The Role of Social Connectors in Seeking Computer-mediated Information in Rural Societies

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This article discusses what we see as the critical role of individuals and their information seeking behaviour when using information and communication technology (ICT). In our fieldwork in northern Peru, we found that the role of particular individuals was critical in the sharing of computer-mediated information in six rural communities. These individuals tended to be people who enjoyed passing on information and people who had larger networks than their peers did. We develop a theoretical framework that combines theories of information seeking and social capital to explain the process of computer-mediated information sharing in a rural setting. We discuss this framework with some illustrations from our study. We conclude by calling for more research into the role of the individual in seeking and disseminating computer-mediated information, especially within the context of ICT for development projects.

Keywords: Information seeking behaviour, social capital, computer-mediated information, rural areas, Peru

In the popular and groundbreaking book *The Tipping Point*, Gladwell (2002) talks of the importance of certain types of people in promoting trends. He introduces the concepts of 'connectors' – those individuals who have a gregarious nature and extensive social networks, 'mavens' – those individuals who act as information brokers and like nothing better than to educate and help, and 'mavericks' – those individuals who are

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independent thinkers. In our research into information and communication technology (ICT) use in the Northern Peruvian Andes, we uncovered some of these traits in individuals who made an effort to popularise ICT in their rural communities. We also found that the role and status of some individuals in their community was of significance in disseminating computer-mediated information through their traditional face-to-face networks. These individuals tended to have urban connections, were focused on information of all kinds, and showed a certain degree of distinctiveness compared to their peers in their own communities (Díaz Andrade & Urquhart 2009).

In this article, we seek to extend our understanding of how individuals use and disseminate computer-mediated information in their local networks, synthesising theories of information seeking with those of social capital. In producing such a theoretical framework, we plan to explore the role of individuals in popularising computer use in developing countries. Even though development agencies do pay attention to the role of individuals in stakeholder analysis of such projects (cf. Dearden, Jones & Sartorius 2002), our focus is to understand how individuals might engage with ICTs with the purpose of information seeking, especially from a theoretical perspective. Thus, the research problem that this article addresses is:

> *How do theories of information seeking and social capital extend our understanding of individual use of computer-mediated information in a rural context in a developing country?*

Data for addressing the aforementioned research question were collected in the Andean region of Cajamarca in northern Peru. The Cajamarca region, with more than 1.5 million inhabitants, encompasses the largest rural proportion among all the Peruvian regions: 75.3 per cent of its population live in the countryside (INEI 2006). Since the privatisation of both the Peruvian Telephone Company and the National Telecommunications Company in 1994, the Peruvian telecommunications market has experienced a dynamic growth. This has been fostered by the entrance of several national and international competitors providing local, domestic and international communications service both from landline and mobile phones as well as Internet access through dial-up, asymmetric

digital subscriber line (ADSL), cable TV connections and wireless application protocol (WAP).

However, the rapid pace in adopting ICT tools was not equally distributed across the country: while a wide range of ICT options was available in the major urban conglomerates, rural areas neither provided the market potential nor enjoyed the infrastructure that the cities do. Most people living in a vast area of the Cajamarca region were lagging behind in terms of access to ICT tools. Consequently, some initiatives were put in place in order to offset this deficiency, as is explained further below.

This article is structured as follows. In the next section, we discuss theories of information seeking, in particular information in its social context, and information as a social construct. In the third section, we discuss social capital theory in relation to information, focusing particularly on the cognitive domain in social capital networks. In the fourth section, we put forward a theoretical framework, which combines these two bodies of theory and explains our findings, which are elaborated on in the fifth section. Finally, we conclude by discussing the implications of our analysis and make a call for the application of the proposed theoretical framework in other settings.

Information Seeking Behaviour

We start our theoretical discussion with the notion of information seeking behaviour. Information seeking behaviour involves "those activities a person may engage in when identifying his or her own needs for information, searching for such information in any way, and using or transferring that information" (Wilson 1999, 249). It is clear from this definition that the information seeking process starts with recognising a problematic situation that requires information in order to be addressed properly, and may include the passing on of that information. It is the last part of the process that is of particular interest to this article. Since information becomes the central element in the information seeking behaviour discussion, we are compelled to present a discussion on this concept first.

Information

Among the different definitions of information provided by the *New Shorter Oxford English Dictionary on Historical Principles* we consider the following two relevant to our discussion. The first one explicitly recognises a communicative process between two or more parties: "Knowledge or facts communicated about a particular subject, event, etc.; intelligence, news" (Trumble, Stevenson & Brown 2002, vol. 1, 1371). The second one renders information a living character and hints that humans can be kept out of the process of manipulating information: "Without necessary relation to a recipient: that which inheres in or is represented by a particular arrangement, sequence, or set, that may be stored in, transferred by, and responded to by inanimate things" (ibid.).

These definitions allow us to expand our discussion on information in general and information seeking – and sharing – in particular. They reflect a deeper ontological divergence on what information really is. On the one hand, information can be seen as an objective and universal instrument. Stonier (1990, cited by Webster 2002) affirms that "Information exists. It does not need to be perceived to exist. It does not need to be understood to exist. It requires no intelligence to interpret it. It does not have to have meaning to exist. It exists" (24). The underlying assumption in this definition is that information can be objectively obtained; that is, information can exist independently of the observer. On the other hand, some scholars grant information more subjective and contextually-bounded characteristics whereby it can be interpreted in many different ways for different purposes (Castells 2000b; Galliers 2004; Taylor 1991). In the latter view, information requires the agency to have meaning.

In this article, we perceive information as a product of human interaction that conveys a common meaning to a particular group of individuals. Thus, we favour Dervin's (1977) definition of information as an essential tool that help individuals cope with their lives:

> *Information is seen as something that reduces uncertainty. As the individual moves through … the time-space continuum that makes up life … it is assumed that information can both describe and predict that reality and thus allow the individual to move more effectively.* (18)

This definition confers information the quality of being situated and recognises that information needs an actor that can interpret it and act upon it in a specific temporal and spatial context. Indeed, Dervin (1991) calls to avoid conceptualising information as a thing. This approach amounts to considering information as a social construct, which is "evaluated, transmitted and propagated through social relations and interactions" (Castelfranchi 2002, 384).

Sense-making

Given that our fundamental assumption is that information is a social construct, it is necessary to consider how information is passed to others and how it is interpreted. In the process of information sharing and interpretation, the context plays a key role in shaping the flow and use of information (Taylor 1991).

The traditional transmission model of communication, whereby the sender sends a message through a communication channel to a receiver, has been much criticised for its linear and rather simplistic approach. Dervin (1980) convincingly argues that information transmission is not as simple as just dumping information into someone else's head. Closing the information gap between the sender and the receiver requires a clear understanding of the context of the information transmission process. In order to be effective, the information transmission process needs a receiver-oriented approach, instead of heavily relying on the sender (Dervin 1980).

Neither a system-centred approach – which attempts to predict information seeking depending on the topic (e.g. health information as opposed to market information) – nor an individual-centred approach – which emphasises personal traits as predictors of information seeking (e.g. demographic profile) – are compelling enough for developing a theory on information seeking behaviour (Dervin 1992). Alternatively, the sense-making model offers a constructivist approach that takes into consideration the time-space-bound context in order to explain how individuals interpret their experience in problematic situations with an emphasis on the role of the receiver of information in any effort of information transmission (Dervin 1992; 1999a; 1999b). At the heart of the sense-making model is the cognitive gap between what the individual knows, and what she needs to know, in the dynamic, rather than static,

process of information seeking (Dervin 1993). Information seekers should be understood from their own perspectives and situations when "constructing cognitive bridges across [information] gaps" (Dervin 1989, 223). It must be noted that the gap-closing action is motivated by purposes defined by the information seeker and not by the information giver, who may or may not be immersed in the receiver's worldview. Moreover, existing social structures affect how individuals close the information gap (Johnson 2007).

In order to address our research question, we are particularly interested in the individual actor's motivations for finding computer-mediated information, and how that motivation is linked to their collective group's interest. Thus, we settled on Dervin's (1989) actor-defined purposes framework, which makes a distinction between the information seeking purposes of individual actors and collective actors as shown in Table 1.

Individual actor		**Collective actor**	
1	to get ideas	1	to educate
2	to find direction	2	to interconnect
3	to acquire skills	3	to achieve consensus
4	to connect with others	4	to raise morale
5	to get support	5	to anchor culturally
6	to be happy		
7	to achieve goals		
8	to belong		
9	to design		
10	to discover		
11	to stimulate		
12	to be heard		
13	to get diverse input		

Table 1: Purposes defined by actors when seeking information (adapted from Dervin 1989)

It should be noted that these two subsets of purposes are not mutually exclusive. Indeed, we observe some degree of overlap since the collective actor is an entity grouping individual actors. For instance, when

individual actors seek information to connect with others, or to belong, they are actively intending to be part of a social group.

In our daily lives of information seeking, we identify different sources of information: people (e.g. relatives, friends and acquaintances) whom we may approach for any specific need of information; media (e.g. newspapers, radio and TV), which give general information on current events; libraries that provide authoritative information (which may not be the one that people need for their everyday life); and computer-mediated information (including databases, the Internet and virtual contacts). In the process of searching for a specific piece of information, we highlight that it is the cultural context what makes information relevant, otherwise that information may be off the point (Taylor 1991). Unsurprisingly, the cultural background explains why "most information transfer occurs informally, between friends and colleagues" (Dervin 1989, 224). It is the daily practices that influence individuals' information seeking habits, since interpersonal communication and social networks are key factors affecting information seeking behaviour (Savolainen 1995).

While this information exchange between friends and colleagues may be considered as the quickest and easiest option (Case 2002), the degree of familiarity and trust among the exchanging parties makes interpersonal communication the favoured medium (Agada 1999), especially in the context of underserved communities; indeed, information received from outside sources may not be relevant to particular and immediate concerns (Chatman 1991). For instance, Figure 1 portrays the Saturday open market in Chanta Alta main square – one of the communities studied as part of this research – where people from the surrounding hamlets and villages gather not only to trade produces and dairy products but also to exchange information.

Figure 1: Chanta Alta villagers exchanging information at the open air market

This observation reinforces our argument that information seeking has a cultural context. This last reflection brings us to the concept of social capital.

Social Capital

Individuals are not isolated entities; the human predisposition to constitute strong connections to social groups is well recognised (Simon 2002). Social capital can be said to have three authors who have introduced it to the current theoretical debate: Bourdieu (1986), Coleman (1988), and Putnam, Leonardi & Nonetti (1993). Bourdieu (1986) coined the term social capital and defined it as the "aggregate of the actual or potential resources which are linked to possession of a durable network of more or less institutionalised relationships of mutual acquaintance and recognition" (248). Coleman (1988) conceptualises it as a productive function, which makes "possible the achievement of certain ends that in its absence

would not be possible" (98). Putnam, who can be credited with popularising the concept, sees social capital as the characteristics of "social organization, such as trust, norms, and networks, that can improve the efficiency of society by facilitating coordinated actions" (Putnam *et al.* 1993, 167) through their linked rules of reciprocity. Putnam *et al.*'s (1993) definition identifies three components of social capital: trust, norms and networks. Although an elusive concept, trust is a key characteristic of interpersonal relationships and can be defined as the positive reliance on other parties' obligations (Abrams *et al.* 2003; Adler & Kwon 2002; Coleman 1988). Norms are the accepted behaviour patterns for the members of a social system (Rogers 2003) and networks represent the material support for the transactions (Adler & Kwon 2002; Coleman 1988).

The unspoken, yet fundamental, element the above definitions of social capital have in common is social interactions. In the absence of social interactions, social capital would not exist. We have chosen to use the definition put forward by Adler and Kwon (2002): "Social capital is the goodwill available to individuals or groups. Its source lies in the structure and content of the actor's social relations. Its effects flow from the information, influence, and solidarity it makes available to the actor" (23). Firstly, this definition of social capital makes explicit that social capital can be accessible to both individuals and groups, which will allow us to observe the information seeking behaviour of individuals within a larger community and how information is shared among them. Secondly, it directs the attention to the elements constituting the social network (e.g. communal organisations) and the nature of the goods, which can be tangible (e.g. money) or intangible (e.g. favours), transacted throughout the network. This characteristic allows us to contextualise the components of the information seeking process. Thirdly, it makes explicit that information – along with power and reciprocity – takes part in the social interactions.

Social capital domains

Huysman (2004) proposes three domains of social capital: structural opportunity, cognitive ability and relation-based motivation, as shown in Table 2. The analytical decomposition of the concept of social capital

into these three domains makes possible the study and understanding of the mechanisms by which some individuals embrace the task of not only seeking computer-mediated information but also distributing it among their fellow villagers.

Domain	**Constitutive elements**
Structural opportunity for social capital transaction	Network ties and network configuration, including appropriable organisations
Cognitive ability for social capital transaction	Competences and resources that individuals in the network have through common systems of meaning
Relation-based motivation for social capital transaction	Linkages developed through consecutive contacts with each other based on tacit reciprocity rules

Table 2: Social capital domains (adapted from Huysman 2004)

The structural opportunity domain is represented by the interaction between human beings, which may take place within social structures represented by both face-to-face and virtual networks (Castells 2000a). Hence, the 'who transacts' and the 'how transacted' are the elements to be analysed under this domain (Huysman 2004). The cognitive ability domain refers to communicative competence, the human beings' capability to communicate with each other in an intelligible way and to transform information effectively (Szreter 2000). The 'what is transacted' is to be examined under this domain (Huysman 2004). The relation-based motivation domain implies reciprocity and trust which contribute to the expansion of networks and are tacit forms of understanding to achieve common objectives (Brown & Lauder 2000). Thus the 'why' of the social capital transaction takes place in this domain (Huysman 2004).

In the present study, the focus is on informal social capital, which involves norms of trust and reciprocity within the networks of individuals, as opposed to formal social capital, which takes place among distinguishable collective entities (MacGillivray & Walker 2000), e.g. businesses

and government agencies. Rather than exchanging goods or services in these informal interactions, we expect to see information being symmetrically transacted in a somewhat diffuse and tacit manner (Adler & Kwon 2002). For instance, Figure 2 depicts the milk truck in one of its stopovers for milk collection as part of a 19-hour round journey from and to Cajamarca City. The truck driver acts as a messenger when local people ask him to pass on messages like "Please, tell my uncle in Malat [one of the stopovers] that I am going to visit him on Saturday" or "Take this rucksack of potatoes to my friend in Bella Unión [another stopover]". Interestingly, the truck driver delivers, as was observed during the fieldwork. These are unambiguous indications of the fact that people know one another in a relatively large area and how local people use the available resources to keep in touch.

Figure 2: People passing messages and parcels to the truck driver in the Cajamarca region

Bringing Together Information Seeking Behaviour and Social Capital Domains

We recognise that social context implicitly constrains the possibilities of topics to be searched. Our assumption is that the information seekers will not look for something that is not part of their universe. The social group plays a key role in defining the search alternatives. Ultimately it is they who will be fed by the obtained computer-mediated information that is distributed through face-to-face interactions. Instead of analysing the feasibility of replicating social capital characteristics on virtual networks (cf. Putnam 2000), our interest is extending our understanding of how social networks affect individuals' information seeking behaviour in a rural setting. We do not expect that computer-mediated information and virtual interactions will replace face-to-face contacts; rather we foresee a complementary effect (cf. Quan-Haase & Wellman 2004; Wellman *et al.* 2001).

In the framework shown in Figure 3, we bring together Huysman's (2004) dimensions of social capital and Dervin's (1989) defined purposees of seeking information for both the individual and the collective actors. We contend that this framework will allow us to understand how the community influences the individual's search effort, as well as how the information gathered from computers is distributed throughout the existing social networks. These actor-defined purposes (Dervin 1989) give us insight into the type of information sought that might be occurring along the three social capital dimensions (Huysman 2004). Likewise, this analysis will contribute to our understanding of how people might seek information within their existing social networks.

While the actor-defined purposes represent specific activities and motivations in the information seeking effort, the dimensions of social capital set in motion the mechanisms that make the translation process from the individual actor to the collective actor possible. This is the central argument of our proposed model.

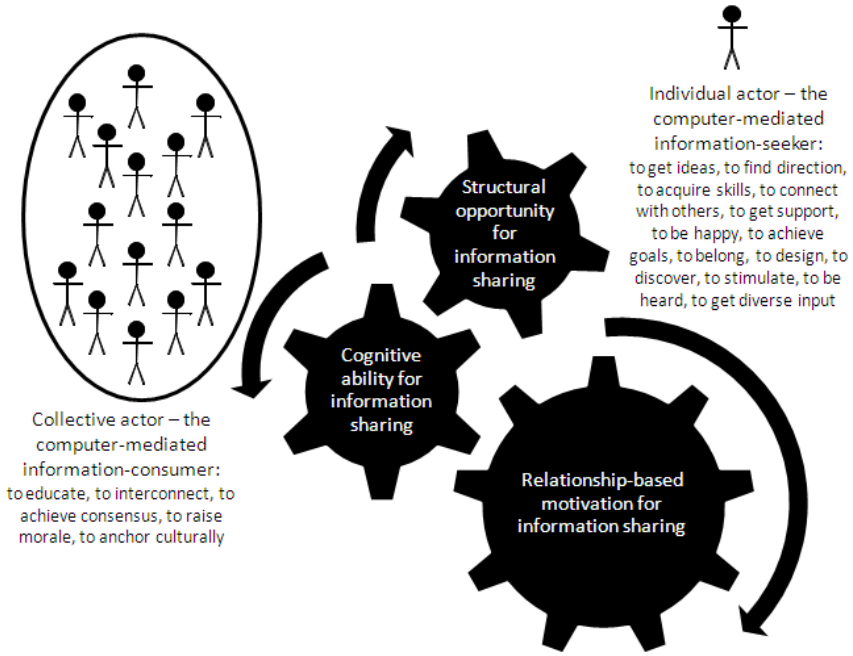

Figure 3: Theoretical framework of information seeking and social capital

Grounding the Proposed Theoretical Framework

The theoretical framework we presented in Figure 3 provides the analytical elements to gain an understanding of what drives individuals seeking computer-mediated information and how the information-seekers' context and their social group will shape their search for that information. We follow both the individual and collective actors in the process of information sharing. We highlight that our intention is not to test an a priori theoretical framework. On the contrary, it is the result of a recursive – inductive *and* deductive – thinking process that enabled us to gain insights into the phenomenon under study.

Research approach

The fieldwork took place between July and November 2005 in six rural communities in the Cajamarca region: the village of Chanta Alta (539 inhabitants), the village of Huanico (300 inhabitants), the town of La

Encañada (1 200 inhabitants), the town of Llacanora (520 inhabitants), the hamlet of Puruay Alto (estimated in 150 inhabitants scattered in a wide mountainous region) and the town of San Marcos (8 000 inhabitants).

People in La Encañada, Llacanora and San Marcos enjoy an acceptable infrastructure: relatively good roads, easy access to Cajamarca City, electricity 24 hours a day, television broadcasting and public telephones – even home landlines in San Marcos. However, the situation was completely different for the inhabitants of Chanta Alta, Huanico and Puruay Alto; there was no electricity, and getting to these communities was far from easy and could be a risky journey. Drinking water was provided with major restrictions in Chanta Alta, not available at all in Huanico and Puruay Alto had one tap only next to the local school. Although labelling the town of San Marcos as a rural community is open to challenge, we did so because its economic life heavily relies on farming and stockbreeding activities. The infocentros in Chanta Alta, Huanico and Puruay Alto were equipped with solar panels in order to supply energy for the computers.

These communities were all taking part in an ICT for development project funded by a group of European donors. The project sought to provide information to local people through computers connected to the Internet located at the recently installed rural information centres – known by the locals as infocentros. The donors' assumption was that by making information accessible, local people would improve their quality of life. In Chatman's (1996) terms, people living in these communities were regarded as the "outsiders" suffering from "information poverty". "Insiders" – including the project sponsors – would regard themselves within the mainstream.

Among the primary sources of data, we held 38 in-depth interviews in Spanish (the author who conducted the fieldwork is a Spanish-native speaker) with participants coming from three groups of stakeholders: intended beneficiaries from the communities, infocentro managers (who were locals entrusted with the responsibility to operate the purposed-built facility), and the sponsors of the project. In addition, we produced more than 200 pages of hand-written annotations and over 100 photographs (two are shown in Figures 1 and 2). Among the secondary

sources, we had access to the project reports and demographic information provided by the national statistics agency.

We stress that the purpose of the analysis presented in this article is not to demonstrate how successful the deployment of the project was. Nor is it about the adoption of the provided technology – in fact, most of the time, the information provided by the project donors was bypassed. It is about understanding how computer-mediated information is obtained by the individual and then distributed throughout their social network. Information seeking and social capital, as shown in Figure 3, provide the theoretical elements for this purpose.

Findings

In our research, we found that people in the studied communities universally acknowledged the potential contribution of computers, but only a small number of individuals made an extra effort to learn how to use computers. These individuals were almost invariably informally trained in the use of computers, and keen on sharing the computer-mediated information with their fellow villagers. We named them "activators of information", those who connect their local and traditional networks with their virtual and distant networks (Díaz Andrade & Urquhart 2009). These individuals dynamically use information to build and/or strengthen social networks and are very conscious of their place in the community. Therefore, we were interested in explaining this phenomenon further, and think that the proposed theoretical framework can assist us in this effort.

Presenting textual data is always a challenging task given the space limitations. Thus, we have been careful in selecting the participants' expressions that best represent the notions represented in the theoretical framework shown in Figure 3. In Table 3, we present quotations from the participants reflecting the actor-defined purposes of individual actors when seeking information.[1]

[1] Participant names have been disguised. Numbers in parentheses represent the participant's age at the time of the fieldwork

1. To get ideas	Edilberto (25): La Encañada infocentro manager	"Peasants used to visit me at the infocentro. 'We have come to look for this [farming information] that we need; we were told that we can find it through the Internet'".
2. To find direction	Anatolio (19): Puruay Alto high-school student	"Communication is important because some people give you solutions and advice".
3. To acquire skills	Hermilio (16): Chanta Alta high-school student	"[My cousin] taught me many things [like] MS Word® and MS Excel®, recording CDs with music and documents and so on".
4. To connect with others	Alejandro (33): Chanta Alta farmer and livestock advisor	"I have friends in other countries... They are from Colombia and Venezuela… I met them in a chat session".
5. To get support	Ramón (32): Huanico farmer	"[I communicate by e-mail] mostly with my relatives who are in Cajamarca City… to ask for a doctor or someone who can help me on [my wife's health problems]".
6. To be happy	Fernando (23): Puruay Alto infocentro manager	"Students exclaim, 'Gee! If we had money we would come all the time. Chatting is awesome… It is exciting to be talking to other people'".
7. To achieve goals	Sixto (39): La Encañada high-school teacher	"There are colleagues who know better than me about Internet. 'I have this problem, what can I do? [I asked]' 'Do in this way [they answered]'. You know... it helps to improve ourselves".
8. To belong	Justo (in his 40s): Engineer and San Marcos councillor	"I needed to be in touch with my classmates and lecturers at Universidad de Lima [where I am doing a PhD in economics]".
9. To design	Liliana (28): Lawyer and San Marcos councillor	"This computer is extremely useful for me, for my job and for everything we have to do at the provincial council… I put all my ideas in there".

10. To discover	Hugo (16): La Encañada high-school student	"Some friends from this town have contacts in other countries. They put us through and we talk… 'How is the weather over there?' 'How is your country?' 'Is it nice?' 'Is the criminality rate too high?' And so on…"
11. To stimulate	Darío (25): Llacanora wicker worker and entrepreneur	"The infocentro manager should encourage people in the countryside to come, to learn and let them know, 'I found this in the computer'. I think many people in the countryside do not know what a computer is… but they do not realise that there is something that may help them in agriculture".
12. To be heard	Manuel (16): Huanico high-school student	"If you learn computers you would have the information you need to confront the authorities".
13. To get diverse input	César (28): Mayor of Rio Grande village – whose jurisdiction includes Puruay Alto hamlet	"It is important to meet people from other places… because that is the way to development. And also we are informed how they work in that country, in that town, or that village, and [they know] how we work here".

Table 3: Instances of action-defined purposes of individual actors.

An examination of the aforementioned quotations reveals a wide range of motivations for individuals seeking information, from satisfying personal curiosity (e.g. knowing people from overseas) to solving urgent issues (e.g. health related problems). It is possible to classify these information seekers' orientation to computer-mediated information using two major categories: cognitive oriented seekers and affective oriented seekers (Savolainen 1995, citing from Erämetsä 1990). The former group prefers technical or cultural information, since they perceive it as an instrument for reaching a specific purpose sometime in the future. Conversely, the latter group perceives information as a means for immediate reward, and prefers amusement-style information, or "infotainment" (Webster 2002, 195, citing from Postman 1986). During our fieldwork, we found both

kinds of information seekers, but the focus of our research is in the former group.

Although all instances presented in Table 3 are classified as individual actor's action-defined purposes, the truth is that in the process of information seeking, other parties are involved. When the individual actors reach distant contacts and/or gather information for solving collective problems, they are acting as gatekeepers. Indeed, they become the mediators who select from the vast amount of information available out there the particular pieces of information that will be passed on to the community (Shoemaker & Vos 2009).

Although the individual performs the task of retrieving information, we discovered instances where they do so as a representative of the group. This finding is doubly revealing. The first aspect is easily noticeable. Having the group seeking computer-mediated information is impractical – we can visualise the inconvenience of a crowd using one keyboard for searching for a piece of information on a relatively small computer screen; an individual can do it in a more efficient and effective way. The second aspect provides more insights for our analysis. The fact that the community entrusts the responsibility of seeking information to one individual – maybe just a few – not only reveals how the community implicitly recognises that some individuals can do it better than the group, but also, and most importantly, that the community believes that the located piece of information will be distributed. Hence, the individual actors become gatekeepers, opening or closing the gates to the flow of information, depending on what they regard as relevant for their community. When they seek information and advice from sources other than their localised context, and sometimes beyond their immediate needs, they are the "outsiders" looking for information from the "insiders" (Chatman 1996). We emphasise that this information-search effort is motivated and shaped by social factors (Agada 1999), and the ultimate beneficiary will be the collective actor. Table 4 presents some illustrations of the information seeking efforts undertaken by individuals as proxies of collective actors.

1. To educate	Alejandro (33): Chanta Alta farmer	"I encourage my colleagues [stockbreeding technicians] to visit such and such

	and livestock advisor	website, to surf through the Internet and review [the information they get]".
2. To interconnect	Antero (49): Puruay Alto peasant and communal leader	"[By using computers] we can locate markets [for our local produce] in other places".
3. To achieve consensus	Luz (22): San Marcos infocentro manager	"A number of [local] organisations and [government agencies] used to come [to the infocentro] to organise their work and exchange information".
4. To raise morale	José (21): Llacanora worker	"My friends and I always go out from the town and observe what is going on in other places… [Then], we compare and realise that something is wrong here".
5. To anchor culturally	Darío (25): Llacanora wicker worker and entrepreneur	"I am the founder of a local organisation that seeks to promote businesses around tourism, agriculture and handicraft… I am convinced that computers can help us in promoting Llacanora".

Table 4: Instances of action-defined purposes of collective actors

It is worth noting in Table 4 that Antero is not able to use a computer at all. However, he vigorously expresses his views on how computers can help in bringing progress to the hamlet. Although computer illiterate, he recognises his hamlet's information needs.

Not all the instances of action-defined purposes of information seeking shown in Tables 3 and 4 are mutually exclusive. On the contrary, an overlap exists among them. For example, we can see common characteristics between "to acquire skills" (instance no. 3 in Table 3), "to discover" (instance no. 10 in Table 3) and "to raise morale" (instance no. 4 in Table 4). It is not a black or white choice. We maintain that it is a matter of degree what defines whether a particular participant's expression falls within one action-defined purpose or the other.

Distributing information

So far, we have presented the action-defined purposes of information seeking for both the individual and the collective actors. The remaining

question is how the information gathered by the individual is being shared with the social group, and vice versa. What connects the individual with the group, we maintain, is social capital: "the goodwill available to individuals or groups, [whose] source lies in the structure and content of the actor's social relations" (Adler & Kwon 2002, 23). The social capital dimensions (Huysman 2004), presented above, provide us with the analytical elements to observe the sharing process in more detail.

The *structural opportunity for information sharing* is reflected by individuals interacting with each other through their networks of contacts. These networks provide the material support for information sharing. The interaction could be among individuals either in the vicinity (e.g. through the communal Peasant Organisation or the local council) or over the Internet. In instance no. 1 in Table 3, we observe Edilberto interacting with local peasants interested in receiving information related to farming. In instance no. 3 in Table 4, Luz explained to us how different organisations worked together to exchange information. Both examples illustrate the existence of links between individuals and between individuals and (not necessarily formal) organisations, in a more or less stable configuration whereby information is shared.

The *cognitive ability for information sharing* is exemplified, for the individual actor, by instances no. 7 and no. 13 in Table 3. They make explicit the need of a common set of meanings for rendering the information seeking effort viable; if Sixto and César were not able to understand what their counterparts articulate, the exchange of information would be impossible. In Antero's expression in instance no. 2 in Table 4, the requisite of a shared communicative understanding at the collective actor level is implicit. The fact that Antero is using the first person in plural is indicative of his assumed representative role of the community. He embodies the collective actor when suggesting the idea of identifying potential markets for Puruay Alto's produce – even though he is computer illiterate.

The *relation-based motivation for information sharing* conveys the idea of an established and ongoing relationship. It must be noted that every relationship however started with an initial interaction. Instances no. 4 and no. 6 in Table 3 illustrate how the online contacts were acquired, while instance no. 8 in Table 3 shows a habitual communication. These

are examples of the individual actor seeking information. Instances no. 1 and no. 5 in Table 4 illustrate how information sharing takes place at the collective level. What both individual and collective actors have in common is that their interest in addressing their diverse information needs both initiates and sustains the relationship.

Conclusion

Not only from what the participants said during the interviews, but also from observation during the fieldwork, we could identify individuals who show some traits of mavens, mavericks or social connectors to a greater or lesser degree. Our intention is however not to label individuals in a rather deterministic fashion according to these three typologies. Such an exercise would prove problematic and inaccurate. We aim at understanding how individuals use and disseminate computer-mediated information in their social networks by synthesising theories of information seeking with those of social capital. In this context, instead of the labels mavens, mavericks and social connectors, we prefer to talk about *mavenry*, *maverickery* – taking a little linguistic licence – and *social connectivity*, as descriptors of actions that shed light on how information is shared in a rural environment.

We contend that giving access to information through computers has a much greater effect in the presence of mavenry. Individuals showing the traits of mavenry value education higher than their fellow villagers do. Moreover, they are interested in educating others, and generally tend to be receptive to new ideas, such as innovations in farming and stockbreeding techniques. Their cognitive ability for information sharing becomes apparent in relatively small rural settings. The attributes of maverickery are the least manifest. It can be argued that maverickery is only visible when some individuals challenge the status quo of their communities based on information they obtain from other places through computers and virtual friends located somewhere else.

Social connectivity is the most visible characteristic. In the area of northern Peru where this study took place, reciprocity rules are conspicuously pervasive. For instance, the ancient practice of minga – a Quechua word that originally referred to voluntary participation in communal work, now extended to include the action of helping with one another's

chores – is frequently practised. Likewise, the Peasant Organisation provides the intangible structure that unites local people around common goals, where they can discuss and make decisions affecting the whole community. These two institutions have proved to be essential parts of the social network. The existing cultural context fosters the passing on of information through the customary face-to-face contacts. The gatekeepers, acting through these traditional and close networks, facilitate the sharing of computer-mediated information between both individual and collective actors. The gatekeepers become the community representatives absorbing, processing and transferring information from the mainstream to their fellow villagers – cf. "outsider/insider" phenomenon (Chatman 1996). To some extent, the gatekeeper's actions corroborate the observation that computers can help people overcome physical distance and can empower the information-disadvantaged (Rogers, Collins-Jarvis & Schmitz 1994).

This research aimed at developing a theoretical framework that explains in what way, and to what extent, individuals access and distribute information obtained from computers. In particular, the research question that we proposed was: *How do theories of information seeking and social capital extend our understanding of individual use of computer-mediated information in a rural context in a developing country?* At this point, we maintain that the combined framework of information seeking behaviour and social capital can inform us better about the role played by certain individuals in seeking and disseminating computer-mediated information. The actor-defined purposes when searching for information (Dervin 1989) along with social capital domains (Huysman 2004), allow us a more finely grained understanding of this phenomenon.

We would say that the computer enthusiasts we identified in our study seemed to be more maven than maverick in their willingness to share. They are definitely social connectors, and it is this process of connection through information that is of great interest to us. Our findings indicate that this kind of behaviour may be more common than we might think. We expect that the proposed theoretical framework contributes to the understanding of computer-mediated information sharing in rural settings in developing countries. Firstly, by synthesising aspects of social capital theory with information seeking theory, the proposed framework

allows us to see the gatekeepers' actions through social capital dimensions. Secondly, looking at the sort of information that is valued and the mechanisms for its sharing, especially in the context of ICT for development projects, provides insights that might prove useful for similar projects in the future. Thirdly, we contend that the proposed framework makes explicit the sometimes critical role of the individual in obtaining and passing on information in ICT for development initiatives. While Rogers (2003) stresses the importance of early adopters in the process of diffusion of innovations, we highlight the position of those individuals within their community. This last point is important. We are not privileging the individual over the community and proposing some 'great man' theory whereby individual qualities make the difference. We rather contend that understanding the role of the individual *within their community* is critical and deserves further research. Barzilai-Nahon's (2008) network gatekeeping theory offers a rich conceptual model that can assist in pursuing this effort since it makes explicit the dynamic nature of the needs and interests of the "gated", i.e. the community.

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