this gatekeeper role is recurrent in the literature. Embeddedness in the context of information provision helps infomediaries to gain trust as mediators of information and technology assistance, and also to provide heightened relevance and accessibility to users (Ramírez, 2010). One review of relevant literature highlights the following features about infomediaries:

> The role of the human intermediary has been identified as extremely important by most studies on telecenters (Baron, 1999; Benjamin & Dahms, 1999; Kyabwe & Kibombo, 1999; Roman & Colle, 2002; IDRC, 2003; MSSRF, 2003). The intermediary is usually the telecenter operator, who, depending on the ownership structure of the telecenter, is either the entrepreneur who owns the center or the staff employed by NGOs or community-based organizations. There is substantial indication in studies that the intermediary has to be local, should have good entrepreneur abilities and ICT skills and understand the potential of ICT for social change. Studies have pointed out that the ideal intermediary is an individual drawn from the community that the telecenter serves, who is capable of using computer and internet technologies in order to respond to requests from members of the community for information or for help in solving some problems that might yield to an internet enquiry (Heeks, 1999; Cecchini, 2001, 2002; Harris, 2001; Cecchini & Raina, 2002). The literature suggests that if the intermediary is local then the person will be trusted (Heeks, 1999). (Rajalekshmi, 2007, p. 23)[4]

The role of the staff person as a gatekeeper who may be able to reduce "exclusion" is also a recurrent theme in the relevant literatures. Making a decision of whom to help and when, or whom and what to ignore, is not just about following well-defined roles and functions. Instead, we argue, it is about *empathy*, an idea that is explored in the next section.

Conceptualizations of Empathy

Empathy is especially well-addressed in the literature on nursing and libraries. According to Kunyk and Olson (2001), in the nursing literature, empathy is conceptualized in five ways:

- as a human trait,
- as a professional state,
- as a communication process,
- as a demonstration of caring, and
- as a special relationship.

This means that empathy will have many manifestations. Since, in addition, our research covers three contrasting country settings and languages, it is reasonable to expect that the term will have many different interpretations. Moreover, Kunyk and Olson add that "the obstacle to understanding empathy was the almost exclusive attention by researchers on measuring the observable, objective components of empathy while the subjective, non-measurable components were being ignored and devalued" (2001, p. 323).

In a review of literature touching on empathy and its relevance to social exclusion in the context of public libraries, Birdi et al. (2008, p. 585) highlight two salient and contrasting meanings:

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[4] The literature cited in this quote is not included in our references.

- Empathy is considered as a cognitive process, involving an imagined understanding of others and perspective taking.
- Empathy is considered to be an intuitive response based on emotional reaction, personal recognition and sympathetic understanding, such as a "heightened responsiveness to another's emotional experience."

The first meaning has to do with the infomediary's capacity to gauge a user's needs, fears, excitement, level of expertise, etc. In this description, scanning involves *knowing* what the other person is feeling, **which is an intellectual or cognitive or process**. The second meaning implies *feeling* what the person is feeling and *responding compassionately*, **which is an affective process**. In practice, empathy is multidimensional, combining the intellectual and affective elements.

Of particular interest to our study was this paper's summary of the different types of social exclusion that public libraries can address:

- economic (poverty, unemployment),
- social (isolation, homelessness),
- political (disenfranchisement, disempowerment),
- neighborhood (urban and rural deprivation),
- individual (illness, lack of social/educational skills),
- spatial (the institutionalized and marginalized), and
- group (black and ethnic minorities, disabled, elderly, etc.; Birdi et al., 2008, p. 577).

While we did not directly utilize this typology of exclusion, it did inform our analysis, as infomediaries inevitably cater to a wide range of users at the public access venues, and these users have diverse circumstances and information needs.

Summary

Meeting such a wide array of challenges requires infomediaries to fulfill many functions, all of which must be built on a foundation of trust and embeddedness within the local community. Both to maintain that trust and to accomplish so many things, an infomediary must go beyond well-defined functions and roles: Empathy is absolutely necessary. This study explores the many manifestations and combinations of empathy as evident in what it takes to help different kinds of ICT users, its variation by the context of the public access venue, and how that affects outcomes for venue users.

METHODOLOGY

The Nature of the Subject-Matter

Our review of the literature underscores the process of infomediation as one that is complex, context-specific and dynamic. For instance, Fisher (2011) signals that it is challenging for knowledge brokers and information intermediaries to measure impact for several reasons:

- The connections between information, knowledge, and change are complex.
- Changes in process/behaviors of stakeholders are hard to ascertain and attribute to knowledge brokers.
- Knowledge brokers often play a neutral position in relation to the information/knowledge they broker.
- Information intermediaries are often very distant from the changes they seek to bring about.
- The range of knowledge broker purposes, locations, and activities makes comparison difficult.
- Time and resources are often limited.

While Fisher's work focuses on knowledge brokerage, linking research to policy making, some of the above bullet points are also relevant to infomediaries at public access venues. Other researchers who have tried to measure the roles of knowledge intermediaries have also emphasized the need to understand both the process and the context within which the intermediation takes place (Meagher et al., 2008).

A common challenge for research on the digital divide is that the subject matter lends itself to multiple interpretations, while unifying definitions are elusive (Hilbert, 2011).[5] Nevertheless, we have attempted to develop a **working definition** of an infomediary to synthesize the many roles and functions that they cover: "An infomediary is a person who combines a set of technological resources and coaching to meet users' information needs and communication capabilities."

In our research, our attention was on three interrelated dimensions: the roles played by the infomediaries, the roles of the contexts in which the infomediaries work, and the infomediaries' contributions to outcomes. We were also aware that each of these dimensions would be perceived differently between the supply side (the infomediaries as service providers) and the demand side (users at the venues). With this framework in mind, we developed a set of hypotheses, between October 2008 and July 2009, in consultation with the country research teams (CRTs) in Lithuania, Chile, and Bangladesh. The process of adjustment has been reported elsewhere, and was meant to ensure a minimum common structure that still allowed for country-specificity (Ramírez et al., 2010). We also felt that a consultative process would give the CRTs a greater sense of ownership over the research.

The use of hypothesis merits attention, considering the complex and dynamic nature of the subject matter. We saw the hypotheses as markers that established our best estimation about the nature of the infomediary phenomenon. At the same time, we realized that the complex nature of this relatively unexplored topic meant that we would need to stay open to the unexpected. In other words, if our hypotheses were analogous to shining light on trees, we would also need to focus on what was happening between and behind the trees, along the lines of a grounded theory approach.

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[5] Hilbert adds that "questions like 'what is the best definition of the digital divide?' or 'when is the digital divide closed?' do not make sense by themselves, but have to be formulated on basis of a conditioning variable: Given the desired impact, who, with which characteristics, connects how to what? Or, normatively speaking: Given the desired impact, who, with which characteristics, should best be connected how to what?" (2001, p. 733).

To develop our hypotheses, we worked from a set of three assumptions, the interplay of which is illustrated in Figure 5.

Figure 5: The three interrelated dimensions of the study
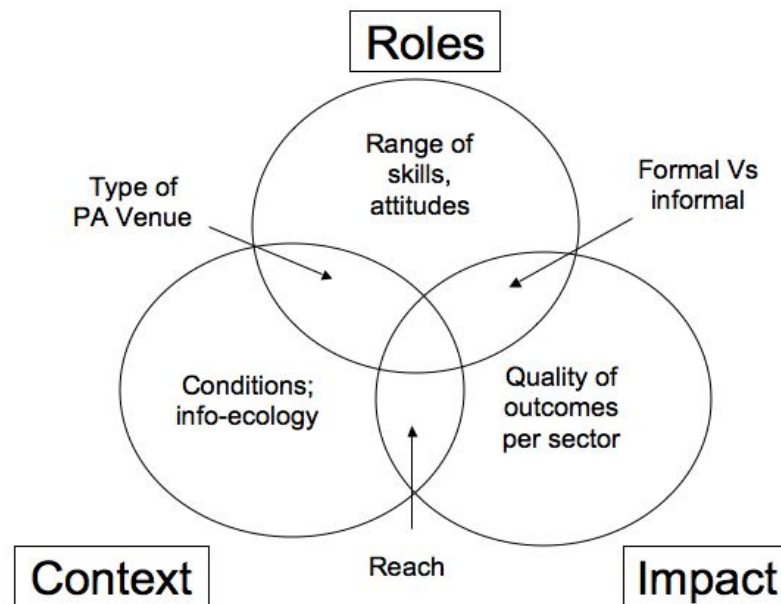
First, we assumed that the different **roles** played by infomediaries, and their practices, would influence the impact of the public access venue on users. These include their skills and attitudes, as well as issues of trust, the extent to which their job is formalized, and the rules they work within (or improvise from) as gatekeepers. The range of infomediary skills (a continuum from technical to social) and attitudes (a continuum from aggressive to empathetic) will evolve over time. An infomediary's role will also be different when he or she fulfills a formal responsibility, as opposed to an informal job, and it will vary across different types of public access venues.

Second, we assumed that the **context** and type of venue where an infomediary performs his or her work would influence the reach and effectiveness of the infomediation services. Context is about the conditions (information ecology, policies, pricing, trust, etc.) that enable infomediary services and public access venue technologies to be effective. It is also dynamic, both because of the change that a venue's presence can bring to a community (more information "reach"), and because the local conditions shape the different types of venues. The information ecology, especially, can be altered by the interplay of preexisting contexts and infomediation work. For example, in Lithuania, tax advisors come to the venue to assist people; in Chile, advisors assist people in using e-government services; in Bangladesh, infomediaries facilitate access to relevant information for the illiterate who are new to venues such as these.

Third, we assumed that an infomediary's **impact** would vary across patrons' different livelihood priorities, including health, education, finances, jobs, democratic engagement, etc. Impact is about the

quality of outcomes as experienced by patrons, which inevitably vary across dimensions of relevance to their livelihoods and wellbeing. Impact will also be affected by the conditions surrounding the public access venue and the formal or informal roles of the infomediary. The emphasis on outcomes as a proxy of impact stems from the fact that the benefits of a public access venue on patrons depend on many factors that lie beyond the control of the venue (e.g., learning about a medical treatment when there is no accessible clinic may lead to a change in awareness, and yet have no measurable impact on health).

Hypotheses

The hypotheses at which we arrived are based on the three initial groupings that arise from our assumptions. They follow a continuum, starting with attention to the *infomediary* and maturing into an *infomedation process* in which the infomediary is a core component.

1. The individual abilities of the infomediary

H1a. Empathy with users is more important than ICT skills for the infomediary's job, particularly for novices.[6]

H1b. Advanced users are more likely than novices to seek ICT skills, rather than empathy, from infomediaries.

2. The context for the infomediary's work

H2a. Non-profit public access venues encourage empathy from infomediaries more than ICT skills, relative to for-profit venues.[7]

H2b. Even users with private access seek non-profit public access venues, in part to enhance their ICT skills because of the empathy demonstrated in the infomediation process there.[8]

3. How effectiveness is reflected in both the public access venue and the benefits to the user

H3a. Effective infomediation processes lead to an adjustment of services, and/or to an increase in the variety of services, in response to users' needs.[9]

H3b. The most significant experience/outcome by users will be linked to the empathetic nature of the infomediation process.

Addressing each of these hypotheses poses a unique challenge that requires, in each case, different data to be gathered, and in different ways. The approaches that are necessary for each one are detailed in Table 1.

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[6] To distinguish between novice and advanced users, we relied on the self-reported activities undertaken by users (see Appendix 1 for details).

[7] In the Lithuanian case, replace "non-profit" with "rural."

[8] In the Lithuanian case, the public access venues are mainly libraries, and the users come for various other purposes, including socializing.

[9] In the Bangladeshi case, this hypothesis would best be expressed as follows: Outreach by public access venues and adjustment in the variety of their service offerings lead to effective infomediation practices.

Table 1: Hypotheses, required data, and appropriate data collection tools

Hypothesis	Data/evidence needed	Data collection tools
INFOMEDIARY ABILITIES AND PRACTICES		
H1a examines the abilities and practices (empathy and ICT skills) that the infomediary brings to the infomediation process, and **H1b** examines the extent to which user demand for empathy vs. ICT skills from infomediaries shifts with increasing usage.		
H1a. Empathy with users is more important than ICT skills for the infomediary's job, particularly for novices.	Expect to see more empathetic variables than technical skills selected by users, particularly by novices.	**Infomediary interviews** (questions guides in Appendix 1) **User focus groups** (questions guides in Appendix 2)
H1b. Advanced users are more likely than novices to seek ICT skills, rather than empathy, from infomediaries.	Expect technical skills to be emphasized in focus group discussions. Also, compare user and venue data across comparable venues.	**GISUS,** Question 3.10 (with same variables for 3.11, 3.14, and 3.15) **GISVS,** Question 3.9 (the variables are listed below)
CONTEXT		
H2a examines how venue type (profit vs. non-profit in Chile and Bangladesh; urban vs. rural in Lithuania) shapes the abilities of infomediaries, and **H2b** examines how the infomediation process (social environment in Lithuania) influences the decision of users to return to public access venues despite private access to ICTs.		
H2a. Non-profit public access venues encourage empathy from infomediaries more than ICT skills, relative to for-profit venues. In the Lithuanian case, this is so at rural venues, as opposed to urban ones.	*Moments of encouragement:* Selection criteria for hiring (documents), training program content (documents), and supervisory visits (interviews); compare rural and urban data from the Lithuanian user surveys (same variables).	**Review of documentation** (training manuals, guidelines) **Infomediary Interviews** (questions guides in App. 1) **User focus groups** (questions guides in App. 2) **Lithuanian survey data** (2008, 2009, 2010)
H2b. Even users with private access seek non-profit public access venues, in part to enhance their ICT skills because of the empathy demonstrated in the infomediation process there. In the Lithuanian case, these users mainly seek access at libraries for socializing and other purposes.	*Definition of private access:* GISUS Q.3.1: all those who include one of the following in the ranking: computer at home, neighbor, work, or school; expect to see empathetic variables ranked higher than skills; the surveys of Lithuanian users and the population survey include questions about whether those with private access (home, work, students at school) still use libraries; we have data about differentiated use in private vs. public, but we do not have qualitative data on socializing	**User focus groups**: Ensure some participants have private access (questions guides in App. 2) **Infomediary interviews** (questions guides in App. 1)

	(which the focus goups will capture).	
IMPACT ON VENUE AND ON USERS **H3a** examines how the increase/decrease/adjustment in the variety of services at public access venues reflects the effectiveness of infomediation, and **H3b** examines the demand for a wider variety of services as a consequence of user experience with the infomediation process. In Bangladesh, we add the marketing of the public access venues, via "mobile info ladies" or "brand promoters" who reach out to women, farmers, and others unable to visit the venues, as a variable that increases the effectiveness of infomediation.
H3a. Effective infomediation processes lead to an adjustment of services, and/or to an increase in the variety of services, in response to users' needs. In the Bangladeshi case, it is outreach by public access venues and adjustments in the variety of their service offerings that leads to effective infomediation processes.	Obtain a baseline list of venue services; seek infomediaries' perspectives on the introduction of a wider variety of services. Infomediaries must combine flexibility, responsiveness, troubleshooting (interpersonal, not technical), and "the-customer-comes first" attitudes. We are looking for people known as "keeners," "champions," or "sparkplugs."	**GISUS** Question Q.3.3 (wish list) **Infomediary interviews** (App.1) **User focus groups** (App. 2) **Interviews** with managers (LIT Appendix 3)
H3b. The most significant experience/outcome by users will be linked to the empathetic nature of the infomediation process.	Obtain tanked information outcomes showing users' preferences and infomediaries' opinions, as well as users' perspectives about the quality of the information outcomes. One metric would focus on variety and depth of skills across six domains: education, leisure and communication, economics (livelihood, work), health, and e-government. A second metric is in-depth access to information within categories (awareness and use of specific sites and resources). A third is impact as perceived by users: How have the skills and services changed their lives?	**User focus groups** (App. 2)

Country Selection

During the early stages of the project, Chile, Bangladesh, and Lithuania were selected as research sites by the project funders, as they were interested in learning about the impact of earlier investments,

especially in public libraries.[10] The wider GIS project was also going to be active in these three countries through a comprehensive inventory of public access venues, along with surveys of venues, users, and non-users.

We opted to work on these three countries because a team of researchers familiar with each context was in place, the survey data would be a reference point for the qualitative methods, and the range of conditions and indicators would allow us to make some comparisons. Still, though, we were aware of the significant differences among the countries. Table 2 shows the wide variety in the population, human development index (HDI) score and ranking, gross domestic product per capita (GDP), index of inequality (GINI) score, and three connectivity indicators across the three countries. Yet, choosing countries that were so different had its advantages. It helped us reach generalizable conclusions, about the role of infomediaries in PAVs, more rigorously.

Table 2: Comparative statistics for the participating country studies[11]

	Bangladesh	Chile	Lithuania
Population (millions), 2012	152.4	17.4	3.3
Human Development Index/Rank[12], 2012	0.515/146	0.819/40	0.818/41
GDP/capita, 2011 (in 2005 PPP US$)	1,568	15,272	16,877
Income GINI coefficient,[13], 2000-2010	32.1	52.1	37.6
internet users/100 inhabitants, 2010	3.7	45.0	62.8
Fixed broadband subscriptions, 2011[14]	468,500	2,002,573	732,000
Household Download Index (Aug. 16, 2011)[15]	0.9	6.16	30.69

Data Collection Tools

Table 1 details the data necessary to respond to each hypothesis and the data collection tools that were applied.[16] These included the following: The Libraries for Innovation Lithuanian Residents Survey 2009

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[10] The Bill and Melinda Gates Foundation funded library projects in all three countries; the co-funder was the International Development Research Centre (IDRC).

[11] Data in this table is from http://www.undp.org/content/dam/undp/library/corporate/HDR/2013GlobalHDR/English/HDR2013%20Report%20English.pdf unless mentioned otherwise.

[12] For reference, the United States has an HDI of 0.937, and was ranked 3rd.

[13] A measure of the deviation of the distribution of income (or consumption) among individuals or households within a country from a perfectly equal distribution. A value of 0 represents absolute equality, a value of 100 absolute inequality (United States, 40.8).

[14] See http://www.itu.int/ITU-D/ict/statistics/

[15] The index is described as follows: "Based on millions of recent test results from Speedtest.net, this index compares and ranks consumer download speeds around the globe. The value is the rolling mean throughput in Mbps over the past 30 days where the mean distance between the client and the server is less than 300 miles." See http://www.netindex.com On August 16, 2011, Lithuania had the highest Household Download Index ranking in the world (The index for the United States was 11.36).

[16] Each CRT prepared consent forms in English (with translations) for all informants; all the data collection tools were reviewed and approved the Ethics Review Board of the University of Washington.

(LILRS) and the Libraries for Innovation Libraries Staff Opinion Survey 2009 (LILSOS), infomediary interviews, user focus groups, library manager interviews in Lithuania, the GISUS and the GISVS, and field visits by the three co-PIs to the three countries, as well as ethnographic studies structured around "a week in the life of a public access venue." These were meant to provide a contextual understanding of patterns of use by different users, opportunities for informal exchanges with users (and to invite candidates for focus groups), and a means to document unusual events and users (outliers). The vignettes for each site provided a context for detailed data analysis. Lastly, panels with key stakeholders to share and verify findings were conducted at the country level. See Appendix 2 for the specific questions and rubrics which governed the various data collection modes.

Table 3: Data collection sites and methods in each country

	Ethnographies	Focus Groups	Infomediary Interviews	Panels	Field Visits
Lithuania	3	4	21	1	1
Chile	16	6	16	3	2
Bangladesh	30	7	10	3	2

Differences in the contexts and situational realities of each country led to differences in the data collection work that was done (Table 3).[17] For example, we began the study with the same amount of funds per country, yet in Lithuania, data collection costs are high (relative to the other countries) and previous research reported little variation across sites. In Chile, the number of ethnographies and infomediary interviews were reduced following the February 2010 earthquake that devastated areas under the original plans.

We also sought different data in each country. In Lithuania, since the public access field divides comparatively well across the axes of rural/urban and for-profit/non-profit, we measured those data points. In Chile and Bangladesh, however, the conventional rural/urban categories are blurred; instead, the length of operation was deemed to be a more significant variable, as it was associated with waves of public access venue programs. We classified venues as having been in operation for less than or longer than 3 years. The types of public access venues in Chile and Bangladesh are also more differentiated, with Chile including four types (private cybercafés, Biblioredes, school-based telecenters, and youth infocenters) and Bangladesh including five (public libraries, community libraries, non-profit telecenters, for-profit telecenters, and cybercafés). Lastly, we took note of the location of the Chilean and Bangladeshi venues.

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[17] To some extent, these numbers themselves are imprecise, in ways that are relevant to infomediation as a concept. For example, in Bangladesh, we visited venues with specific addresses that had "info-ladies" attached to them. These women had duties including going to visit women in nearby villages who might never come to the venues themselves. In the minds of the visited women, these "info-ladies" are individual entrepreneurs, only loosely affiliated with the formal venue. This raises the question of whether we should count this public venue/info-lady combination as one site, as two, or as many (in this table, we counted "it" as 1).

Data Analysis

Each country research team was in charge of data collection, data analysis, and preparation of an infomediary in-depth study country report. The co-PIs visited each country prior to data collection—Bangladesh (2009), Chile (2009), and Lithuania (2010), with follow-up country visits for course correction in Chile (2010) and Bangladesh (2011). In the Lithuanian case, we reviewed English translations of the LILRS and LILSOS surveys. In all cases, focus groups and interviews were transcribed and coded in the original language. The co-PIs provided suggestions to the Bangladeshi and Chilean CRTs for a coding scheme with categories based on the hypotheses. Coding was done by staff members from each CRT who had been directly involved in all qualitative data collection efforts, so as to ensure that their coding decisions were informed by the ethnographies. This report is based on a combination of the country reports (which themselves integrated the different qualitative findings) with the insights the three co-PIs gained from the field visits. We made use of relevant questions in both the user and venue surveys done by the GIS project, and details about our analysis of the tables appear in Footnote 20.

Scope and Limitations

The CRTs had in-depth knowledge about ICT4D and public access venues in each country. Two of the CRTs (those in Chile and Bangladesh) were also engaged in the implementation of the three surveys: the GISUS, the GISVS, and the Global Impact Study Non-User Survey (GISNS). We enjoyed face-to-face interaction with the CRTs in Seattle (2008), Chile (2008), Doha (2009), and Seattle once again (2011). The three-country coverage gave us a context for making comparisons. As Table 2 shows, the three lie at very different points on relevant continua, which we relate to the van Dijk model of different stages of access.

The three-country design does pose some limitations. For one, we chose our three countries among those available to represent the continuum of technological development as best as we could, and we chose the number of venues in each country to maximize the information available given budget constraints. Ideally, we would have included more countries, and more venues in each country.

Relatedly, the patchwork of surveys did not fit well together. The Bill and Melinda Gates-funded Library for Innovations Project already had surveys underway in most of the relevant venues in Lithuania. Although we relied as best as we could on the data collection tools used by those surveys, there were important differences in the questions and methods used in the surveys in Lithuania and the GISUS and the GISVS surveys deployed in Bangladesh and Chile. Specifically, since the GISUS and the GISVS were deployed for use by several embedded projects, and not just the infomediary study, some questions were truncated to limit the overall length of the instrument. Questions in the two surveys were also not as directly comparable as we would have liked them to be to reflect supply- and demand-side forces. For instance, Q.4.10 in the user survey asked respondents to choose the single most important factor, while Q.5.7 in the venue survey asked for the three most important factors. There was also inconsistency between how categories were constructed in the different countries—namely, the GISVS for Bangladesh merged for-profit and non-profit telecenters.

Figure 6: Two-in-one: A telecenter shares a roof with Biblioredes—complementary services in Gorbea, Chile.

RESULTS

In this section, we first establish the extent to which users seek assistance at public access venues and how that varies depending on the type of users. This sets the context to explain why infomediation is sought, and for what reasons. Next, we summarize the results following the structure of our six hypotheses, and we contrast the findings as seen by users (focus groups) vs. infomediaries (interviews).[18] After that, we bring in selective data from the GIS surveys on a case-by-case basis, leaning on the ethnographies to explain context and local dynamics. Oftentimes, we provide data summaries for Bangladesh and Chile together (as they followed a closer set of data collection instruments); wherever possible, we weave in the findings from Lithuania. We provide summaries under a "broadened understanding" section at the end of each set of hypotheses.

Overview of the Kinds of Assistance that Users Seek at Public Access Venues

The most important reason why users visit public access venues in Bangladesh and Chile is equipment: Either they have no alternative means of computer or internet access, or the equipment at the venue is in some important way better or more appropriate than what the alternatives offer. First-time venue users, however, do visit the venue (especially in Bangladesh) to seek assistance from staff. But seeking help from other users is rarely a primary reason, thus minimizing the role of informal infomediation. In Lithuania, where internet access is more widespread, access to equipment is less critical. There, the decision to visit a library is more frequently made to take advantage of the roles that libraries have traditionally played.

When asked to identify a set of "very important" factors for visiting venues, respondents ranked the absolute importance of most factors as higher in Chile than in Bangladesh. In Bangladesh, the "very important" reasons given by users have to do with *convenience* (affordability, location, and hours of operation). In Chile, on the other hand, these primarily have to do with *equipment* (computers in good working condition and fast internet access), though convenience and ambience (a quiet, safe, supporting environment for all genders) do follow closely behind. By contrast, ambience and equipment are the secondary factors in Bangladesh. Convenient working hours and a good working atmosphere at the libraries are also crucial to internet users in Lithuania.

Issues pertaining to privacy and, to a lesser extent, the venue's role as a location to meet friends, are not seen as "very important." Although privacy may not be very important, at least in Bangladesh, its perceived importance rises as one moves from first-time users of a venue to those who visit multiple venues (presumably the more advanced users), suggesting that the latter group would like to work on their own or without supervision.[19] Bangladesh is also an outlier in the perceived lack of importance, across all categories of users and venues, of providing local-language content and access to people with disabilities.

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[18] Appendix 3 includes a table summarizing the coding frequency tallies from the focus groups and interviews in Chile and Bangladesh.

[19] For an understanding of usage/demands patterns broken down by different types of users in Bangladesh and Chile (e.g., those who are using the public access venue today, those who use only one venue, those who use more than one venue), please refer to the related Global Impact Study paper, "Usage and Demand Patterns by Types of Users."

Additionally, the demand for infomediation is not overwhelming. In Bangladesh, help from staff is the most important reason to visit the venue for only about a third of first-time users and those who rely on just one venue. However, less than 10% of those using multiple venues rate help from the staff as the most important reason. The numbers are even smaller in Chile for all categories of users (although the venues rate the need as higher than the users do). Nevertheless, when asked to identify the "very important" factors for visiting a venue, knowledgeable and helpful staff never fell into the bottom quartile in either country for any category of user. Interestingly, both in relative and absolute terms, the figures showing importance of assistance to people with low literacy move in tandem with the figures for knowledgeable and helpful staff.

In Lithuania, although there is no direct measure, at least 70% of residents report that they have experienced the qualities and qualifications of the library staff—a figure which suggests that Lithuanian users will seek infomediation when they need it. Effective infomediation is also about creating the ambience and leaving certain users alone to do their work, as appropriate. The library staff, too, is confident that it can provide any assistance that users may need, although this confidence is dented when it comes to users with special needs.

The users' felt needs for assistance also varied from country to country. One common factor was the sense that the internet is confusing or hard to use. The differences between Bangladeshi and Chilean respondents to this statement are both dramatic and in the anticipated direction: The portion of respondent who "strongly" or "somewhat" agreed that the internet is confusing and hard to use came to 43.5% in Bangladesh, compared with 18.6% in Chile (see Table 4). Similarly, the same responses to the statement that "I often feel like I need help" yield a 71.7% figure for Bangladesh and 39.1% for Chile (see Table 5). The higher percentages for Bangladesh suggest a greater need for infomediation.

Table 4: The internet is confusing and hard to use

	All (n = 3831)	Bangladesh (n = 885)	Brazil (n = 926)	Chile (n = 981)	Philippines (n = 1039)
Strongly Agree	8.0%	23.7%	3.3%	3.7%	2.8%
Somewhat Agree	15.9%	19.8%	14.5%	14.9%	14.8%
Somewhat Disagree	37.7%	20.5%	30.2%	33.6%	63.0%
Strongly Disagree	38.4%	36.0%	51.9%	47.8%	19.3%

Source: Based on responses in Table 2.15.1.3 to Q.2.16a of the GISUS.[20]

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[20] The color-coding in these tables is meant to highlight particularly significant data points. Those values in yellow come from the highest quartile, while those in green come from the lowest quartile. The blue values do not fall in either statistical extreme, but they speak directly to the infomediation question.

Table 5: I often feel like I need help

	All (n = 3930)	Bangladesh (n = 980)	Brazil (n = 930)	Chile (n = 979)	Philippines (n = 1041)
Strongly Agree	15.3%	40.2%	4.9%	10.2%	5.8%
Somewhat Agree	26.9%	31.5%	13.1%	28.9%	32.9%
Somewhat Disagree	27.9%	10.5%	28.7%	25.6%	45.6%
Strongly Disagree	30.0%	17.8%	53.2%	35.2%	15.8%

Source: Based on responses in Table 2.15.2.3 to Q.2.16b of the GISUS.

Our best comparison for Lithuania is from the LILRS (2009, p. 26). Of the residents surveyed (not all of whom were users of a public access venue), 34% believed they had "fully sufficient" skills to make general use of the internet, while 26% thought they had "sufficient" skills. Another 8% regarded their skills as "insufficient," while 32% described their skills as being "fully insufficient." As best as we can discern from these data, users in Lithuania seem, as expected, to be more comfortable with using the internet than users in either Bangladesh or Chile.

Following from the differences in the users' felt needs, users in each country sought different amounts and sorts of assistance from the infomediaries at their public access venues. Table 6 provides data on the responses to the question, "How often do you seek assistance from venue staff?" The data for Bangladesh are more evenly distributed than for Chile, where 65.8% of users either "rarely" or "never" seek assistance from venue staff. The Chilean response to this question is closer to that country's users' rating of the extent to which seeking help from staff is the "most important" reason why they would visit a public access venue, than it is to their rating of the extent to which the presence of knowledgeable and helpful staff is one of many "very important" reasons. In other words, while having knowledgeable and helpful staff is reassuring, it does not mean that users will necessarily turn to them for assistance. Similar data is found in Table 7, which notes how often users would seek assistance from other users, as opposed to an infomediary, though the difference between Chilean users' comparative reticence and Bangladeshi users' comparative willingness to ask for help is less pronounced. At the same time, Table 8 confirms that users prefer to turn to the venue staff when they need help, rather than seek informal infomediation.

Table 6: How often do you seek assistance from venue staff?

	All (n = 3728)	Bangladesh (n = 958)	Brazil (n = 863)	Chile (n = 893)	Philippines (n = 1014)
Every time I go	7.6%	22.4%	3.8%	3.0%	1.0%
Most of the time	8.7%	20.1%	3.6%	6.2%	4.4%
Sometimes	23.4%	28.1%	14.6%	25.0%	25.0%
Rarely	26.0%	14.0%	33.6%	22.8%	33.6%
Never	34.3%	15.3%	44.4%	43.0%	36.0%

Source: Based on responses in Table 4.8.1.3 to Q.4.2 of the GISUS.

Table 7: How often do you seek assistance from other users?

	All (n = 3703)	Bangladesh (n = 957)	Brazil (n = 843)	Chile (n = 889)	Philippines (n = 1014)
Every time I go	1.6%	2.2%	1.4%	0.9%	1.9%
Most of the time	2.9%	3.6%	1.3%	2.4%	4.1%
Sometimes	15.1%	20.9%	8.9%	10.9%	18.3%
Rarely	17.8%	7.5%	24.1%	15.2%	24.5%
Never	62.6%	65.8%	64.3%	70.6%	51.2%

Source: Based on responses in Table 4.12.1.3 to Q.4.12 of the GISUS.

Table 8: When using the computer or the internet, what is the most common type of assistance you ask venue staff for?

	All (n = 2452)	Bangladesh (n = 811)	Brazil (n = 492)	Chile (n = 505)	Philippines (n = 644)
Problems using computer hardware	18.0%	18.2%	16.9%	18.0%	18.6%
Problems with internet connectivity	40.0%	34.5%	34.6%	39.2%	51.9%
Problems using software	20.0%	18.4%	26.8%	22.0%	15.4%
Searching for employment, business, or work	7.2%	15.4%	5.1%	3.4%	1.6%
Searching for health information	1.1%	2.2%	0.2%	0.4%	0.9%
Searching for educational information	3.7%	2.0%	3.9%	4.4%	5.3%
Searching for online government services	0.9%	0.4%	0.4%	2.2%	0.8%
Searching for local or international news	0.4%	0.1%	0.0%	1.4%	0.3%
Searching for culture and language information	0.2%	0.0%	0.2%	0.2%	0.3%
Performing communication activities, such as emailing or using social networking	3.5%	2.7%	6.3%	3.0%	2.8%
Producing online content, such as building websites	1.0%	0.1%	1.6%	0.8%	1.7%
Other	4.0%	5.9%	4.1%	5.1%	0.5%

Source: Based on responses in Table 4.9.1.3 to Q.4.9 of the GISUS.

The infomediaries' perspective, presented in Tables 9 and 10, can also shed light on what it is that users of public access venues are seeking. To venue staff in Bangladesh, the affordable provision of services, especially computers in good working condition; a convenient location; and the provision of a safe, supportive environment for users of all genders rank in the top quartile of means to attract *all* categories of users (see Table 9). Interestingly, the safety and supportiveness of the environment is considered more important by the venue staff than users. In Chile, it is equipment (computers in good working condition and a fast internet connection, and ambience (a safe, supportive, quiet environment) that are in the top quartile, followed by affordability, convenience of location, and hours of operation. The need for privacy or the use of the venue as a place to meet friends ranks relatively low from the staffs' perspective in both Bangladesh and Chile. The venue staff in Bangladesh, like their users, gives a low rating to the importance of providing local-language content or assistance to people with disabilities. In this regard, the venue staff and users in Bangladesh are outliers.

In both Bangladesh and Chile, a venue having technologically knowledgeable staff ranks as the fifth- and fourth-most important trait for a public access venue, respectively, although in absolute terms, it is

considered *much* more important in Chile. In Bangladesh, assistance to people with low literacy falls in the top quartile. While this factor ranks only eighth in Chile, it is perceived by 70.6% of the infomediaries as important, whereas that figure is only 53% in Bangladesh. In both countries, the data shows that the venue staff sees greater need for infomediation than the users that they serve.

Table 9: How important are the following features in attracting users to this venue?

	All	Bangladesh	Brazil	Chile	Philippines
The venue is the only public access venue in the area	39.7%	29.3%	28.1%	49.3%	51.2%
Convenient location	67.0%	57.5%	61.1%	74.6%	74.6%
Cost of service is affordable	70.2%	61.8%	69.6%	78.2%	72.5%
Hours of operation are convenient	58.3%	33.6%	56.4%	74.9%	67.7%
The venue does not restrict access to programs and websites that users want	39.5%	21.6%	48.4%	47.5%	39.6%
The venue is quiet	56.3%	44.1%	41%	83.9%	56.8%
Users don't need to wait in line to use computers	54.6%	32.2%	52.8%	62.3%	69.9%
Computers are in good working condition	71.1%	41.8%	71.9%	86.6%	84.2%
internet connection is fast	64.7%	28.6%	61.2%	83.4%	83.3%
Users can come to meet friends	44.7%	15.9%	50.4%	54.5%	58.0%
Venue staff are knowledgeable and helpful	66.3%	44.8% (5)	58.0%	81.2% (4)	80.9%
The layout provides privacy	35.2%	16.3%	49.6%	29.6%	44.4%
Content is provided in local language/mother tongue	53.5%	6.7%	76.1%	67.3%	35.2%
Assistance is provided to people with low literacy	60.4%	53.0% (4)	52.2%	70.6% (8)	65.4%
Physical and/or computer access is provided for people with disabilities	49.2%	7.4%	50.8%	55.5%	60.6%
The environment is safe and supportive of people of all genders	70.9%	53.2%	61.2%	84.5%	83.6%

Note: Since the responses to this question are tabulated on a scale of 1 ("not important at all") to 4 ("very important"), the table only draws on the "very important" responses in Tables 6.2.1.3–6.2.16.16 to Q.6.2a–Q.6.2p of the GISVS. Further, since this table consolidates responses from 16 tables, there is a different n for each cell. This has not been presented to avoid cluttering the table.

To the library staff in Lithuania, the top quartile of reasons that provide the "best fit" to describe the library have to do with their own conduct (helpfulness and cheerful disposition), along with the atmosphere they maintain in the library to ensure that it is a popular place for residents (see Table 10). While this resonates with the image that Lithuanians have of their country's libraries, the library staff have a more inflated sense of how helpful or cheerful they are, as well as of the atmosphere in the libraries (77% and 73%, as opposed to 62% and 46%, respectively). Further, the staff perceives the library to be far more popular than users perceive it to be. Interestingly, librarians lay much *less* emphasis on their own qualifications, at least in relative terms (it ranks 10th for librarians, but third for residents). Urban librarians, however, do think more of their own skills than their rural counterparts do.

Table 10: Image of the library (Lithuania)

	Good fit	Slight fit	Weak Fit	Poor Fit
A popular place to spend time	71% (71%)	24% (23%)	4% (5%)	1% (1%)
A fashionable place to spend time	36% (24%)	40% (44%)	20% (27%)	5% (6%)
Modern	46% (44%)	32% (40%)	15% (12%)	8% (4%)
Place to communicate with other people, friends	63% (61%)	28% (25%)	8% (12%)	2% (1%)
Equipped with newest equipment	38% (44%)	30% (39%)	17% (10%)	15% (6%)
Center of community's life	53% (46%)	35% (39%)	10% (10%)	3% (5%)
Meant more for youth	20% (15%)	45% (42%)	30% (37%)	5% (6%)
Fun to spend time in the library	57% (46%)	37% (45%)	5% (9%)	0.5% (0.0%)
Good atmosphere in the library	71% (67%)	27% (37%)	1% (1%)	0.3% (0.0%)
Novel ideas are being constantly implemented in libraries	41% (53%)	33% (33%)	17% (10%)	8% (3%)
Meant more for academics, students	3% (1%)	11% (15%)	15% (14%)	72% (70%)
Specialists with high qualifications work in libraries	40% (11) (60%) (7)	51% (36%)	8% (2%)	2% (2%)
Librarians are good helpers for a visitor	77% (1) (84%) (1)	22% (15%)	1% (1%)	0.3% (0.0%)
Librarians are cheerful and polite	73% (2) (74%) (2)	26% !24%)	1% (1%)	0.5% (0.0%)
Provide a lot of various services	61% (64%)	30% (30%)	6% (4%)	3% (1%)

Source: Based on aggregate data from LILSOS (2009, p. 52).
Note: n = 611; figures in parentheses are the responses from staff in urban libraries, n = 149 (ibid., p.54).

The Individual Abilities of the Infomediary

We began with the assumption that novice users would more often appreciate empathy from an infomediary, while the more advanced ones would favor technical skills. The survey data, presented in Tables 11, 12, and 13, along with the focus group information and ethnographic details integrated into the analysis by the coders, help us to address **H1a** and **H1b**, the two hypotheses arising from this assumption.

Table 11: What are the most important reasons you seek assistance from venue staff?

	All (n = 2498)	Bangladesh (n = 802)	Brazil (n = 549)	Chile (n = 502)	Philippines (n = 645)
Skilled at software use	26.5%	29.2%	29.0%	15.7%	29.5%
Skilled at hardware use and are generally knowledgeable about computers	29.7%	28.6%	25.0%	23.9%	39.5%
Able to assist users in searching for information	19.4%	21.8%	19.7%	18.1%	17.1%
Share sociocultural characteristics with me, such as gender, caste, community, socioeconomic level	4.5%	3.7%	4.4%	10.6%	0.9%
Patient and listen to users' needs	9.0%	10.8% (4)	6.4%	13.5% (4)	5.4%
Caring	6.3%	5.7% (5)	7.5%	7.8% (7)	4.8%
Able to help me perform computer tasks I cannot because I have a physical disability	3.6%	0.1%	6.2%	8.8%	1.9%
Other	1.0%	0.0%	2.0%	1.6%	0.9%

Source: Based on responses in Table 4.10.1.3 to Q.4.10 of the GISUS.

Table 12: What characteristics of this venue's computing staff are most important for helping computer users?

	All (n = 962)	Bangladesh (n = 236)	Brazil (n = 227)	Chile (n = 238)	Philippines (n = 261)
Skilled at software use	40.5%	38.1%	38.3%	37.8%	47.1%
Skilled at hardware use and generally knowledgeable about computers	62.6%	64.0%	59.0%	60.1%	66.7%
Able to assist users in searching for information	55.1%	56.8%	52.9%	60.1%	51.0%
Share sociocultural characteristics with users such as gender, caste, community, socioeconomic level, or age	28.3%	47.5%	22.0%	37.4%	8.0%
Patient and listen to users' needs	48.0%	45.3% (4)	46.7%	52.1% (3)	47.9%
Caring	33.1%	26.7% (6)	34.4%	35.3% (5)	35.6%
Able to help users perform computer tasks that users are not able to perform because of a physical disability	15.2%	0.8%	15.0%	21.4%	22.6%
Other	1.1%	0.0%	1.3%	1.3%	1.9%

Source: Since the respondents were allowed to choose up to three characteristics, the table provides an aggregated total of the responses in Tables 5.7.1.3–5.7.8.3 to Q.5.7a–Q.5.7h of the GISVS.

In countries where the user survey was implemented (not only Bangladesh and Chile), the technical abilities of the venue staff (skilled at hardware use and knowledgeable about computers, and skilled at software use) were the top two reasons (56.2%, 57.8% and 39.6% respectively) for seeking their assistance (see Table 11). Although empathy matters, it is less important, especially when attempting to capture it with such proxy terms as "patient and listen to users' needs," and "caring." Neither characteristic is in the top quartile, but nor are they in the bottom quartile. However, the phrasing of this question suggests that relying on direct indicators alone will underestimate the importance of

empathy. For instance, it is unlikely that helping users search for information (21.8% in Bangladesh and 18.1% in Chile), or helping those with a physical disability (negligible in Bangladesh, but more important than "caring" in Chile) can be undertaken without an empathetic component.

By asking for the "most important" reason, this survey question is awkwardly posed. This is because a user will likely seek assistance for a *tangible* purpose, rather than for empathy *per se*. As the assistance is being provided, having a caring infomediary is welcome. Indeed, this point became evident when venue staff (in the venue survey) was asked to list the three most important characteristics for helping users (even allowing for the possibility that staff may overestimate the empathy users need). According to the venue staff, the leading characteristics which determine their ability to help users, in Bangladesh and Chile, are being skilled at hardware use and knowledgeable about computers, and the having the ability to assist with searching for information (see Table 12). But the number of venue staff highlighting the importance of being skilled at software use drops sharply. Indeed, it ranks lower than the importance of shared sociocultural characteristics and being patient and listening to users' needs. Similarly, caring is considered important and, in Chile, the ability to help users with physical disabilities is mentioned by 21.4% of the respondents, even if it ranks relatively low.

Table 13: Skills of the library staff (Lithuania)

	Fully sufficient	Sufficient	Insufficient	Very insufficient	Difficult to say
Computer literacy skills (general computer usage skills; sending email with an attachment; usage of computer programs—MS Word, Excel, Powerpoint; eliminating technical problems)	16% (32%)	61% (57%)	20% (10%)	3% (1%)	
internet resource management skills (general purpose use, using internet search engines and online databases, participating in online chat forums, using the internet for phone conversations, using file exchange programs, and creating websites)	18% (30%)	57% (60%)	17% (5%)	5% (1%)	(4%)
Skills with respect to internet "novelties" (Wikipedia, Youtube and other video sharing systems, blogs, Library 2.0, Flickr and other photo sharing systems, Web 2.0, RSS news readers, Del.icio.us and other link sharing systems)	25% (3%)	51% (26%)	18% (53%)	1% (13%)	5% (5%)
Skills to help people wanting to use the internet[21]	22% (32%)	51% (54%)	21% (12%)	6% (1%)	
Skills to help those with special needs (rural citizens, children from families at social risk, the unemployed, the retired, the disabled, children whose parents are abroad)	1% (1%)	15% (23%)	34% (36%)	45% (36%)	4% (4%)

Source: Based on aggregate data (n = 611) compiled from LILSOS (2009, pp. 24, 27, 37, 40, 48).
Note: Figures in parentheses are the breakdown of responses from staff in urban libraries, n = 149.

Table 13 provides additional details about the perceived importance of staff qualifications. While 77% of

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[21] For more detail on how the library staff helps users wanting to use the internet, please see Sections 8 and 9 of the LILSOS. Section 8 presents the public relations initiatives of the library staff in general, including the various means (e.g., advertising, IT training programs) that the staff uses to attract and encourage visitors to use public internet services, and the frequency of such initiatives. Section 9 provides similar data for users with special needs. While such details are interesting, their inclusion here will not necessarily advance the analysis.

librarians say they have sufficient general computer literacy skills, according to the LILSOS (p.23-25), this varies by age (the younger the member of libraries' staff, the better skills (s)he has), location of the library (89% of librarians in urban areas claim sufficient skills) and (un)availability of internet access (the skills are superior where internet access is available). There are also differences by type of skill: 91% of the staff have general computer usage skills (using a mouse, printing), 79% can send an e-mail with an attachment. But more than a third (36%) feel unable to use common applications (Word, Excel, Power Point), and a similar number lacks confidence in dealing with technical problems (for instance, a "sleeping" computer, or a "stuck" printer).

While 87% of the staff report having the skills for general purpose use of the internet (e.g., checking e-mail or surfing webpages) other uses are more problematic (p.27): nearly 57% of the staff believes that (s)he does not have sufficient skills to use online databases (57%), participate in online chats and forums in the internet (47%), or use the use the internet for telephone conversations (46%). The staff feels even less confident in using file exchange programs (28%) or creating a webpage (16%). Once again, as was apparent in the U.S. library data, the younger staff working in libraries with internet access are better at using internet resources and urban librarians tend to be better equipped than their rural counterparts[22].

In Lithuania, focus groups and interviews conducted with librarians and users by the Library for Innovations Project, complement the survey findings on the skills of library staff.[23]

> Overall, librarians possess strong skills of working with special software such as LIBIS. These competencies are developed better than those of library visitors. Competencies with internet Explorer are also rather strong; however, librarians' opportunities for using internet resources are restricted by the lack of command of the English language. The skills of working with MS Office package are weaker: they are better with Microsoft Word, but weaker concerning other package applications. (UAB "TNS Galup", 2009: 6)

Of all the internet "novelites," 81% of library staff are aware of Wikipedia (LILSOS, p.33-34) while two of three can use it. Two out of three staff members know about video sharing systems, such as Youtube, while 62% are also aware of blogs. Nearly every second member of libraries' staff is aware of Library 2.0, photo sharing systems (such as Flickr), Web 2.0, RSS, and link sharing systems (such as Del.icio.us), and every third staff member knows how to use them. Typically, older library staff, working in rural libraries or libraries with no internet access, are unaware of these novelties. The younger and middle-aged members of libraries' staff (under 50), who work in libraries with internet access, are aware of novelties and know how to use them. But they may not know enough to train others. More often than not, younger staff (under 44) are not only able to use novelties but also train others to use them.

Against the backdrop of this skill distribution, 73% of the responding Lithuanian library staff believe that they have sufficient skills to help visitors to use the computer and the internet (p.40). Among urban librarians this belief is stronger (86%). The following is a summary of the the competencies of library

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[22] The impact of staff age were so dramatic in the case of U.S. libraries, that some have interpreted the data to mean that this is a problem that will "solve itself" over time.

[23] UAB "TNS Galup". 2009. *Survey of the libraries' staff and of the other groups concerned.* For the Library for innovations Project, Vilnius: Martynas Mazvydas National Library of Lithuania.

staff from the focus groups and interviews:[24]

> "When assessing librarians' competencies, both heads of libraries and librarians are likely to evaluate them as satisfactory (7 points out of 10). As compared to the competencies of public library visitors, librarians' competencies are more likely average: their skills are less developed than the skills of younger library visitors, but more developed than the skills of senior visitors who need assistance and consultation (UAB "TNS Galup", 2009: 6)

By contrast, 79% of library staff reported they lack of skills to help those with special needs. Rural citizens, who are among the most active users, are the best served (LILSOS, p.46-48) and more staff reported organizing promotions (47%) and training services (37%) to encourage this group to use the public internet access than any other. Librarians reported the fewest promotions and trainings for the disabled (12% and 6% respectively) and for children whose parents left to work abroad (9% and 5% respectively), as these groups are harder to identify.

Findings

The findings that emerged in this study were rich and informative, with interesting patterns of *similarities* and *differences* among the countries, and across the varieties of venues and patrons. It is hardly surprising that different levels of familiarity with ICTs impacted the needs of public access venue users across all settings. Sometimes the inexperience of novice users had dramatic impacts. For example, in Chile, we heard that novices were so fearful of their first use of a computer that "the chair would push back from under them." But how differences in needs among users were treated and perceived varied in important ways from country to country, and across the for-profit/non-profit and rural/urban divides. Ethnographic data and focus group information from Lithuania indicated that non-profit venues were more amenable to novice users than for-profit venues, as the non-profit infomediaries were more able to dedicate additional time to novices. In Chile and Bangladesh, there was a contrast between how users perceived this issue relative to infomediaries. In the Chile data, close to two-thirds of responses from user focus groups supported **H1a**, while only one-third of infomediaries did so. This much higher rate of ambivalence among infomediaries may reflect an awareness that other users also had a desire for empathy. In Bangladesh, the gap in supporting **H1a** between the coded responses of users and infomediaries was much closer, with two-thirds and over half, respectively, of all coded responses supporting **H1a**.

The Bangladesh country report provides an example of the ways in which empathetic behavior can create an overall welcoming environment, and of the complexity of these responses. The following passage is indicative of how the judgment by the infomediary showed compassion and required a balancing act where the interest of one individual user was given temporary priority:[25]

> It was observed that not only infomediaries, [but also] other users become considerate [and] sometimes create a collective environment, where it is possible to serve the special purpose of an individual. Such a story came from I-Tek Enterprise, Chittagong. It is a cyber café, a for-

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[24] UAB "TNS Galup". 2009. *Survey of the libraries' staff and of the other groups concerned.* For the Library for innovations Project, Vilnius: Martynas respectively), as these groups are harder Mazvydas National Library of Lithuania.

[25] This example is also relevant to **H3b**, where the most significant change for that user was enabled—to a certain extent—by the empathy shown by the infomediary.

profit venue. When describing how he helps the users and if was there was any memorable story, the infomediary Shanu told me, "One day, sitting on my desk, I found a user doing voice chat with someone over Skype very loudly. I came over to him and attracted his attention. He pulled off his head phone. I requested him not to talk loudly. He was a little ashamed and replied, 'Actually, I am giving an interview.' I understood the situation and told him to continue. Then I turned around and explained the situation to other users that he is giving an online interview and he needs to talk loudly. I was afraid that I would receive a negative reaction. To my surprise, everybody took it positively, and waved their hands in approval. At that time, electricity problem was very severe and power backup of UPS was enough only for few minutes. Considering the situation, I wanted his interview not to be interrupted. I went to the generator and waited there so that I can turn it on as soon as the power cuts. Fortunately, I did not have to do that. It was a long interview and I was sweating when the patience of other users will vanish. After a while, he finished, stood up and said loudly, 'I am selected for admission!' It was a happy moment for all of us. He embraced me and gave a big thank. Now he is studying in UK, he said with pride." (Bangladesh Country Report, pp. 40–41)

The survey data and the qualitative findings in the Chile and Bangladesh country reports show a trend that supports **H1a**, even though the user survey data clarify that technical skills are most important in every country (one important difference, however, is that **H1a** focused on *novice users*, which the survey question did not specify). While the qualitative data suggest that **H1a** is confirmed, when viewed together with the survey numbers, it appears that the two aspects (technical and empathetic) are both necessary components of good service.

There were several ways that addressing both the technical and the empathetic were approached. For example, in our own field observations in Chile, we noted a team approach at a venue in the town of Lota (BioBió region). A father-son team of infomediaries (see Figure 7) worked together at the venue, and they arranged their work so that the father was the empathetic infomediary while his son took on the more technical requests. Another integration of technical skills with empathetic behavior is captured in the following example from Bangladesh:

Empathy is also important to explain things in a way, which convince a user about what is possible and what is not, at the same time keeping the reputation of the PAV as respectful to the clients. If someone comes to a PAV for a service and if it is not available then it is easy to say "no." However, explaining why [it is] not possible is a better way to deal [with] a client. A story can explain it more clearly. A father wanted to send a scanned copy of a passport to Saudi Arabia to his son [who] told him to go to a PAV in Noakhali. It was a not-for-profit PAV. When he asked the infomediary to send it to his son, he realized that his son [had] asked him to scan it and then send it through email. The father did not understand such details. The infomediary explained the whole process and told the father that he needed the address to send it. The father understood it and came back next time with [the] email address. . . . [T]he positive attitude and communication skills were applied by the caring infomediary. (Bangladesh Country Report, p. 34)[26]

Figure 7: Balaji Parthasarathy (co-PI) with father and son—a team of infomediaries at a non-profit public access venue in the mining town of Lota, Chile

Some of the forms of empathy we found were unexpected and, at first, seemed to be contrary to our definition. For example, rather than hovering as they do their work, standing back and allowing more capable users the space they need can be an example of empathetic behavior; as can breaking some rules and adjusting the hours of operation. Two contrasting stories from Chile illustrate this notion: Letting advanced users work independently can be an example of empathetic behavior, and knowing who needs to be left alone is an example of empathetic intelligence.

Infomediary "A" is totally present; without him, most users would be left unassisted. He senses what is going on in the room, using a fine-tuned instinct to provide tailor-made advice to a number of users at the same time. If infomediation is a process, in this case, it is highly dependent on his skills and approach. Were he to leave, that venue might find it very difficult to replace the quality and variety of roles that he fulfills.

Figure 8: A highly valued infomediary assists as needed in his non-profit venue in Chile

The second story provides a contrast to the prior model and sheds light on **H1b**. It is is about infomediary "B," who works in a venue next door to a library that did not join the national Biblioredes program. The infomediary feels that she is not well-trained. "People come to me with very high level questions, I don't give them attention as I prefer to work with novices, but I do offer the advanced users with resources. The advanced user does not want to spend time with me, he wants to get to his answer,

and this works well." This venue was also the computer facility for the library, one that had decided not to join Biblioredes because they found the conditions constraining. This infomediary provides services that advanced users access on their own, and she gets hardware problems solved by a technician on-call. Were she to leave, her replacement would be easier to find and train than one for infomediary "A," above.[27]

Empathy was also found to matter in unexpected ways in Lithuania, as illustrated in the following example:

> Occasionally independent users require help in completing tasks which are unusual for them (when users are not skilled enough or have no access to use certain software which is needed for completing certain tasks). For example, one visitor came to the PAV because of the help of infomediaries with using certain application. The visitor said she needed to use certain software for a short while only, therefore she was not motivated to learn it and did not expect to take advantage of improving her skills. So she decided that seeking help from qualified staff would be more efficient: "I thought I would just drop by and take a chance, and if it won't work here, I would install the software to my computer. But they helped me very kindly here, showed everything, it would not work at first here too, but we solved the problem together with the staff. It would have taken much more time with my computer" [Inf2]. In such cases the visitors see empathy from the infomediaries being crucial for successful solutions to their problems: "Other [infomediary] could have been afraid of viruses or of whatever might happen" [Inf2]. Thus for the independent users who have tasks unusual to their daily internet using routines the empathy of the infomediaries is one of the most important factors in choosing to use the PAV. (Lithuania Country Report, p. 26)

Breaking the rules in some circumstances is another manifestation of unexpected empathy. The infomediary being willing to be flexible for good reasons (intellectual, affective) is a behavior that a machine wouldn't be able to offer.[28] We heard many examples of infomediaries adjusting prices for low-income users or extending hours of operation when circumstances required it (e.g., in Bangladesh, when exam results were posted online, or in Chile, when trainees could only come to a venue on weekends). Such flexibility by the provider matters in several ways, to all parties involved: The infomediary welcomes the chance to modify the environment (schedules, services, physical layout), and users notice and welcome infomediary responses tailored to their specific needs.

Flexibility also has another dimension. In both Lithuania and Chile, the ethnographic data and the focus group findings included instances where students would ask the infomediary to "do their homework for them," as opposed to being taught how to do it on their own. Doing something for the user, as opposed to teaching the user to do it herself or himself is a judgment call. Clearly, doing a child's homework for no reason would constitute an instance of poor judgment, but not all cases are cut-and-dried. In the above example from Lithuania, doing something for the user (instead of teaching her how to do it) made sense, as it was a one-off situation. We locate this empathetic quality along the intellectual end of the continuum.

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[28] We hasten to add that some of these flexibilities may soon be cast in software. For an example, see the way Google has become forgiving of spelling errors.

Broadened Understanding – H1a and H1b

As **H1a** and **H1b** suggest, we started off assuming that empathy would either be present or absent, and that it would we associated with affective behavior. For research purposes, we also hypothesized a dichotomy between technical skills and empathy. The findings from all three countries validated **H1a**. This was because we focused on novice users, for whom the affective dimension of assistance turned out to be significant. In particular, it was important to be patient when teaching ICT use. Thus, we conclude that, for novice users, empathy is more important than the infomediary's ICT skills.

The findings around **H1b**, however, were inconclusive, as the evidence showed that advanced users also welcome empathy, but in a different form. Advanced users tended to favor its intellectual manifestations (which, for instance, might mean leaving a user alone) relative to its affective ones. Such findings challenge the conception of empathy that underpins our hypotheses. Needing a different model, we turned to the rich literatures on empathy in library science and nursing which require both technical and empathetic proficiencies of their practitioners. We discovered that our findings support the conception of empathy in the libraries literature, as synthesized by Birdi et al. (2008). Thus, an empathetic service can include a combination of scanning and understanding each user's individual needs; offering a friendly and informal communication style; being flexible; and demonstrating caring, sympathy, politeness, respect, patience, and goodwill.

The empirical findings also forcefully revealed that, while technical skills belong to a separate and necessary set of attributes that infomediaries must also possess, the infomediary's abilities are ill-conceived as being dichotomously divided between empathetic and technical skills. For an infomediary, excellence is clearly about integrating an appropriate form of empathy into the way one offers a suitable set of skills that are matched to users' needs. And even from the users' perspective, the process is multidimensional in a way that was not fully reflected in the initial assumptions that drove our first two hypotheses. The Lithuania study, for example, suggested that the *kind of activity that a user seeks*—a factor not even addressed in the hypotheses—will be a more important variable than the type of venue.

The dimensions associated with empathy in the nursing literature (Kunyk & Olson, 2001) have helped us to make sense of what a typical infomediation process looks like. In Lithuania, the typical infomediation process included at least three dimensions (left column in Table 14) that can be roughly matched with the nursing categories (right column), though the matching is complicated by the combination of several characteristics listed in each of the Lithuania items, and by the contrasting nature of the nursing categories.

Table 14: Comparing infomediation dimensions with nursing categories of empathy

A typical infomediation process in Lithuania	Meanings in the nursing literature
Consultation: provision of information	A professional state
Communication: listening, interest, understanding the user's individual needs.	A communication process
Help: provision of care, sympathy, patience, and goodwill	Caring
	A special relationship
	A human trait

Overall, our data collection yielded the following manifestations of infomediary abilities and behavior:

1. Infomediaries with empathy, good communication, and technical skills are important for novice and advanced users, and it is important to not conceive of them as mutually exclusive traits.

2. Novices do need an empathetic infomediary, but that alone is insufficient, as technical skills are still necessary, even for helping beginners.
3. Empathy takes many forms: The literature and our evidence suggest that there is a continuum of empathetic behavior that includes both the intellectual and the affective.
4. An empathetic service may create an empathetic ambiance/context, which suggests that attention should also be given to the *infomediation process*, in which the infomediary is a key component.

The Context Where the Infomediary Works

For the purpose of this study, the "context where the infomediary works" refers to the public access venue, and this comprises not only the physical space, but also the nature of the organization and program running it. Our starting assumption was that, in both Bangladesh and Chile, non-profit venues would encourage empathy more than ICT skills. In the Lithuanian case, we replaced "non-profit" with "rural," as this dichotomy is more prevalent in that country.

Figure 9: Even malls in Lithuania have comfortable and well-equipped for-profit technology access centers

The data from Chile and Bangladesh regarding **H2a** were inconclusive (see Appendix 3). Both country research team reports commented that a possible explanation is that empathy is present in all kinds of venues, no matter whether they were operated for profit or not. In Lithuania, on the other hand, the country report indicated the following:

> [I]nfomediaries from non-profit PAVs were more positive towards questions and requests of PAV visitors than infomediaries from for-profit PAV. Visitors in non-profit PAVs were also more positive in evaluation of infomediaries' competencies than visitors in for-profit PAV. . . . Infomediaries of for-profit PAV showed less empathy for certain groups, particularly for visitors with low IT skills. (Lithuania Country Report, pp. 22–23)

The Library for Innovations Project in Lithuania reported the following summary:

> According to the data of the qualitative survey, a librarian is currently a facilitator for a public internet access user, rather than a consultant or trainer. Librarians' ability to help is directly related to the level of their personal skills. It should be noted that librarians typically try to help visitors in any situation—by invoking their colleagues, family members or relatives, other library visitors or library IT specialists. Several experts indicated that at present librarians find

themselves in a situation where they are forced[29] to help visitors, although this type of help is not expressly specified in their job description. Visitor service training to be launched will help to develop librarians' pedagogical skills. (UAB "TNS Galup," 2009, p. 6, emphasis added)

In addition, the qualitative survey revealed that, over a year, public libraries expanded their mission. This expansion came in regards to both the provision of information and the call to benefit society locally: The appearance of new sources of information available through public internet access reinforced the libraries' social/public mission. "*According to target group representatives, the mission of libraries in rural areas is even wider (as compared to libraries in urban areas) due to the insufficient number of cultural and educational institutions.* Public internet access points provide rural population with new opportunities (which existence they could never imagine or have just heard about them)" (ibid., p. 7, emphasis in original).

In Chile, all feedback forms used by the government-operated programs focus on the quantitative side of the training—namely, the number of trainees that complete each course (see Appendix 4). But during our field visits, we did learn and hear examples from the training courses offered by Biblioredes for the infomediaries that there is specific emphasis on the importance of empathetic behavior.

Figure 10: Biblioredes librarians in training, Concepción, Chile

With regards to the layout of the venue, in some cases, we noted how the very layout of a venue allowed the infomediary to coach users through open designs, or leave them alone in private partitions.[30] Some for-profit venues made a point of having an open layout, so as to enable the infomediary to offer ongoing support. Other for-profit venues opted for partitions between terminals to give users more privacy, which in turn made the infomediary role less empathetic. While for-profit venues have the option of designing their layout, larger programs like Biblioredes must follow standardized guidelines. This, however, did not overly limit keen librarians who made their libraries attractive with special displays and attention to the needs of different users.

Similarly, in Lithuania, the ethnographic studies reinforce the image of the libraries as having a "good atmosphere":

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[29] We assume "forced" means "required"; a possible translation problem.

[30] Survey evidence shows that privacy is not an important issue for users; see Table 9.

Infomediaries usually put some efforts to develop the PAV. One infomediary (from rural PAV, V1) said in spite of limited financial resources she tries to create cozy environment at PAV: flowers, decorations, etc. (*"I did a tree of 'Fairy Tales' and made butterflies to cover holes on the walls"*). Another infomediary (from rural PAV, V6) tries to attract visitors organizing competitions and exhibitions: He told about the success of the competition-exhibition "the best photo." Infomediaries think that it is very important for visitors to feel comfortable at the PAV. That is why they are very concerned about the PAV's interior, density of computers, calm and convenient environment. (Lithuania Country Report, p. 40)

When asked about the surroundings of the venue, all the visitors mentioned that it was important for them to feel comfortable there. First, the convenience of the venue is important. This applies to both the external aspects, such as the neighborhood or building (e.g., "I like the Old Town in general," "Maybe the aura of the place, that yard is so nice"), and the interior of the venue itself (e.g., "Well, one cannot call it interior design, but everything there, those ceilings and all," "The Interior is nice here. That clock is impressive, when it strikes," or "home atmosphere is created, it looks like two rooms, as if a man lived here, as if you are somebody's guest"). Second, the feeling of comfort is tied to the behavior of other visitors. This was reflected in comments on the density of users (the interviewees preferred venues with fewer visitors), the cleanliness and manners of the clientele (e.g., "Yes, there are normal people, dressed neatly, not smelly, not cursing, not spitting sunflower shells"), and the quietness of the place (e.g., "Sometimes those who make Skype calls are annoying; the foreigners, they forget that they are in an internet café, it gets on my nerves"; the survey also shows that users value a quiet PAV). Third, the infomediaries' behavior is linked to visitors' comfort, as well: "The staff is nice. Well, you come and see a person and you can see from his face that you want to say hello, to give a smile. Not as if they would sit sullen and bedraggled and stink with beer to top it all."

In Chile, infomediaries in non-profit venues—where the bulk of ICT training is offered—viewed empathy as a necessary attitude to be displayed in any training. However, infomediaries in for-profit cybercafés also mentioned that empathy is part of providing good services, so that users will come back. During our site visits, we witnessed an unexpected example of such empathetic behavior in a for-profit venue. This was the case of an infomediary who helped a user shift from making long-distance phone calls to using Skype, which meant a loss of revenue for the business, albeit one that the owner endorsed. We also noted several examples of informal mechanisms to show appreciation for empathetic behavior. A Biblioredes infomediary who offered a computer course for seniors was often thanked by her students: They held a lunch in her honor and gave her a plant as a gift to show their appreciation for her service. That her office was full of plants was an indicator of several such happy events (see Figure 11). Another form of feedback mentioned was the letters of support that were sent to the town mayor by satisfied trainees (librarians are municipal employees). However, we had no evidence that Biblioredes either documents or seeks to acknowledge these examples of user satisfaction.

Figure 11: The Gorbea Bibliored infomediary receives plants and lunch from satisfied seniors who complete her training—these plants and meals are indicators of a job well done

We came across examples in both Bangladesh and Chile where public access venues demonstrated empathy through the gender focus of staff, and through sensitivity to the situation of female users in the design of programming. In Chile, women who were reluctant to come to a library technology venue were encouraged through training "gift cards" designed by their children.

Figure 12: Info-lady in Bangladesh visits neighborhood courtyards, bringing an evolving basket of equipment to women who would not typically visit the public access venues

In Bangladesh, D.Net's *Pallitathya Kendras* (http://www.pallitathya.org.bd), or Rural Information Centres, which rely on info-ladies to reach out to women in villages, exemplify empathetic behavior. A typical info-lady is a trained young woman who cycles about 5–10 km a day and offers a variety of ICT-based and other services at the doorstep of rural communities in her area. The info-lady carries a range of ICTs with her: a netbook computer with webcam, a digital camera, a mobile phone with internet connectivity, and a set of headphones. She also carries weight-measuring equipment, and several kits (blood pressure, blood testing, pregnancy test, blood sugar test, etc.). The info-lady is a credible, trusted agent for thousands of rural women, whom she visits individually or through organized groups. She is supported with a range of offline and online information resources that are useful for women (Bangladesh Country Report, pp. 50–52).

Broadened Understanding – H2a

We started our investigation assuming that, among non-profit public access venues (rural venues in the case of Lithuania), we would find mechanisms—as evident in the physical layouts, the infomediary training programs, and performance evaluations—to encourage empathy over and above technical skills. We also assumed that such mechanisms would be stronger—in both number and variety—among non-profit venues relative to for-profit venues (urban venues in the case of Lithuania). Across our empirical data from both Chile and Bangladesh, we found no evidence of non-profit venues having performance evaluation mechanisms to encourage empathy. While the ethnographies in Bangladesh yielded several examples of empathetic behavior, there was little to no evidence of outright encouragement of this behavior by any of the venues. While empathy may be welcome, it does not appear to be either purposefully encouraged or remunerated. The Bangladeshi report also found little difference between non-profit venues and for-profit venues in terms of encouragement of empathy from infomediaries. The same can be said about rural venues in Lithuania. In fact, there were no such mechanisms in any of the countries or venues. The only exception we found was the training offered by the Chilean Biblioredes program for infomediaries that includes modules on empathy. However, this aspect was given lower priority than technical skills training, and there was no attention to this dimension in the formal performance evaluation of staff.

The data does, however, provide evidence of how and why context influences infomediary behavior:
1. Non-profit venues tend to be more welcoming to novices, but for other reasons and through other means (such as convenience).
2. Empathy was also documented in for-profit venues.
3. Informal mechanisms exist to acknowledge empathy.
4. Gender emerged as a relevant variable that was not central to the hypothesis (**H2a**).

H2a examined whether the profit orientation of public access venues shaped the abilities and orientations of infomediaries. The empirical data do not suggest any important differences along this dimension. In Lithuania, no significant differences in abilities of infomediaries were evident between the rural and urban venues. In none of the countries did we find that non-profit venues encourage empathy more than ICT skills from infomediaries (the Biblioredes exception has been noted).

On the other hand, some findings from Lithuania indicate that communication between infomediaries from rural PAVs and their visitors are more informal compared to urban ones. Also, rural venues are more often viewed as a place for meeting and socializing, especially among youth. In this context, convenience and a welcoming staff person will be added incentives. Lastly, we also have examples from Lithuania of infomediaries from non-profit venues showing more empathy than the infomediary did in the one for-profit venue that we studied in the capital Vilnius. It was also true that infomediaries at for-profit venues were less welcoming of certain visitors, particularly novices.

Why Users with Private Access Visit Public Access Venues

A second hypothesis in this section on context, **H2b**, had to do with the behavior of users who also had private internet access. We wondered whether users with private access would seek non-profit venues as a means to (among other things) enhance their ICT skills because of the empathy demonstrated in the infomediation process. In Lithuania, we adjusted this to focus on libraries, and assumed that various other purposes would matter, including socializing.

Upon examining the data, we found that a significant proportion of users with private access visit public access venues.[31] The reasons given for choosing a venue included awareness of the place and convenience, additional services (e.g., printing), speed of service (fewer crowds than in commercial copy shops), price and variety of services, and the venue's surroundings (the presence of infomediaries, quiet users, and low attendance). In particular, users with private access expect to access equipment and services at public access venues that they don't plan to have at home.

In both Bangladesh and Chile, the coded responses from user focus groups indicated a rejection of **H2b**. On the other hand, in both countries, the coded responses from the infomediary interviews consistently supported it (see Appendix 3). One possible explanation is that the question made better sense to infomediaries, who are more aware of the extent to which users enjoy private access.

Rural youth in Lithuania with home access no longer visit public access venues, while some of their urban counterparts still do. The latter continue to come for many reasons: to meet friends and accomplish group tasks (especially since some of their friends can help them troubleshoot as much as infomediaries), to use printers, to hear a lecture. The adults who have home access still come for free consultations or to use additional services and equipment. The friendly nature of the staff was mentioned as one reason to return. In the for-profit venues in Lithuania, it was reported that the majority of the visitors use at least one internet access point. Some of the interviewees reported having mobile internet access. Haves and have-nots use the public access venues for several different reasons:[32]

- *Private access limitations.* These are the cases when users are experiencing temporary or permanent absence of private access, or when private access is difficult to reach at the moment.
- *Technical superiority of the venue and unusual needs for hardware.* Users do not have the technical means to fulfill their tasks using their private access, especially when they need better equipment.[33]
- *Unusual needs for software/information.* Users do not have the skills or access to certain software required to fulfill their tasks. They also do not wish to bother attaining special skills or modes of access that are irrelevant for their regular internet use routines.
- *Communication.* One visitor claimed that she would keep visiting public access venues if she gained private access to the internet because going to the venue was a way of meeting new people. The survey also shows that staying in touch with family and friends, as well as meeting new people, are among the most significant reasons for using public access venues.

The majority of the interviewees who do not have private access said they usually combine several types of activities when using internet in the PAV. Their activities in the PAV do not differ much from activities in other places where they use internet (mostly at friends and relatives homes), with an exception of entertainment activities (games, movies, music videos),

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[31] Based on the GISUS responses in Table 6.8.1.3 to Q.6.8.1, and in Table 6.8.2.3 to Q.6.8.2, we know that 36.1% of public access users in Bangladesh had a computer at home, and 13.6% had internet access, while the corresponding figures for Chile were 75.8% and 33.4%, respectively. As mentioned earlier, in Lithuania, the leading venues for accessing the internet are private: home (56%), the workplace (23%), or an educational institution (13%).

[32] The survey also showed the importance of pursuing hobbies and leisure activities in Bangladesh and Chile.

[33] The data also shows that between 15%–20% of users in Chile, and 17.3% of users who frequent many public access venues in Bangladesh, visit the venue for better quality equipment than what is available at home or work.

which is mostly done not in the PAV. The visitors who have private access and use the PAV for certain tasks usually do not combine different types of activities. (Lithuania Country Report, p. 36)

There were examples mentioned where private access through mobiles and new services create new roles for PAVs that are relevant to users with private access. In Chile, users' stated preferences for public access venues depend on the connection speed, quality of equipment, cost of services, and additional services such as printing, rather than on the qualities of the infomediary. On the other hand, the infomediaries commented that users who have private access to the internet prefer to go to a public access venue to learn computer skills, especially to non-profit venues that have established reputations as providers of digital literacy.

In Bangladesh, some evidence of the substitution effect (public access vs. private access) came from the policy panel. One example was of children who used to come to a public access venue to obtain their exam results online. The results are now available over the mobile phone. As a result, the number of children attending the venues to obtain exam results has dropped drastically. But the panel members felt that mobile phones was likely to increase the need for public access venues. With the "m-banking" service that started in January 2011, for example, all public access venues can be used as extension outlets for commercial banks, so that users can deposit or withdraw cash from the venues. Mobile remittances and receiving money, birth registration, etc., are also going to be available through public access venues.

In a similar example from Chile, a for-profit venue offered the "CajaVecina" (neighborhood bank), a service through which users could pay their utilities bill electronically. One venue manager reported that about one-third of these clients would then stay on to use the internet services. In the same town, our visit to the post office revealed the absence of any e-services, perhaps indicating that the public access venue was fulfilling a truly public need.[34]

Figure 13: Bundled services at a cybercafé in Pucón, Chile, which also serves as a "CajaVecina" (neighborhood bank) where patrons pay their utility bills

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[34] The survey shows that public access venues have, so far, had a low impact on financial transactions, such as sending or receiving money from family and friends. This is surprising for Bangladesh, where remittances are an important part of the economy, and other research shows mobile phone calls are often about financial transactions (see Richardson et al., 2000).

We came across examples where communication, meeting friends/socializing, and collective work were key reasons for users to come in, yet some venues disregard their importance. It is worth noting that the interviews with infomediaries show that they are not always aware of whether users have private access to the internet. Nevertheless, infomediaries opined that socializing is a major reason why people (especially children, who, in our case, are the major part of public access venues' visitors) come to the venue (Lithuania Country Report, p. 38). The following example illustrates the importance of socializing in Bangaledeshi venues:

> In FGDs in not-for-profit venues and libraries, majority opinion came not in favor of public access venues. Most of the users revealed that they do not come to venues for those services, for which there is no difference to do at home or at the venue. However, there are other services or facilities, which are not possible to receive from home. For example, Ruhi Shamsad Rashid, an advocate by profession, has her own laptop. However, she prefers to come to Faridpur Community Development Library. "CDL (Faridpur) is a creative place where people come and share knowledge and information," she explains in an interview with research team. "The CDL has also books for children and opportunity to use computer." She emphasizes, "I do have private access to internet and computer at my home, But CDL is not about only getting internet facility, it is more than that. This is a place for socialization." (Bangladesh Country Report, p. 42)

In Lithuania, the collective use of computers was mentioned by participants of all groups. They practice—or would like to practice—collective uses of venue computers, mainly for entertainment. This applies to both youth and adult groups. The youth disapproved of the restrictions that venues placed on the collective use of computers. Collective use was also important for both sharing with peers and group activities, like multiplayer games. In contrast, the participants of a rural adult focus group said they faced no limitations for collective use in the venue. However, the lack of space at the venue was an inconvenience that was reported.

Broadened Understanding – H2b

We started our investigation assuming that users with private access choose non-profit venues over for-profit ones when it comes to seeking ICT skills, and that they seek the ICT skills at non-profit venues because of the empathy demonstrated during the infomediation process (and in the Lithuanian case, that this is done for various purposes, including socializing). Thus, **H2b** examined how the infomediation process and the social environment in a public access venue influence the decision of users to return to venues despite having private access to ICTs. Consistent with the argument of Brown and Duguid (2000), that ICT use benefits from social support and incidental learning, our findings demonstrate that users with private access tend to visit venues for various reasons, and that socializing is one among them. However, any expectation of the particular importance of the infomediaries' empathy in non-profit venues was not corroborated.

Non-profit and for-profit venues turned out to not be as different as expected, though users with private access elsewhere came to public access venues for a different constellation of reasons, including socialization, speed of access, equipment, select use of software, printing needs, and training. Infomedation is important to them, but for different reasons. In short, our evidence shows that empathetic assistance is rarely the main driver for a user with private access to come to the public access venue. We learned the following things:

1. A significant proportion of users with private access visit public access venues.
2. Users with private access expect to access equipment and services at these venues that they do not have at home (e.g., a high-quality color printer).

3. Private access through mobiles and new services create new roles for these venues that are of interest to any user.
4. Communication, meeting friends/socializing, and collective work are key factors from users' perspectives, though the importance of these factors is less appreciated by infomediaries.

From the point of view of the GIS, however, our evidence confirms that there is a pattern of complementarity, more than of substitution.

The Relationship Between Infomediation and Outcomes

The third dimension of our study addressed the relationship between infomediation and outcomes. From the supply side, we assumed that effective infomediation processes would lead to venues adjusting their services, or to an increase in their variety of responses to users' needs. In other words, an effective infomediary would be user-oriented and would change his or her practice to fit users' needs. For Bangladesh, we added a variation to encompass the *outreach* done by some venues (info-ladies on bicycles). On the demand side, we assumed that "most significant experiences or outcomes" by users would be linked to the empathetic nature of the infomediation process.

The data from the focus group discussions and infomediary interviews in Chile and Bangladesh for **H3a** were very different (see Appendix 3). In the Chilean case, user and infomediary responses were inconclusive, whereas in Bangladesh, both were supportive of the hypothesis (approximately 75% of the coded statements were in agreement). In the latter case, this was supported by ethnographic evidence that info-ladies carried more equipment to respond to users' needs, that infomediaries responded to people going abroad by bundling services for visas, and that venue managers added additional services to be responsive (e.g., such farming services as sending photos of pest problems to agricultural experts).

In Bangladesh, the services that exist to try and reach out to users are unique. While venues in large urban centers like Dhaka and Sylhet showed limited interest in outreach, this component is seen as indispensable in all other sites (with positive responses by 76% and 71% of users and infomediaries, respectively). This is due to the limited mobility faced by potential PAV users in riverine environments and deltas with little or no road access, predictable electricity, or formal schooling.

The following example from Bangladesh shows how an infomediary created a new service on the basis of a client's need:

> I was just sitting in my PAV after opening my center in the morning. A fisherman (I know him) came inside and took a seat. He took some time and asked, "Can you please help me?" " I need to send my passport to bidesh (foreign country)," he asked. "Yes, of course I can," I replied. He gave me the passport and email address. I scanned the passport and returned it to him. Then I sent it as attachment to the said address. He was happy and thanked me.

> After some two months he came again and asked me, "Brother, I need your help again. I am very much confused now." Showing a photocopy of a document he told me, "I got this visa from Amirat (UAE). Some of my neighbors are telling me that it is counterfeit. Can you check it?" "How can I check it? Please go to the Embassy, they can tell you." He was upset. He went away. Then, I thought to search in the web whether there is any option of checking visa genuinely online. After some searching, I got a link. I clicked the link. I felt excited that there is an option of typing the visa number for checking genuinity of visa. Then I called him to come again with the visa he received from local agent of recruiting company.

> I opened the link again and typed the visa number written on the paper. The result was negative. It showed that the visa was fake. He did not believe me at the beginning. I suspected

that perhaps the man has been cheated either by the Bangladeshi man power agent or by the agent in United Arab Emirates. I came to know from the fisherman that he has given BDT. 150,000 ($2,150 approximately) to a relative for this purpose. Moreover, the person who has taken the money is compelling the fisherman to pay rest of the money, BDT. 100000 ($1430 approximately). Thereafter, I suggested him not to give any amount of money to the agent. I also requested him to introduce me to that person or agent. After some days of repeated attempt through mobile phone call from the victim and me, the agent was compelled to meet with us. In the first meeting I talked with him for a long time, approximately 3-hours. Since, I have well social acceptance in my locality, he could not avoid us. Interestingly, by talking to him I could understand that the agent might be a victim also. Gradually I understood that the person who sent that visa from United Arab Emirates was the main Culprit. The guy came to me and requested me to take fees for my service. I told him, "I should give you money. Because you helped me to discover a new service, now I can launch a new service of checking visa." (Bangladesh Country Report, pp. 49–50)

A noteworthy program in Bangladesh is run by the Shidhulai Swanirvar Sangstha (http://shidhulai.org/).[35] This prize-winning non-profit organization brings schools, libraries, technology training, and agriculture and human rights information to women and children living in isolated villages along the country's vast river basin, all in specially designed boats. The boats have reading and meeting rooms, and they are equipped with plasticized books to resist the water, as well as computers run by solar panels (producing excess electricity to charge battery-operated lanterns in the remote villages). The goal is to improve literacy and livelihood conditions. While the teaching we observed was delivered by talented and empathetic staff, equally important to the users was the fact that the ICTs came to them, in local languages and in comfortable and accessible watercraft. The service respected how difficult it would be for users to leave their villages for similar training in distant and unfamiliar settings.

Figure 14: Specially designed solar-paneled boats bring books and computers to people living near the water in rural northern Bangladesh

Bangladesh not only has to grapple with the problem of reaching remote locations, but also with reaching segments of the population that otherwise would receive little formal education, let alone infomedation services. In Bangladesh, the adjustment in services has a decisive gender component with far-reaching implications. Indeed, the overall user data on Bangladesh confirms that a limited number of

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[35] This program has received considerable international recognition (for example, in an extensive article, with photos, in the May 2011 issue of *National Geographic*.)

women access public access venues. While the importance of having women in infomediary positions in Bangladesh to overcome limited usage is established (Richardson et al., 2000), unfortunately, few women work in Bangladeshi public access venues, both relative to other countries or in absolute numbers (Table 15). This is despite the existence of innovative efforts such as having info-ladies.

Table 15: Paid public access venue computing staff – female

	All	Bangladesh	Brazil	Chile	Philippines
Mean	1.33	0.27	1.81	1.95	1.88
Std Error	0.107	0.04	0.366	0.159	0.211
95% CI Lower	1.12	0.19	1.08	1.63	1.47
95% CI Upper	1.54	0.35	2.53	2.26	2.30
Std Deviation	2.57	0.57	4.25	1.84	2.24

Source: Based on responses in Table 5.1.2 to Q.5.1 of the GISVS.

In Chile, we noted very few statements from users showing an adjustment of services as an outcome of effective infomediation. We also noted that many non-profit venues that operate under government programs are facing cutbacks. This, in turn, can mean that they no longer offer to print documents, or that they lack funds to upgrade computers. Nevertheless, since the infomediaries are often embedded in their context for a long time, they make whatever adjustments they can. Their efforts are noticed and valued by users. Take the following statement heard during one of the infomediary panel sessions as an example: "We had to adapt [our] schedule for them, if [they] could [come] once a week, we did once a week training even if [there] were two or three people."

Another possible explanation for the limited response may be that, for users, much of the infomediation process can be "invisible" (or taken for granted) as distinct from the venue's package of services offered. However, the information obtained from interviews and stories shared by infomediaries are consistent with the notion that effective infomediation is associated with an adjustment of schedules and working methods "to provide a better service." For example:

> "D" is the Infomediary in Youth Infocenter in Temuco (INJUV). When she began her activities as an infomediary, she paid attention to elderly people, who asked her for ICT training courses, because they could attend ICT training in public library. In addition "D" was aware of requests by rural students who needed ICT training since they could not attend courses in the city because they live so far. Based on that, the Infomediary rescheduled activities and appointed ICT training sessions on Saturday mornings for elderly people and on a Saturday afternoon to rural students. (Chile Country Report, p. 26)

In Lithuania, much of the feedback on PAV services revolved around convenience, length of sessions, and privacy—in other words, around standard services and the necessary restrictions of public access. Novices would usually come to learn basic skills, while advanced users welcomed independent access. Certain infomediaries tried to manage flows of visitors by implementing another service: registration in advance. Others mentioned additional services that they provided themselves, especially for novice or elderly users. Examples include creating an email account ("we help novice users to create e-mail account") and helping elderly users to pay their taxes using an e-banking system ("elder people are afraid of e-transactions thus ask me to help"). Infomediaries confirmed that additional services create addition value to the venue, as the venue becomes a "small but significant services-providing-point."

Overall, we noted that many factors influenced the nature and evolution of services offered at public access venues, and that users may not know what (new) services they would enjoy. Indeed, in the GISUS, when users were asked whether they wished for any additional services, the responses were overwhelmingly negative (Table 16). The high percentage of negative responses may be indicative of user's inability to think of new services in the abstract. On the other hand, the ethnographies and field visits provided examples of the responsiveness to local needs as an indication of effective infomediation.

Table 16: The desire for additional services or products at the public access venue

	All (n = 3726)	Bangladesh (n = 957)	Brazil (n = 864)	Chile (n = 892)	Philippines (n = 1013)
No	75.4%	65.7%	78.8%	78.1%	79.1%
Yes	24.6%	34.3%	21.2%	21.9%	20.9%

Source: Based on responses in Table 4.17.1.3 to Q.4.17 of the GISUS.

On the demand side, we assumed that the "most significant experiences or outcomes" by users would be linked to the empathetic nature of the infomediation process.[36] The data from the focus groups from Chile and Bangladesh for **H3b** were very different (see Appendix 3). In Chile, users overwhelmingly rejected this notion (approximately 75% of coded responses from the focus groups directly challenged the notion behind this hypothesis); whereas in Bangladesh, the opposite was the case. We noted that, while empathy is valued throughout (**H1a**), the users in Chile and Lithuania do not attribute the "most significant change" to the infomediary. The coded responses from the Chilean interviews with infomediaries were inconclusive, while in Bangladesh, 71% supported it. A possible explanation for the inconclusiveness of the Chilean data is that the infomediation process was associated with a previous learning and mentoring experience, and it was not associated with the notion of relevant or significant use. In other words, the infomediation process may be taken for granted in Chile. The contrast between Chilean and Bangladeshi users could be explained as follows: Access to public access venues makes a bigger difference in a country with a lower penetration of technology, lower literacy, and lower income.

Still there were exceptions. In one location that we visited during our field visits to Chile, a Biblioredes librarian mentioned that she had convinced two aboriginal youth to take ICT courses. Successful completion would enable the youth to apply online for a vocational institute program on tourism. She added that both had graduated and had opened a seasonal guiding business as a direct result of the training. It was clear that her commitment to them, her vision, and her empathy were directly linked to the impact. This was a rare, but important, example of direct attribution.

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[36] "Most significant change" can refer to outputs, outcomes, or impacts, depending on the viewpoint of the interviewee.

Figure 15: A "champion" infomediary, Biblioredes, Puerto Saavedra, Chile

In Bangladesh, there was strong support for the notion that the empathetic nature of the infomediation process largely leads toward the most significant experience/outcome in non-profit venues from a user perspective. While this was mainly associated with non-profit venues, there were examples worth noting in cybercafés. The users of cybercafés tend to work independently, and they typically do not rely on infomediaries to seek information. One example of a dedicated infomediary that made a difference was reported:

> The infomediary . . . revealed a great story, how he helped the farmers of the whole village saving their crops. In mid of 2008, almost all of farmers suffered from losing crop due to stem diseases of their paddy. More than 2500 farmer families of the village were affected. Many of the farmers came to [location name] to know the remedy. However, the infomediary did not know the solution. "I was looking for the Upazila agricultural officers in order to get the solutions. But I could not find him in his office. After three attempts, I went to a PAV of [location name] town and communicated with the help desk of agricultural specialists of the Department of Agriculture Extension (name) over Skype. I showed them the affected trunk of the paddy. The specialists on the desk asked me a number of questions like from when it started; what the magnitude of it is; what the condition of the leaves is, etc. I replied to them all and asked for effective solutions from them. Thereafter, they advised me what to do. Hearing the advice from the help desk, I came to my PAV and invited farmers to my PAV either by mobile phone call or by physically going to their houses. I explained what to do. It was not possible to save the whole paddy crop that year. But the farmers now know what to do. Next year, when the stem disease started they applied the knowledge and the crop was saved. I felt very happy that I was useful to them," the infomediary described. (Bangladesh Country Report, pp. 54–55)

There were other instances where empathy played a part in a significant outcome when the person responsible was online, somewhere else, yet still behaved with care and commitment. In other cases, the dedication of the infomediary was clearly linked to the outcome:

> In [location], a for-profit telecenter in [location], one day morning, a person came and asked the infomediary to type an application for him to get old age allowance. He was suffering from cold and was coughing. He also said, "Please do it in such a manner as if it must be rich in word and sympathetic in language." "I tried my best to write the application." He came back after three months to inform me that he received the allowance." (Bangladesh Country Report, p. 55)

In Lithuania, the majority of public access venue visitors were advanced internet users. These users emphasized technical opportunities and characteristics of equipment. For them, the multifunctional character of the venue (for example, that other library services were available at the same building) created important additional value. Infomediaries thought that additional services created additional value for the venue, as it became a "small but significant services-providing-point." In non-profit venues, the most significant experience was linked to new knowledge about using the internet, as there were some participants who gained their first ICT skills in these venues. In this case, the process of infomediation was likely to have played an important role (the same would apply in the Chilean case, where most ICT courses are offered in non-profit venues).

In contrast, visitors to for-profit venues linked their most significant experience to a quick and convenient accomplishment of their usual routines using the internet. In general, the most significant experience in a for-profit venue was connected to the place and surroundings of the venue, as well as a successful communication with infomediaries and other visitors (Lithuania Country Report, pp. 54–55).

For novices, successfully learning to use the internet often expands the scope of their activities, sometimes to the point of their acquiring private access. Another significant experience was related to the changes that the internet had brought into their lives, such as a new job or new friends. However, *young* novice users had different experiences. None of them had gained their first knowledge about the internet in a public access venue. Entertainment and sharing with experiences were their most significant experiences. Young visitors disapproved of local regulations and restrictions of uses in the venues, such as the limitations of access to certain websites and games, or the time limitations. For instance, they would like to be allowed to create content using venue computers (install programs to download files, etc.).

Figure 16: Rural women are bused in to take training at this community telecenter, Chile
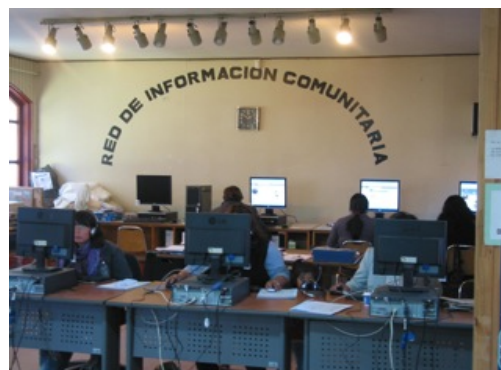
Figure 17: Illustration of internet advertising in non-profit venue in Lithuania

We also reviewed the findings of the GIS user and venue surveys related to overall impact (Tables 16 and 17).

Table 17: What has been the overall impact to you from using computers at public access venues in each of the following areas?

	All	Bangladesh	Brazil	Chile	Philippines
Income	12.8%	14.3%	12.6%	14.5%	9.5%
Access to resources and skills to find work	25.3%	33.8%	20.2%	19.7%	26.0%
Education	41.6%	25.2%	39.1%	48.7%	53.0%
Health	12.2%	7.4%	9.8%	12.4%	18.6%
Access to information and services from the government	14.7%	2.1%	19%	18.1%	20.4%
Participation in activities that foster local language and culture	13.8%	0.6%	17.4%	23.5%	14.1%
Time savings	27.6%	29.9%	32.3%	34.1%	16.0%
Financial savings	17.5%	24.1%	22.6%	15.4%	8.6%
Meeting new people, physically or virtually	39.1%	27.5%	40.0%	40.7%	48.0%
Communication with family and friends	52.2%	33.1%	57.4%	61.3%	58.0%
Sending or receiving money to or from family or friends	9.1%	2.2%	6.1%	10.8%	17.3%
Pursuing interests and hobbies	40.2%	26.2%	44.1%	52.6%	39.1%
Pursuing other leisure activities	35.0%	14.9%	32.4%	50.5%	41.5%

Note: Respondents to this question were asked to choose from the following options: highly positive, slightly positive, highly negative, slightly negative, no impact, and don't know. This table only draws on the "highly positive" responses in Tables 5.1.1.3–5.2.13.3 to Q.5.1a–Q.5.1m of the GISUS. Since this table consolidates responses from 16 tables, there is a different n for each cell. This has not been presented to avoid cluttering the table.

Table 18: What has been the overall impact on venue users from using computers at this public access venue in each of the following areas?

	All	Bangladesh	Brazil	Chile	Philippines
Income	23.1%	22.2%	22.2%	25.7%	22.6%
Access to resources and skills to find work	32.9%	35.4%	44.7%	27.5%	24.9%
Education	43.6%	30.4%	43.8%	47.2%	53.3%
Health	9.7%	3.1%	6.7%	10.2%	17.7%
Access to information and services from the government	19.0%	9.0%	18.2%	29.5%	18.8%
Participation in activities that foster local language and culture	17.3%	1.3%	18.8%	23.1%	22.5%
Time savings	29.7%	28.4%	36.3%	35.8%	20.0%
Financial savings	23.2%	16.9%	27.6%	34.7%	15.6%
Meeting new people, physically or virtually	50.7%	34.0%	57.7%	55.5%	55.4%
Communication with family and friends	59.1%	41.5%	65.2%	66.4%	63.0%
Sending or receiving money to or from family or friends	15.4%	5.2%	11.9%	16.6%	24.7%
Level of civic engagement	14.1%	10.1%	5.6%	24.6%	13.6%
Ability to engage in democratic processes like voting	10.5%	3.1%	9.6%	15.8%	12.6%

Source: Respondents to this question were asked to choose from the following options: highly positive, slightly positive, highly negative, slightly negative, no impact, and don't know. This table only draws on the "highly positive" responses in Tables 9.2.1.3–9.2.13.3 to Q.9.2a–Q.9.2m of the GISVS. Since this table consolidates responses from 16 tables, there is a different n for each cell. This has not been presented to avoid cluttering the table.

Table 16 reports the percentages of users at public access venues who see their use of the venue as having impacted their lives in a number of categories. Overall, computing in public access venues has had a more significant impact on users in Chile than on users in Bangladesh. In all countries surveyed in the GIS study, including in Bangladesh and Chile, access to computing has had the significant effect of helping people to communicate and stay in touch with family and friends. This is perhaps not surprising for a technology that allows one to transcend the boundaries of time and space. But if this has not translated into sending or receiving money from family and friends, especially in a country with a remittance economy like Bangladesh, it could be due to the absence of a reliable financial infrastructure for online transactions.

Access has allowed Bangladeshi users to pursue their interests and hobbies and, in Chile, respondents also report that it has allowed them to pursue leisure activities, although the precise meaning of interests, hobbies, and leisure activities is unclear. In Chile, access to education also figures in the top quartile, while in Bangladesh, it ranks sixth. Falling in the top quartile in Bangladesh is both the ability to access resources and skills to find work, and time savings (which in Chile ranks sixth). In neither country have health or access to government services and information been significantly impacted by the availability of computing facilities at the public access venues.

The Table 17, however, identifies the most significant impact of computing at the public access venues from the standpoint of the venue staff. It, too, evaluates 13 factors, of which 11 are common with Table 16. For the venue staff, too, the most significant impact of computing at the venues has been the ability of users to communicate with family and friends. Next is meeting new people, physically and virtually, an aspect that was ranked fifth by users in both Bangladesh and Chile. Access to education also figures

in the top quartile. In Bangladesh, as with users, access to resources and skills to find work is also ranked highly by the venue staff. Time saving is also important in both countries: It falls within the top quartile in Chile and ranks fifth in Bangladesh.

In both Bangladesh and Chile, to different degrees, the venue staff is in agreement that the following areas have not been significantly impacted: sending or receiving money from family and friends, health, participation in fostering language and culture, and the ability to engage in democratic processes like voting.

In the case of Lithuania, the perceived social benefits for individuals and communities due to public internet access were summarized as follows:

> According to librarians, the benefit provided by public internet access to the community is social, rather than economic. Social benefit encompasses not only the opportunity to communicate with friends and other close people online, search for information or engage in leisure activities online, but also the opportunity for the library to become a centre of attraction, a place where people can stay, spend their time and communicate. Expansion of the public internet access network contributes to the creation of a modern and open library and reduction of social exclusion. Social benefit for the community is greater in rural areas (as compared to urban areas); due to more complicated communication, vanishing cultural centres or a weak local community, a library remains the sole source of information and culture in a rural area, which fulfils an important function of the community centre. Experts have more frequently highlighted the overall benefit provided by internet, which is related to the economic aspects (saving time and money). (UAB "TNS Galup," 2009, p. 5)

In summary, the most significant impact of computing in public access venues is social: the ability to communicate and stay in touch with family and friends, meeting new people virtually and physically, and the ability to pursue hobbies or leisure activity. Instrumental impacts are broadly about time savings. More specifically, instrumental benefits are evident in education and, in Bangladesh, the ability to access the resources and skills to find work.

Broadened Understanding – H3a and H3b:

Having begun with the assumptions that effective infomediation processes would entail changes being made by the infomediaries to better address the users' needs, and that the most significant outcomes of the users' engagements with public access venues would be linked to the empathetic nature of the infomediation process, we learned the following things:

1. Many factors influence the nature and evolution of services offered at a public access venue, and users may not know what (new) services they would enjoy.
2. The empathetic component of training may be welcome, but taken for granted.
3. Adjustment in services is about having a good business sense.
4. The adjustment in services has a gender component.
5. Most significant change can refer to outputs, outcomes, or impacts, depending on the viewpoint of the interviewee.

The tendency in the data from all countries was to reject **H3a**, largely because of the many confounding factors (e.g., changes in services are also the result of financial cutback to some programs). The variety of services at a venue is contextual and dynamic; taken alone, it is not a good indicator of effective infomediation. On the other hand, responding to users' needs is good business practice, and we have evidence of behavior combining the intellectual and the affective components of empathy in all types of

venues. With regards to the most significant change experienced by users, capacity development and ICT confidence that is gained at venues, or enhanced there, are outcomes that consistently stand out.

The findings on the "most significant change" experienced by users in Chile and Lithuania did not confirm a direct link with empathetic infomediation, although improvements in both capacity and confidence with ICTs were valued by many users. The exception was Bangladesh, where focus group discussions, interviews, and ethnographies confirmed a much more positive association of empathetic infomediation with the most significant change. This may be because venues constitute the first point of access for a larger proportion of the population, and we have already established that novices welcome empathy—along with technical skills—as a way to benefit from the potential of ICTs.

Figure 18: Girls collaborate on solar-run computers on boat

Figure 19: An agricultural outreach expert video Skypes from one boat to another, answering questions from two classrooms full of eager farmers

Effective infomediation in Bangladesh was also observed to have crucial and instructive dimensions well beyond the characteristics of the specific person who was performing the service. A central characteristic of the infomediation by an info-lady attached to a non-profit venue, for example, was that she left the facility and went to households and courtyards of women who were neither familiar with, nor comfortable, in a library-like setting. By bringing the equipment to them, where women could sit comfortably with one another and with their children, the information provision was made much more accessible and inviting. Similarly, in far-flung areas of northern Bangladesh, boats bring ICTs and a variety of other services to people who would otherwise not have them. These practices reflect structural, not personal empathy in the infomediation process.

Figure 20: Lithuanian winters are cold, but this bundled-up library patron stays focused on her work

DISCUSSION OF RESULTS

Our hypotheses sought to describe and analyze the individual abilities of infomediaries, the context within which they work, and the extent to which their work benefits users and contributes to the effectiveness of public access venuess.

The survey data provided evidence that, in all venues (libraries, telecenters, and cybercafés; either for-profit or non-profit, either rural or urban), and for all users (novices, intermediate, and advanced) in all three countries, access to working hardware and software, and usually to the internet, are *the* paramount considerations. This is consistent with other research, where the main reasons for visiting cybercafés were the following: that the café provides a technical service (68.8%), the atmosphere and helpful or friendly staff (37.5%), the convenience of location (17.5%), and that it is a place to be with friends (17.5%; Stewart, 2000).

However, the data also reveal that there is no trade-off between the technical skills and empathy that users seek in infomediaries: empathetic behavior by infomediaries is important in all venue types and countries. Beyond that, the data from our ethnographies, and our site visits to each country, unambiguously showed the need to take the context into account to fully explore the dimensions of empathy. Users and infomediaries alike *rejected* facile categorizations and uncompromising hypotheses: For instance, they rejected the notion that empathy is unimportant to advanced users, or that empathy is *the* most important criterion for users. Evidence pointed to the need for a nuanced understanding of how empathy is necessary for all users. In every country, novices needed a particularly *affective* empathy in their tentative initial introduction to ICTs. Yet advanced users also favored venues that were attentive to their different requirements (including being ignored, and being allowed to break the rules), and had infomediaries who were empathetic in how materials were provided and how the venue was organized.

Our hypotheses anticipated a greater distinction between non-profit and for-profit venues in the provision of empathy than the data revealed. As expected, the staff in libraries and other non-profit venues was more successful if they responded emphatically to user needs (and were sometimes trained in how to do this effectively). But it is clear that operators of for-profit venues also needed to behave empathetically in order to attract and retain the customers who made their businesses profitable. Customer-specific empathetic behavior, and attention to service, was often what distinguished them from their competition. This is consistent with other research that signaled the importance that infomediaries in for-profit cybercafés place on keeping customers satisfied .

In many of our examples, empathy was demonstrated in the willingness and capacity of staff to finely tune their setting or services in response to user needs and requirements—and to be *flexible* in the application of guidelines and rules (charging for printing, modifying hours, allowing collaboration at a single computer, or "too much" noise) as warranted. These and related examples were evident in both non-profit and for-profit venues.

Our study was also designed with the expectation that technical assistance might well be provided by venue staff (formal infomediation) *or* by other users, family, and friends (which we call *informal* infomediation). While there were examples of both, we were surprised by how much more evident formal infomediation was over informal. While the ethnographies and our visits provided many examples of users who appreciated venues as places to meet and converse with others, such conviviality was typically an added (non-technical) benefit, rather than a means for getting technical help.

Our data have required us to revisit and enlarge the concept of empathy to include varieties of behavior, to reconsider whether empathy always requires an affective dimension, and even to think anew about whether empathy is a quality of a person or a place (an input), or if it can seen in the result or achievement from the users' perspective (an output).

Our experience has led us to think about *infomediation* more broadly, rather than *infomediaries* more narrowly. Thus, while there are many examples of users being well-served by an infomediary who takes the time to listen and understand the technical or information requirements of a user (particularly novices), there are also examples of successful infomediaries (or successful infomediation) where staff members stay out of the user's way, or where the infomediary's "service" is to recognize the specific needs of advanced users, and then efficiently provide a useful and finely tuned resource.

This is a difference with policy implications, as illustrated by a stark comparison of two non-profit venues visited, coincidentally, on a single day in Chile. In the first venue, the infomediary was uniquely qualified and comfortable in his role. He was uniformly pleasant and helpful to a range of users, constantly scanning the room for anyone who needed his attention. Even during our lengthy interview, he excused himself often to assist people who had caught his eye. Before we left, he sat down to help one user, and gathered several others around to see a "solution" that he thought would be generally useful. A mother came in with her son to solve a complication in a scholarship application, and the infomediary patiently guided them through the process. When we walked through the town to and from lunch, every third person seemed to say "*Buenos Días*" to the infomediary, and then be greeted by name in return. One user whom we interviewed provided several examples of people who had been helped by this infomediary, and this user had personally gifted a computer to this small non-profit venue for others to use.

Later that day, we visited a second, pleasant, and apparently equally effective non-profit PAV where the infomediary seemed to know less than the users to whom we talked about the equipment and the software. But she knew how to politely guide people toward the resources they needed for their tasks. A wide variety of printed and online material was available to assist patrons with various levels of expertise, and we found out that technical support was readily available to this infomediary if any of the equipment needed attention. A technically skilled user who had listened in on our interview volunteered to talk to us. He said that the array of resources available to him through this well-organized venue, either in person or online, was exactly what he and other users required, and that he had found a well-paying technical job solely because of the self-paced training he had obtained in this venue. He added (politely) that the modest skill level of the manager was irrelevant, because the resources of the venue were so available and appropriate to the various users.

The personnel implications of these two non-profit venues provide a dramatic contrast. The former venue seems so dependent on the unique skills of the infomediary that we worry about how successful it will be once he leaves, and wonder about how many potential infomediaries the interpersonal competence of this person can be transferred to. In the latter venue, successful infomediation is more a quality of the place than of the current infomediary. One imagines that a wider range of people could be trained to replace this particular infomediary were she to depart. In other words, there is an institutionalization of the infomediation process that guarantees its reproduction.

It was helpful for us to have such contrasting countries to compare. When assessing the findings among the three countries included in this study, in relative terms, Bangladesh is located at the lower end of access, Chile in the middle, and Lithuania at the higher end (Figure 20). This may explain the higher endorsement of the assistance by infomediaries in Bangladesh relative to Chile and Lithuania. However, in both Chile and Lithuania, infomediation was also appreciated—but for different reasons and manifestations. In none of our three countries was the role of the infomediary singled out as the top

reason to visit a public access venue; rather, it was reported as one of several bundled services that make these venues attractive to users.

Figure 21: Interpreting the findings with the Van Dijk model of media access

Figure 1: A Cumulative and Recursive Model of Types of Access to New Media
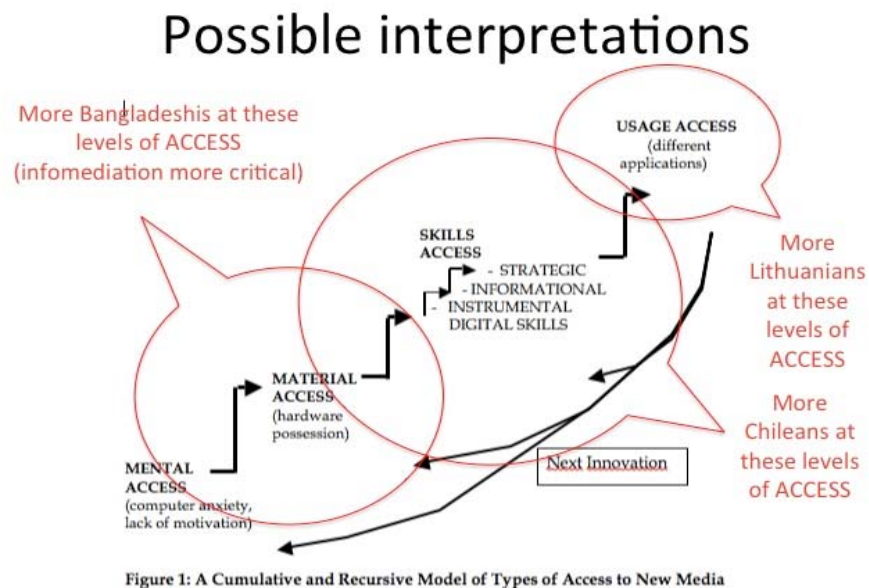
Our findings confirm the importance of empathy for all users, but how it is manifest will differ among users, highlighting the importance of flexibility, along an intellectual/cognitive and affective/emotional continuum, as a quality of successful infomediation. The affective dimension of infomediation appears to be valued mostly by novice users in all countries, while the advanced ones seek the more intellectual aspect. One description of this is as a continuum, as in van Dijk's model, and as users move along the van Dijk levels of access, they begin shifting away from seeking affective empathy toward the intellectual kind (Figure 21).

Balance of affective Vs intellectual empathy needed as
users move along van Dijk's access ladder

Recursive cycle

Access ladder

affective empathy   Intellectual empathy

novice user   advanced user
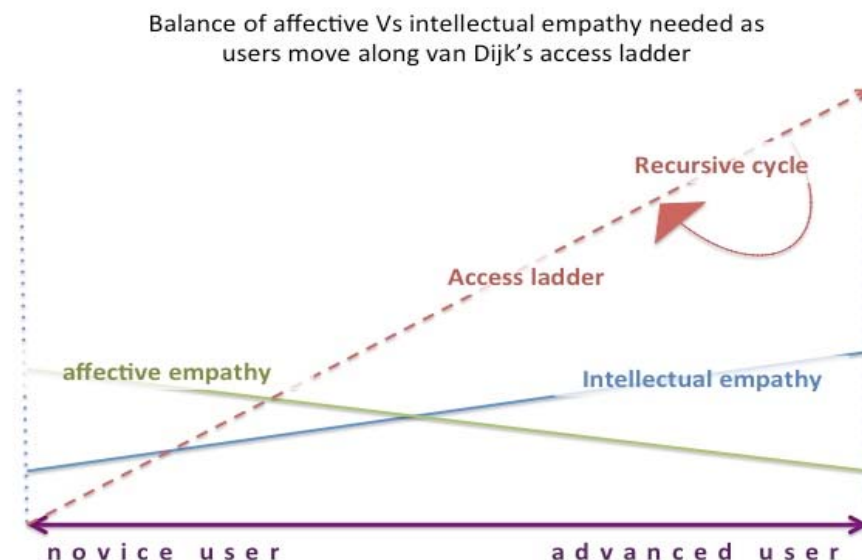
Based on van Dijk's cummulative recursive model (2006)

In van Dijk's model, there is also the notion of a recursive cycle where, as new technologies arise, users revisit the different levels of access: from the *mental* to the *physical*, to *use*, and then on to *relevant application*. We suspect that, as users become more advanced, the recursive cycles become tighter, with users no longer beginning at the lower end of access. For example, advanced users will realize early on that buying a scanner or a color printer may not be cost-effective, and that using such tools as needed at a public access venue makes sense. Add to that the social and communication benefits, and the bundle of reasons to promote continued access to well-staffed and -equipped public access venues is reconfirmed (Stewart, 2000).

Methodological Discoveries

Our site visits in each country were indispensable. They allowed us to understand the context within which the data were being collected. They allowed us to witness the different types of programs and venues, and to dig deeper, to understand how our CRTs were embedded in context. Our visits were important data collection tools in themselves. We saw highly relevant instances of "infomediation," the likes of which were never included in ethnographic notes that were prepared by the CRTs.

In addition, we saw and learned about various "natural experiments" that provided opportunities for built-in comparisons, which then enhanced our perspective on infomediation, and were able to sensitize the CRTs to the value of these unplanned opportunities. Some examples included the following:

- A telecenter in Chile that was included in our sample had to be relocated following a major earthquake. The new venue was in a different part of town, with a different setting, and without the large "gathering table" that apparently was a center of activity in the other setting. This change in the telecenter ecology and in the reasons why patrons might seek out information and infomediation provided useful comparisons.

- The departure of an info-lady in Bangladesh allowed exploration of the "personal variable" that might not otherwise have been possible.

- A Chilean library decided not to join the Biblioredes program due to strict conditions which, from their perspective, interfered with their being able to serve users and take advantage of other resources available by virtue of their "co-location" with other facilities. This, in turn, supports the claim that flexibility in decision-making is conducive to empathy.

- Removing games in some for-profit venues in Lithuania resulted in teenagers no longer coming in great numbers, which then changed the value of the space and the opportunities for infomediation for various groups. This exemplified the impact of the "service variable" for different types of users.

Additional Research Questions

From our field observations and the data collected, a few additional research questions arise:

- One important outcome in public access venues is *capacity development* by the infomediary. Srinivasan (2010) argues that, "while SARI[37] kiosks have not brought about radical changes in the socioeconomic conditions of their users, they have nevertheless shaped significant changes in the lives of kiosk operators. This begs the question of the pros and cons of infomediaries who stay on the job for a long time, versus venues that experience a high turnover.

- If patrons use public access venues for a combination of services, a research question that arises is how to document and analyze the different combination of services that are most relevant to them.

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[37] The Sustainable Access in Rural India Project, Tamilnadu.

CONCLUSIONS AND RECOMMENDATIONS

Concluding Insights

From our perspective, the following points from our research are of importance for government policy makers and for foundations interested in promoting access to ICTs for all:

- Infomediaries provide the human face for the information age by assuming complementary roles of facilitation, coaching, referral, and teaching. In their absence, those left behind (due to their age, socioeconomic status, level of education/literacy, gender, disability, or caste) will face additional, perhaps insurmountable, barriers.

- What is valued in an infomediary are the skills and the intuition to cater to different types of users in a tailored manner. Excellence in service may mean that an experienced user may be left on her own, while a novice is given personalized attention. The challenge, then, is to identify the criteria for staff selection, and to develop training curricula that enhance a range of skills and attitudes. This "user-first" orientation seemed not to distinguish non-profit and for-profit venues; we were reminded of the library leader in our study of U.S. libraries who said that the most important influence on public libraries in the past two decades was the "success of Barnes and Noble." While we found little evidence in the present research of infomediary performance being tracked on the basis of quality of service, we expect this element will gain prominence under the pressures of competition.

- A user's decision to visit a public access venue is based on a bundle of services, price sensitivity, and convenience. The effectiveness of the infomediation is an important part of the bundle, but not the driving one. Infomediaries who are business savvy learn to cater to different users' needs and adjust schedules, pricing, venue layout, and equipment in order to enhance user satisfaction in for-profit and non-profit venues alike. What matters is less the type of venue (though differences do exist), and more the extent to which the infomediary is granted and exercises the leeway to experiment and make adjustments.

- Our evidence demonstrates that infomediaries contribute to developing the capacity and confidence among users to use and explore ICTs with increased independence. The causality between effective infomediation and these *outcomes* is direct. What is not evident, as was also documented in the GIS, is the extent to which these outcomes are causally linked to *impacts* (in the form of measurable changes in well-being, health, income, education, employment) due to the many other variables that intervene. Among the outcomes, however, the contribution by infomediaries to enhancing ICT literacy is notable.

- A decision to fund or promote public access venues in the future may depend less on ICT indicators or policies, and more on our understanding of the contribution of public access to social change. While technology does not replace social relations, it influences how they evolve in time and space. As societies become ICT-literate, individuals gain insight into which technologies they wish to use and how they would like to use them. They are then likely to seek communal spaces, where their concerns will be less about whether advice or access comes from a librarian or an attendant at a private kiosk, than about convenience; about whether their friends will also be there; and about additional services, pricing, and location. Thus, the future of infomediation may be venue-neutral, in that the qualities of an effective infomediary will be less dependent on the type of venue and more on the extent to which the venue can adapt to technological developments and the changing needs of different users. We suggest from our experience in this study that users may also be more concerned over time with the infomediation process, as opposed to the individual providing it.

1) ***Infomediaries are not a dying breed.***

   The human face of the information age will retain relevance just as the service industry has discovered the importance of customer-service with a human face. For those left behind in the digital divide, the infomediary can be a trusted gatekeeper and ally to overcome fear of new technologies and services. The major contribution will be user skill and confidence, an outcome that is necessary before wider system impacts can be expected in any sector.

2) ***Infomediary training* needs to be encouraged, *not only in technical competence, but also in interpersonal skills*.**

   We expect that there will always be novices among public access venue users in the foreseeable future. Further, the rapidity of technological change means that many users will be novices in some feature of technology use in pursuit of needed information. Moreover, we found that all users, across the range from novices to advanced users, appreciate and benefit from a mix of capacities in infomediaries, which typically emphasizes technical competence but always includes interpersonal qualities, including empathy.

3) ***Flexibility* is an important feature of successful public access venues.**

   Rules are typical in most venues, for aspects such as collaboration on a single computer, or for how long users can monopolize a computer, etc. So also are pricing policies for auxiliary services (e.g., printing, faxing), standards for noise levels, etc. We have found that it is important not only to have rules, but also to bend those rules when unusual circumstances present themselves (e.g., for impoverished and inexperienced users who make printing errors, loud or long Skype calls for people during job interviews). Infomediaries in effective venues often demonstrate sensitivity and flexibility in rule enforcement. They may have to use their judgement to even *change*, or at least recommend changes to, the rules.

4) **The *service mix* should be *regularly revisited* to ensure that the public access venue remains responsive to the changing needs of the constituents.**

   In this, non-profits may well learn from successful for-profit venues, which need to modify their service mix to continue attracting paying clientele.

5) ***Expect turnover. Prepare for it.***

   Turnover is inevitable, both in non-profit and for-profit venues. As infomediaries are upskilled, as they should be, they will be even more likely to leave for better opportunities. When possible, find the people who have an appropriate combination of technical and interpersonal skills—but rare is the perfect infomediary. Perhaps venues designed for *effective* infomediation will be better prepared to respond to a wide range of users, and be better able to survive the departure of good, if not perfect, infomediaries. One strategy in this regard is to institutionalize the practices, roles, and skills of those who have been observed to be effective infomediaries through selection, training, and other procedural routines. Another suggested strategy to make the information-rich venues work for a wide variety of users is to employ, when possible, Tufte's (1990, p. 67) principle of "small multiples"—where every information presentation is as complex as necessary, but all presentations are as similar in style and layout as possible.

6) ***The rationale for "Infomediated" public access venues is the trusted gatekeeper.***

Public policy behind public access venues has thus far focused on creating ICT literacy through affordable or free advice and access. This rationale will remain relevant for those left behind the information age. In this sector, the insatiable thirst for newer and faster tools means that a neutral broker will become increasingly valuable to users to make educated choices about what to learn, what to buy, and how to make sense of the options. The infomediary, regardless of the nature of the venue, will be appreciated for her or his independent brokering role. As Gladwell (2002) emphasizes, we all need those champions who share advice and information willingly. Going to a public access venue is already a social event for many; having a trusted gatekeeper will be one more incentive to socialize, improve skills, and make connections.

Figure 23: Signs everywhere in Lithuania show that one is near an internet site

REFERENCES

Bailur, S., & Mariero, S. (2012). The complex position of the intermediary in telecenters and community multimedia centers. *Information Technologies & International Development*, *8*(1), 27–42.

Birdi, B., Wilson, K., & Cocker, J. (2008). The public library, exclusion and empathy: A literature review. *Library Review*, *57*(8), 576–592.

Brown, J. S., & Duguid, P. (2002). *The social life of information.* Boston, MA: Harvard Business School Press.

Fisher, C. (2011). Knowledge Brokers' Forum: Background note for e-discussion on evaluating the impact of knowledge brokering work. Retrieved from http://r4d.dfid.gov.uk/Output/187838/Default.aspx

Fisher, C. (2010). Knowledge brokering and intermediary concepts: Analysis of an e-discussion on the Knowledge Brokers' Forum. Brighton, UK: Institute for Development Studies. Retrieved from http://www.knowledgebrokersforum.org/blogs/item/knowledge-brokering-and-intermediary-concepts-e-discussion-analysis

Gladwell, M. (2002). *The tipping point: How little things can make a difference.* Boston, MA: Back Bay.

Gordon, A. C., Gordon, M. T., Moore, E. J., & Heuertz, L. (2003). The Gates legacy: What's changed and what's next as librarians work to sustain public access to computers. *Library Journal*, *128*(4), 44–48.

Gurstein, M. (2003). Effective use: A community informatics strategy beyond the digital divide. *First Monday 8*(12). Retrieved from http://www.firstmonday.dk/issues/issue8_12/gurstein/index.html

Hilbert, M. (2011). The end justifies the definition: The manifold outlooks on the digital divide and their practical usefulness for policy-making. *Telecommunications Policy*, *35*, 715–736.

Kunyk, D., & Olson, K. J. (2001). Clarification of conceptualizations of empathy. *Journal of Advanced Nursing*, *35*(3), 317–325.

Meagher, L., Lyall, C., & Nutley, S. M. (2008). Flows of knowledge, expertise and influence: A method for assessing policy and practice impacts from social science research. *Innogen Working Paper No. 55.* London, UK: Economic & Social Research Council.

Parkinson, S., & Ramírez, R. (2006). Using a sustainable livelihoods approach to assessing the impact of ICTs in development. *Journal of Community Informatics*, *2*(3). Retrieved from http://ci-journal.net/index.php/ciej/article/view/310/269

Rajalekshmi, K. G. (2007). E-governance services through telecentres: The role of human intermediary and issues of trust. *Information Technologies & International Development*, *4*(1), 19–35.

Ramírez, R. (2010). Moments of truth: An unexplored dimension to communicate effectiveness. *The Canadian Journal of Program Evaluation*, *23*(2), 117–138.

Ramírez, R., Gordon, A., & Parthasarathy, B. (2010). Infomediaries: Lessons report from three inception missions. Seattle, WA: Technology & Social Change Group, University of Washington Information School. Retrieved from http://library.globalimpactstudy.org/doc/infomediaries-lessons-report-three-inception-missions

Richardson, D., Ramírez, R., & Haq, M. (2000). *Grameen Telecom's village phone programme: A multi-media case study*. Gatineau, Quebec, Canada: Canadian International Development Agency.

Sawhney, H. (1996). Information superhighway: Metaphors as midwives. *Media, Culture & Society*, *18*, 291–314.

Selwyn, N. (2004). Reconsidering political and popular understandings of the digital divide. *New Media & Society*, *6*(3), 341–362.

Srinivasan, J. (2010, December 13–16). Looking beyond "information provision": The importance of being a kiosk operator in the Sustainable Access in Rural India (SARI) project, Tamilnadu, India.

Paper presented at the *Fourth International Conference on Information and Communication Technologies for Development,* London, UK (ICTD2010).

Stewart, J. (2000). Cafematics: The cybercafé and the community. In M. Gurstein (Ed.), *Community informatics: Enabling communities with information and communications technologies* (pp. 320–338)*.* Hershey, PA: Idea Group.

Stewart, J., & Hyysalo, S. (2008). Intermediaries, users and social learning in technological innovation. *International Journal of Innovation Management*, *12*(3), 295–325.

Tufte, E. R. (1990). *Envisioning information.* Cheshire, CT: Graphics Press.

van Dijk, J. (2006). *The network society: Social aspects of new media* (2nd ed.)*.* Thousand Oaks, CA: SAGE Publications.

Ward, V., Smith, S., House, A., & Hamer, S. (2011). Exploring knowledge exchange: A useful framework for practice and policy. *Social Science and Medicine*, *74*(3), 297–304.

Appendix 1: Novice vs. Advanced Users

To distinguish between novice and advanced users, we relied on the self-reported activities undertaken by users (as per the survey).

Table 19: Self-assessment by PAV users of their skills and knowledge to use the internet.

	All (n = 4673)	Bangladesh (n = 745)	Brazil (n = 941)	Chile (n = 993)	Philippines (n = 1040)
Poor	8.0%	18.7%	3.9%	5.3%	6.6%
Fair	32.0%	39.1%	18.5%	19.8%	50.9%
Good	42.7%	34.2%	40.7%	57.3%	36.7%
Very Good	17.2%	8.1%	36.9%	17.5%	5.8%

Source: based on responses in Table 2.7.1.3 to Q.2.7 of the GISUS.

Table 20: User skills level with the internet

	All (n = 3677)	Bangladesh (n = 746)	Philippines (n = 910)	Brazil (n = 984)	Chile (n = 1037)
Low	31.3%	63.4%	27.5%	20.9%	14%
Medium	35.8%	28.9%	37.5%	36.9%	37.7%
High	32.9%	7.7%	35%	42.2%	48.2%

Source: based on responses in Tables 2.14.1.3 to 2.14.8.3 in response to Q.2.15 of the GISUS.[38]

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[38] The skill levels are determined using a OECD schema that is based on the ability to perform the following activities: 1) use of a search engine to find information; 2) sending emails with attached files (documents, pictures etc.); 3) posting messages to chat rooms, newsgroups, or online forums; 4) using the internet to make phone calls; 5) using peer-to-peer file sharing to exchange movies, music, etc.; and 6) creating a webpage. Low skill is defined as the ability to perform 1–2 activities, medium skill as the ability to perform 3–4 activities, and high skill as the ability to do 5 or more activities. See http://www.oecd.org/dataoecd/4/7/36988541.pdf

Appendix 2: Questions and Rubrics

This appendix gathers the questions and rubrics used in interviews, focus groups, and surveys for this study. One important caveat is that, while these questions were carefully crafted, the multi-lingual nature of this study made precise, universal adherence to a single script impossible. For all questions, it was crucial that, in translating from English, wording would be developed that could capture, in each language, the meaning of such nuanced concepts as "empathy." The value of these questions in interviews and focus groups depends a great deal on the skill with which the interviewers listen to the responses and follow up important issues appropriately.

Infomediary Interviews

Questions for H1a and H1b
- Why do you think that novice users come to this venue?
- Why do you think that advanced users come to this venue?
- Do you think this venue is equally welcoming for new and advanced users?
    - What would a typical session with a novice user look like?
    - How would that typical session change as the novice becomes more confident?
    - What would a typical session with an advanced user look like?
- What do you think are some other qualities, such as your religion, class, or social status, that may influence your effectiveness as an infomediary?
- Have you experienced any unanticipated situations (in terms of technical, financial, or organizational demands, for example), and how have you dealt with them?
- (Bangladeshi addition, specifically for the mobile info-ladies) Does reaching out personally to users increase the empathy that they sense from infomediaries?

Questions for H2a
- What do you consider is most important when helping users—the empathy your show, or your ICT skills?
- What do you think users value most—the empathy they sense and the environment of this place, or the technical assistance they receive? Does this vary among types of users?
- What do you feel users most appreciate from your services at this venue?
- Are there things you do to make this place feel welcoming? What are some examples?
- To whom are these details most important?
- Why might newcomers (to ICTs) access non-profit public access venues instead of for-profit ones?
- How do different types of users use the venue differently?
- Do you charge different prices depending on the user's ability to pay?

Questions for H2b
- Why do people choose to come to this venue when they have other options—at home, for example,
- or at work?
- What do users who have private access most like to do when they come to the library?
- How do you explain their behavior?
- Are there things you do to encourage them to keep coming?

- Do they provide assistance to other users, or to you? Is this rewarding to them?

Questions for H3a
- What attitudes have you had to develop, modify, or take on as an infomediary in order to respond adequately to users' new demands on the venue?
- What activities have been added or modified to respond adequately to new demands on the venue?
- Do users request new services from the venue?
- What new services or service adjustments have occurred at this venue?
- What do returning users do with the skills they've picked up at this venue?
- Other suggestions to consider include the following:
- Why were new services introduced to the PAV?
- How was the decision justified?
- How were the new services introduced? By whom and when?
- What barriers did you encounter?
- If the venue is part of a large institution, ask the following:
- How is your work, and the work of other infomediaries, evaluated?
- Do you think there are important parts of the work here that are not evaluated? If so, why not?
- Can you tell us three things you like, three things you do not like, and three things you would add to the evaluation system?

Questions for H3b
- Do novices, as opposed to advanced users, benefit differently from your assistance?
- Does either group benefit more than the other?
- Are there other groups (for example, students or business people) who benefit differently from your assistance?

Focus Groups

Questions for H1a and H1b
- Do you think of yourself as a novice or advanced ICT user?
- What motivates novice, as opposed to advanced, users to come to this PAV?
- At this PAV, they welcome novice and advanced users alike:
- What would a typical session with a novice user look like?
- How would that typical session change as the novice becomes more confident?
- What would a typical session with an advanced user be like?
- (Bangladeshi addition) In addition to the formal infomediary, who else enables or supports infomediation at the PAV and in what circumstances?

Questions for H2a
- Are there things about this place that make you feel welcome?
- Are there details that you have noticed?
- How have you helped to make the place more welcoming?

Questions for H2b
- Those of you who have private access, why do you choose to come to this venue?

- Those of you who have private access, what is it that you most like to do when you go to the venue?
- How do you explain your decision to come here, even though you have other options for access?
- Are there things that the venue does to encourage you to keep going back?
- Are there reasons you might choose to go to a for-profit venue, rather than a non-profit venue, for technology access?
- What else do you do that helps the staff at the venue?

Questions for H3a
- Could you imagine the perfect public access venue, with the perfect infomediary? [If you could get them to draw this, it would be wonderful!]
- What does your local venue (and infomediary) have that is similar to the perfect example?
- What does it have that is better?
- What does it require to become perfect?
- What new services have you seen since you started using the venue?

Questions for H3b
- What has been the most significant outcome from using the venue?
- How was that outcome significant?
- What contributed to making that outcome significant?
- Have the skills and information resources changed your life in any way?
- How?

Lithuania Variant
- What kinds of information do you access [most often] at the library? (domains: education, leisure and communication, economics (livelihood, work), health, e-government)
- How has the variety changed over time?
- What are some of the sites or resources that you have that are most useful to you? (awareness and use of specific sites and resources)
- Have the skills and information resources have changed your life in any way?
- How?

Possible Add-On:
- In-depth interviews for life stories with select people who have experiences to share (either representative or unusual ones).

Library Manager Interviews

Questions for H3a
- How do you evaluate the librarians and the library?
- What important parts are not evaluated?
- Can you tell us three things you like, three things you do not like, and three things you would add to the evaluation system?

Venue and User Surveys

We considered the data from the Impact Project User Question 3.10 (with similar variables for 3.11, 3.14 and 3.15) and Venue Survey Question 3.9. All of these questions use the following variables:

3.10. What are the three most important reasons you seek assistance from venue staff?
___ Venue staff are skilled at software use.
___ Venue staff are skilled at hardware and software use, and are generally knowledgeable about computers.
___ Venue staff are able to assist users in searching for information.
___ Venue staff share similar social or cultural characteristics with me, such as gender, caste, community, socioeconomic level, or age.
___ Venue staff are patient and listen to users' needs.
___ Venue staff are caring.
___Other _____

Since the Lithuanian portion of this research was conducted in conjunction with survey work done as part of the Library Innovations project, we requested that a few variables be added to complement Lithuania Resident survey question G12.36 (p.322), which used the following variables (we highlight the ones about infomediaries): computer hardware, software, internet speed, **staff helpfulness, staff qualification,** working hours, possibility to work undisturbed, and possibility to use own digital means.

Appendix 3: Coding Frequencies — Focus Groups & Interviews in Chile & Bangladesh

H.1a CHI user	Agreed 63	Ambivalent 32	Reject 5	H.1a BGD user	Agreed 63	Ambivalent 15	Reject 22
H.1a CHI infom	Agreed 36	Ambivalent 49	Reject 15	H.1a BGD infom	Agreed 53	Ambivalent 19	Reject 28
H.1b CHI user	Agreed 4	Ambivalent 54	Reject 42	H.1b BGD user	Agreed 39	Ambivalent 6	Reject 55
H.1b CHI infom	Agreed 5	Ambivalent 73	Reject 22	H.1b BGD inform	Agreed 50	Ambivalent 24	Reject 26
H.2a CHI user	Agreed 36	Ambivalent 64	Reject 0	H.2a BGD user	Agreed 39	Ambivalent 20	Reject 41
H.2a CHI infom	Agreed 38	Ambivalent 49	Reject 14	H.2a BGD infom	Agreed 42	Ambivalent 18	Reject 40
H.2b CHI user	Agreed 19	Ambivalent 29	Reject 52	H.2b BGD user	Agreed 34	Ambivalent 16	Reject 50
H.2b CHI inform	Agreed 34	Ambivalent 40	Reject 26	H.2b BGD inform	Agreed 62	Ambivalent 16	Reject 22
H.3a CHI user	Agreed 37	Ambivalent 25	Reject 38	H.3a BGD user	Agreed 76	Ambivalent 20	Reject 4
H.3a CHI infom	Agreed 37	Ambivalent 51	Reject 12	H.3a BGD infom	Agreed 72	Ambivalent 17	Reject 12
H3b CHI user	Agreed 0	Ambivalent 33	Reject 67	H.3b BGD user	Agreed 65	Ambivalent 26	Reject 9
H3b CHI inform	Agreed 31	Ambivalent 31	Reject 38	H.3b BGD inform	Agreed 71	Ambivalent 6	Reject 23

Appendix 4: Evaluation Systems Used by Government-Operated Public Access Venues in Chile

	PUBLIC LIBRARY (Biblioredes)	INFOCENTER-SCHOOL	YOUTH INFOCENTER INJUV
Description	Goals according to: - Users' quantity trained in digital literacy, - Users' quantity attendending in additional training digital literacy, - Creation of local content or web pages related on local stories or heritage. - New user's quantity in Public Library. - User's satisfaction surveys. - Self-assessment surveys.	Goals according to: - Quantity of trainings done.	Goals according to: - Quantity of trainings done. - Number of certificates issued. - User's satisfaction surveys.
Frequency	- Quarterly report to head of initiative - Semiannual report a National Direction.	Annual Report towards institution in charge	Annual Report to Donor (UNDP)[6]
Strengths	- There is a comprehensive record of activities. - Institutional support. - There is a platform where infomediaries must upload information on trained people.	- Existence of a record through a platform or system where teachers up data of the trainees.	- Record of trainings done.
Weaknesses	- While each region has an Operation Manager, one of whose functions is to supervise field work, some said they are necessary infomediary visits to libraries more frequently, in order to contextualize the information contained in the reports. - Stress to achieve numbers.	- It evaluates the number, not the quality of training. - Update handbooks borrows in training processes with new programmes. - Re-design of the training sessions, because they involve a long time, so is difficult to users attends to them.	- Stress to achieve goals. - Achieve job stability (because the contracts are subject to the annual goals and which generates a lot of uncertainty). - Need for self-evaluation. - To assess other aspects of infomediary labor, such as volunteer activities, etc.