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The Cserénfa experiment
On the attempt to deploy computers and Internet in a small Hungarian village

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Abstract

The research aimed at studying the social impacts of network-based and institutionally organized IT learning in a less developed village community in Hungary. Compared to western countries, Hungary has a relatively low personal computer and Internet penetration. This experiment provides a method for the implementation of a diffusion of IT-skills, in terms of deploying PCs and Internet connections to private households. At the beginning of the project, ICT courses were organized for adults, then computers and Internet access was made available for families, and they were asked to provide help for others on a voluntary basis. The turnout in the village Community Technology Centre (CTC, also known as the Telehouse) was monitored at the same time. Focus groups, interviews, computer-generated usage log files and diaries of the participants were the main data sources for our investigation.

As for the primary impacts, by the end of the experiment ICT knowledge and related aspirations increased, although side effects, like envy and frustration also did occur. The Internet activity of the participants was predominantly focused on recreation and not information gathering or resource extension. As far as the wider social impacts are

concerned, at the beginning of the project villagers thought that people in the community were reserved, mistrustful and unprepared to help, and this mood did not change much to the end.

The finding of policy interest is that while children learn basic ICT skills in the elementary school, adults are worse off in this respect. Therefore organizing local courses for adults was popular and proved to be useful. Another policy result is that deploying resources through interpersonal networks and the CTC satisfy the potential demand with more or less the same efficiency.

Introduction: the aim of the research and former experiences

The aim of the research was to study the social impacts of network-based and institutionally established ICT-learning in a less developed community. The experiment took place at Cserénfa between October 2003 and May 2004. We wanted to study the advantages and disadvantages of the spread of information technology on the basis of networks as opposed to institutions. By deploying computers to the homes of people with different social and network positions, we expected to observe a special way of diffusion of knowledge and usage. We expected among others that marginalized people, who do not have close contacts with the young and with the local elite (who are the early adopters of ICT in the village), may begin to use the Internet as well. In other words, we expected that by deploying the computers and Internet to homes, a group of people, who would not have had the opportunity to "contact" to this technology in the Community Technology Center (CTC), would have an opportunity to do so in this way.

We wanted to know how people learn ICT skills from each other, for what purposes they use the Internet and with what efficiency they use it. A further objective was to examine the indirect social impacts of the spread of information technology, to see how the life conditions and subjective opinions of the villagers changed. We expected that people will search for and find (better) jobs, getting informed, and perhaps change their opinions concerning their life chances. As the basis of the experiment three courses were organized, four PCs were lent to Cserénfa families and nine Internet accesses were made available. The families were asked to co-operate during interviews and visits, keep a diary of their experience and make the Internet available for relatives, friends, and neighbors in case of interest.

International research concerned with the interplay of information technology and local society contains proposals as the establishment of CTCs, voluntary computer courses, and activation of the relevant knowledge of young people in order to combat the accumulation of disadvantages (Schoen, Sanyal, & Mitchell, 1999). Finnish experts have reported on a successful attempt to revitalize a disadvantaged region with the installation of the intranet network in a center through the involvement of the unemployed and physically disabled in the area (Koskikallio, 2001). A Swedish experience found an Internet Café more efficient than a Local Network in combating social inclusion (Ferlander & Timms, 2004). Experience gained in India during a revitalization attempt in a poor rural region shows that distributing useful information for the public is done at best through publicly accessible service centers, like public libraries. Indian libraries, besides their natural function of being gateways to information, have the capability of negating differences in access based on gender, caste or age segregation. These libraries had one or more dedicated terminals, through which information could be accessed by villagers. (Raju, 2004) An overview of the American efforts at making technology available and creating capacity compares two practices of bridging the digital divide: creating centers and building networks (Servon, 2002). While CTCs have more in common with traditional local development efforts, community computer networks focus on creating of local content. A criticism about community computer networks is that they do not represent the entire community, but rather reflect the group which adopted the technology most quickly (Servon, 2002). Recent practices of the Community technology movement integrate these two tracks, and also concentrate on training.

Early studies of diffusion of innovations (Coleman, Katz, & Menzel, 1966) found that people with broader external information adopt innovations earlier. It was also shown that although people usually learn about an innovation from formal sources, they tend to adopt it only after they have discussed it with their fellow colleagues. On the base of several earlier studies it was shown that early adopters are usually more technology oriented and of higher status (Rogers, 2003). A case study in economic sociology (Letenyei & Eranus, 2004) has shown that innovations often appear in local societies via the mediation of outsiders and

then spread through traditional networks. However the social applications of technology together with the content of networked information may also lead to a digital divide (Alkalimat & Williams, 2001).

We have relied on some of these findings as well as on our own experience gained during previous examinations in the sub-region of Kaposvár, a town in south-west Hungary (Lengyel et al., 2003, 2004). The district has rich cultural traditions, but in economic and ICT terms it is just at the national average. At the time of the research the ICT penetration in Hungary was considerably below west-European standards. In the EU-15 the computer literacy of adults was well above fifty percent and Internet access at home exceeded two-fifth of the households. In Hungary computer literacy was slightly above a quarter of the adult population and Internet access was available in less than one-fifth of households.

The settlement

The village of Cserénfa inhabited by 257 people is 12 kilometers from Kaposvár. The village has no railway station, school, nursery or pharmacy. There is a food store and a pub in the settlement. Some one-third of the population are pensioners, one-fifth are underage.

Under the age of 15 most of the inhabitant children attend the elementary school at Szentbalázs, the central settlement of six nearby villages. The pupils travel two kilometers, and their bus ticket is financed by the municipality.

A quarter of the houses are unplastered in Cserénfa, yet few are recently built. (NB: in the control settlement of Szilvásszentmárton of a similar size in the region half of the houses were unplastered.) The overwhelming majority of the villagers are Catholic. There is a single house of worship converted from a school. The Romani (Gipsy) minority numbers some 6 % of the population. There are few jobs locally, the commuters to Kaposvár pay high travel costs. The inhabitants feel they are disadvantaged concerning the job market and job security compared to the employees living in the city. The number in the qualified, active labor force is quite small and it is very difficult even for the skilled workers to find a job that is worth commuting to in the nearby city. There are fewer than ten inhabitants with higher education in the village.

To keep domestic animals or to deal with an orchard and viniculture are not as common activities as they were before. These are not profitable anymore, so they are considered not being worth the expenses and time spent on dealing with them. Still there are big vineries behind the village on the hill, which are cultivated by the owners only because they do not want to let their families' land erode or because it is their hobby, moreover, they want to drink home-made wine all year. There is a middle-aged man, who deals with pets, another one with bees to make honey which he sells later in order to have additional income, and there is only one family who is making its living by farming, and breeding animals. There is a young man who paints portraits, and a young woman who organizes discussion groups about the Bible. There is a man who constructs ships in the backyard of his house although there is no lake or river in the neighborhood.

The inhabitants, depending on the time they have lived in Cserénfa, have different concerns about the relationships, and climate of opinions in the village. Most of them say that it is still much better to live here than in the city, although people are not as cooperative or friendly as they used to be. The reasons for becoming "alienated" is that many of them (mostly the middle-aged) make a precarious living, or have to work hard to achieve an acceptable living standard, so people are often jealous, and do not have much free time to chat with each other. In general we can identify that there are rather more small groups, and cliques than a homogenous population in the village. The youth, and the pensioners arrange common programs and spend more time together. The pensioners' club for example is an opportunity for the latter group.

The village has a dynamic leadership. The mayor, formerly a primary school teacher, has applied successfully for several development grants. In the last two years before our experiment, , a statue was unveiled, a playground created in the center, a village warden was appointed to arrange for transport, for the villagers as needed, and a CTC was established (Siklós 2004). Telehouses were available on the average in every sixth settlement in Hungary at this time.

Building out the village sewerage system is among the most urgent plans of the commune, followed by reconstructing the village roads. They would like to make further steps to develop village-tourism. However, a focus group study (Vicsek, 2004) revealed that despite growth in the population lately, the villagers were still pessimistic about the future of the village. They felt that the future depended on politics

and tenders for grants – that is, on factors beyond themselves – and that the village population would probably decrease in the future.

As mentioned above, there is a CTC in Cserénfa which had four computers at the beginning, with another two being added later through a successful grant proposal. They also made a bid for free broadband access but they failed, so they pay some 60 000 HUF (app. 285 USD) a month to have an ISDN line. The CTC, as well as the pensioners' club – located in the same building - is directed by a specialist, who is on good terms with the mayor. The CTC has hosted on the average thirty-five visitors who spent twenty hours per month on the Internet before and during our experiment. It is predominantly used by children and young people, therefore - as one of our colleagues noticed - it resembles a playground most of the time, The technical supervision-maintenance of the computers is done by a young specialist from Kaposvár who is also the system operator for the school computers in the central settlement of Szentbalázs. Most households have mobile phones and the spread of PCs is also judged positively. The financial difficulty is not so much in the purchase of a computer than in subscribing to an Internet service provider.

Courses

Before deploying PC's and Internet connections to private houses we planned to hold voluntary courses for the villagers about the basics of computer technique and Internet use. Since earlier there was a course organized for a narrow circle and the participants were ready to continue, we changed the original plan and announced two beginners and an advanced courses. The courses were held in the CTC. A possible venue was the school computer lab of neighboring Szentbalázs with more PCs, but to minimize travel costs we decided on the CTC. The course was not free as we wanted every participant to be committed, but the fee was low enough to be payable by all those interested. The fee practically covered the Internet service costs, whilst the lecturers were paid by the project. The interest and continuous attendance were consistent with our expectations.

The reception of such an initiative as the Cserénfa experiment depends largely on the personality of the course leader and CTC director. Getting acquainted with Information and Communication Technology tools does not merely imply the acquisition of a certain skill but rather requires an attitude change in order to be effective in the long run.

In our course, two university colleagues held demonstration lessons and a jobless nurse, with several certificates, living in the district, supervised the computer practices. She performed her task with great enthusiasm and competence. The job was more than a means for earning money for her:

> "the best thing was that people were grateful for whatever you gave them, without exception. It was good for me psychically, too, because I felt successful, which I missed for quite some time, and I got so much affection here that I all but wallowed in it." (Course leader)

Shortly after the course she applied for the job of leading a CTC and pensioners' club in another village in the district, and was successful.

Another course participant got a job, partly through what she had learnt in the course:

> "at the beginning Andrea found it hard to settle to the work and I thought she wouldn't make it, but finally she got going. She was my greatest success; a bit later we met in the bus and she happily told me she'd found a job, just because she had a start on the computer." (Course leader)

Another person was attracted by the possibility of browsing, looking for vacant jobs (marked I1 in the research), who later profited by his attainments in buying a computer and acquiring other knowledge.

> "There was a college graduate, I don't remember his name. He came to learn to use the Internet, 'cause he was a farmer and wished to correspond and use tables and make balance sheets alone at home. Then on the Internet he browsed for grant possibilities." (Course leader)

All in all, the course had a clearly positive impact, also manifest in the early attendance of the CTC. A person of Gipsy origin, for example, got the knack of the Internet, learned extremely quickly and used his knowledge enthusiastically.

> "Each was an interesting person. A1, for example, who only wanted to use the net and kept clicking the mouse, thinking the faster he clicked the greater the result; he had to be slowed down.

> Then he gradually realized that it was not all clicking about... As I know, he is now employed by the local government to maw the lawn. He's not like the rest, you know, he's not Hungarian but a Rom and they don't take great pains. I was glad he came at all and didn't spend his time in the pub. He did something at least. True, after it he went to the pub, and before it, but he advertised the course there, too. He printed out things and flourished them all over as relics: I did it!" (Course leader)

Among the motives of the course participants, the appeal of something new and the elimination of knowledge differences within the family were also to be found.

> "Q: There was this computer course held by my colleagues and yours. Do you think it promoted some chance, did it have some impact, what responses do you know of?
>
> A: It was joyful that so many were interested. More important still, only two of the participants dropped out, the rest finished it. It immensely improved their self-confidence, they proudly say: I know it, even if they only heard about it. Actually, they don't use the CTC so much more. The spell of it has faded. I know of a PC that was born of this thing, someone bought a machine - maybe others too, but I am in contact with him only, I know they use it... it's only a 486, but a computer after all. They are entrepreneurs, at least Eve, I think they have an agricultural enterprise and she uses the computer. To make invoices and their own adverts. She enjoys it. I don't know if anything else has come out of it, I think it's a question of prestige, for the list included many parents who have PCs at home. They probably came here to have a smattering of what the kid's doing at home." (CTC director)

Selection of participants

Several viewpoints had to be reconciled during the selection of the experimental subjects. We were looking for motivated and cooperative partners who thought participation would be useful and were willing to keep in regular contact, log the events and share their knowledge with others. Nearly all those attending the computer courses were like that. There were some who did not take part in the course as they were familiar with the computer and helped several others in this regard. Their problem was that they could not afford to pay for the Internet. Some were motivated and interested but local public opinion considered them unworthy of being involved in the experiment due to their living conditions and marginal position. Contact persons warned us about the risks of providing computers for those who lived on social benefits only. (Cases of A1 and D1 exemplified this in our sample.) It was made clear at the beginning that the mayor and the CTC director could not take part as it was irreconcilable with their posts. They agreed and helped our work in several other ways. The mayor warned us not to give anyone a PC without a preliminary selection procedure. We thrashed out our choices with her and she agreed with our decisions.

During the phase of selection, some changes had to be made. A course candidate who found a job and whose student son was considered a computer expert in the village told us she had a PC, though rather obsolete, had access to the Internet at her workplace, so she resigned in favor of someone else. She pointed out another two potential participants. Three members of another family attended the course, but they had no time to keep regular contact. Another couple discussed the possibilities and decided to resign because they were afraid the children would do harm to the computer.

We deployed the four PCs, each equipped with Internet connection and CD writer in households, which were very different in their social and financial parameters. To maintain anonymity we coded each participant (see next section). It was clear from the beginning that the bottleneck was not with the PCs but in Internet access, which thus had greater appeal. We provided Internet access for another five households with their own PCs. Some had already been deliberating the possibility of getting Internet access, and were very positive about the experiment.

To arrange for Internet subscription was technically and administratively very complicated and caused a great deal of problems during its maintenance, as well as after the whole research period.

Characteristics of the participants at the beginning of the experiment

A1: socially marginal jobless man of Gipsy origin. Lives in bad financial plight with his foster mother (grandmother). Schooling: eight primary grades, lives on a monthly allowance, does communal work and occasionally works for a little money or food. Beginner in computing.

B1: aged 48, father of two. Worked as a fitter for years, but pensioned off two years ago due to his health conditions. Financially secure, the four family members are living on the wife's salary and his disability pension. His sons aged, 16 and 19 attend vocational schools. He is generally respected by the village society. Has hardly any knowledge about how to handle the computer, though they have a PC at home, mainly used to play computer games

C1: a seamstress by profession, she "immigrated" into the village 6 years ago, yet she is rather highly thought of, she helps the village leaders and neighbors a lot. Her household includes her husband and 4-year-old daughter. They are financially consolidated, keeping several irons in the fire, because after the child care leave, she didn't get a job for a long time.

D1: 38-year-old jobless mother of two, pensioned off. Schooling: 8 primary grades. The children attend primary and secondary schools, respectively. The family is rather marginal both socially and financially. They moved to the village a few years ago, and earned little esteem socially. Her computer knowledge is next to nothing, though earlier she sometimes played on her son's PC.

E1: student of secondary school in Kaposvár specialized in informatics. They are six in the household. His widowed mother lives with her partner, with whom they have a small daughter in addition to the two elder children. The three children live at home (the eldest as a college student in Kaposvár). They are socially and financially consolidated. His computer competence is advanced. He got a new computer before the launching of the project.

F1: the household includes four: the couple and two schoolboys. He is one of the computer "gurus" of the "older" generation (at 34). He uses the computer for his work as a turner and he has a Pentium IV PC at home, which he keeps upgrading. His financial status is consolidated, he plays a central role in the village community for several reasons. He is an alderman of Cserénfa.

G1: 35-year-old single woman with a university diploma. She moved to Cserénfa two years earlier. She can handle the computer well, as she used it for her studies and work. The loss of her job put her into a bad plight. Her social relations are mixed, she is only partially accepted. Her contacts with some, especially those in marginal position, are good, but many regard her as eccentric and disapprove her.

H1: young man of 25 with secondary school education. Works as a sanitary inspection assistant at a Kaposvár Meat Factory. The household includes six., He has a younger sister and the mother's parents live with them. He has a computer at home, which he handles at an advanced level. The family is better off than the average. Tthe parents do various jobs apart from their main employment. Not only their house is centrally located, but also nearly all the members of the family play an active role in the village life.

I1: 31-year-old college graduate, water conservancy engineer at the Kaposvár Waterworks. Lives with his wife and parents. Generally respected in the village, he is a member of the local government. Beginner in computing. The family is known for their diligence, also doing farming and breeding animals and creating a good financial status.

Outcomes

We asked the participants to keep a simplified start/stop record and a diary about those who visited them in connection with computer use and to agree to the computer's keeping a record. We contacted them by e-mail several times (but it didn't work smoothly as some didn't check on their mail regularly). We also visited them and recorded their experience on tape and video during our interviews. The system operator of the CTC was in charge of the maintenance of the computers and Internet connections, the solution of the technical problems, and a colleague involved in the project also gave help several times. Below we sum up what happened to the participants during the experiment individually, what general experiences can be

inferred concerning the learning of the computer/Internet, and what secondary social impacts could be identified.

A1 took part in the course; we installed a computer and Internet access in his home. His only relative, his foster mother died. His bad behaviour in his area of public responsibility (like neglecting his duties, being impudent and arrogant with others) strained his relations with the village elders. He spent almost all his time at the computer. It helped him overcome his grief, he said. Despite a low level of schooling, he is sharp-witted, knowledgeable, and reads a lot. He chatted a lot, copied CDs for his friends in the village, who, however, failed to get the knack of IT. He did not observe the time limits of Internet use, frequently exceeded the costs, displaying signs of Internet addiction. He plans to buy a second-hand computer. He developed a large circle of virtual acquaintances and initiated relationships with three partners. His position within the village worsened instead of improving, he behaved indecently when drunk, offending many. In interviews and talks several people remarked that he was unworthy of the support the project gave him.

B1 also attended the course. He had a computer at home, so only the Internet access was installed in his home.

Pensioned off because of his heart operation, he regularly goes for health test. He showed keen interest at home and at the course, searching for possible telework on the net, without success. Someone in the family generated a high telephone bill of tens of thousands of forints (approximately three hundred USA dollars) through a dialer settled unwittingly on their computer, and that disheartened them somewhat. His interpersonal relationhips did not change substantially. Some of his diligent and sharp friends regarded IT as useless and their opinion did not change in the course of the experiment.

C1 took part in both the beginner and the advanced courses. After the course they bought an old computer, but it was so outdated, that we installed a computer and Internet access in her household.

She took a job as a cleaning woman and nurse in a pensioners' home in the neighboring village. Her search for a job on the net was half-hearted and unsuccessful. The husband was more often at the computer, downloading stories for their daughter. They would like to buy a computer. They hoped to get the computer they used during the project at a reduced price. Their social position and network of relations did not change, but the orientation of their demands shifted towards IT. The presence of IT is moderate in their circle of acquaintances.

D1 took part in the course. We installed a computer in her home. She took up a job - not through her computer knowledge -, though her illness makes work hard for her. Her daughter in secondary school is making a competitive school paper, the school record of her son in primary dropped ,he narrowly missed failing. The husband objected to the Internet, which was also impossible because of their arrears in telephone bills. The daughter used the computer and sometimes the CTC for her studies. The son became a computer addict, purchased a second-hand PC, but he was probably duped. Since they are immigrants, their relations are restricted to the neighbors. The husband sometimes pops up in the pub, her daughter is said to be uppish, the son to have a screw loose. Nevertheless, very many children (the boy's friends) turned up at the house, mainly for computer games.

E1 did not take part in the course as he knows the computer and learns it at the informatics secondary school. He had a PC at home, so the Internet access was installed. His relationship with his foster father is steady but reserved. The use of Internet had no significant inpact. His brother and mother sometimes used the computers but their social relations did not change. He often sat with the son of the CTC director together by the computer. His contact is intensive with him and with a university student also using the computer.

F1 didn't have to participate in the course, but the Internet was made available to him. In the meantime, his grave spinal condition put him on sick leave. As a skilled worker, he was the most competent and intense user of the net. He looked up the university homepage, communicated on e-mail and lent help and advice to many. The children of nursery and primary school age as well as his wife were allowed to use the computer in his presence. His social esteem and network of

relations did not change. When invited to the Bible circle by G1, they refused because they thought little of some of the participants.

G1 the forestry officer has used the computer and the net for over 10 years, since her university studies; she had a computer but no Internet access. She was visited by friends and acquaintances. She mostly hitchhikes, sometimes drops in at the pub. She organized a Bible-reading circle, with a crippled Romani woman and her son, and an alcoholic couple as the constant members. She's been looking for a job from the beginning of the project, mainly on the net. She was about to spend a year on a polar observation station as a volunteer when she found a post at the other end of the country, in the Miskolc forestry. After her interview there she was employed. She did not sell her house in Cserénfa, her dog is cared for by the neighbor, B1's mother. Her mail is sent after her by a reading-circle member. In her search for a partner on the net, she corresponded with several people and finally got acquainted with a young Transylvanian engineer currently doing his military service, and the relationship might be lasting. Her network of relations is extremely extensive, which did not change significantly by having access to the net at home. It was a negative experience that in her absence she let a young villager use her computer, who visited porno pages and made an enormous telephone bill. First he promised to pay it, then he refused.

H1 young rock and heavy metal fan also interested in eastern fighting sports, and learns drawing. He was also drawing in a tattooing salon, and plans to do portraits at the Balaton in the summer where his family owns a cottage. He has used the net for a long time and also met his girlfriend who live in a nearby settlement by chatting on the net. He didn't take part in the course. The Internet access was installed in his home. He and his younger sister use the computer. His social status or network of relations did not change much by accessing the net from home. The use of the Internet is self-explanatory in his circle of friends of similar interests recruited mainly from the Kaposvár district.

I1 took part in the beginner course. We gave him a PC and Internet access. Since his father suffered a lasting injury while transporting a machine, he has managed the bulk of the family farming business, as well. He works much and is on the village board. He plans to build a house and live separately from his parents. After an advertisement on the net, they purchased a good-quality second-hand tractor at an auction, and he is informed of other possibilities. He mainly used the computer to show it to young relatives visiting from Kaposvár. In his circle of references, there are some who plainly object to the computer. I1 uses the net mainly to extend his resources, but he has not been able to fully exploit its potential.

Table 1: Balance of course participation and installations

Code	Participation in courses	PC installed	Internet installed
A1	Yes	Yes	Yes
B1	Yes	No	Yes
C1	Yes	Yes	Yes
D1	Yes	Yes	No
E1	No	No	Yes
F1	No	No	Yes
G1	No	No	Yes
H1	No	No	Yes
I1	Yes	Yes	Yes

Source: own data collection

Despite the short period of investigation, negative events numbered conspicuously high in the families: in two-thirds there were grave illnesses, accidents or death. On the other side, one-third found employment - independently of the project -, and one-third found partners through the Internet. The participants' knowledge of the computer and Internet increased, but the dissemination of this knowledge had limited penetrating force. It mainly attracted the children and young people, besides the person who had already had considerable knowledge and was ready to give advice to others. As for social impacts, there was no convincing evidence in half of the cases, while in the rest there was weak positive or mixed influence. In one case its effect within the local society was clearly negative, and it is not certain that the virtual relationships can compensate for it.

Computer- or Internet-related visits were especially numerous and intensive at those (F1, B1) who were already the spokesmen of certain circles, and in one case (D1) the frequency of the visits of the friends of the boy was high. The majority of visitors were children, mostly boys. The adult visitors were mainly friends and relatives, in part continuing the former visits (B1, A1). The intensity of visits widely varied, as some families were extremely open, others were closed.

Table 2: Number of visitors for the participants at the beginning of the project (October-November 2003)

	Total number of visitors	Relatives	Friends	Neighbors	Colleagues, classmates, acquaintances	Participants
A1	7	-	3	4		
B1	6	2	3	1		
C1	2		2			
D1	9	3	3	2	1	
E1	2		1	1		
F1	8	2	3	2		3
G1	4			3	1	
H1	-					
I1	2	2				
Total	33	7	12	9	2	3

Source: own data collection

Visits were intense at the beginning and fewer and rarer later. It cannot be expected therefore that the computer or Internet access would boost the number of primary relations and visits lastingly. While friends and neighbors were predominant among visitors at the beginning, their interest dwindled more than the average later. As a result, intercommunication between the participants grew towards the end of the period. Several participants visited F1 from the beginning, motivated chiefly by the technical problems and requests advice. Some one-fifth of the visitors were not villagers but relatives, friends or acquaintances from outside the village.

Table 3: Number of visitors for the participants at the end of the project (March-May 2004)

	Total number of visitors	Relatives	Friends	Neighbors	Colleagues, classmates, acquaintances	Participants
A1	-					
B1	2	1	1			
C1	2	1	1			
D1	7		3	3	1	
E1	1		1			
F1	5		1	1		3
G1	-					
H1	2	2				
I1	1	1				
All-together	20	5	7	4	1	3

Source: own data collection

The participants spent some one-seventh of their waking time with the computer or on the net, which is more than the time spent watching TV or listening to the radio. This kind of leisure-time activity, especially the games, was often a social event.

The number of visitors for the CTC dropped at the beginning of the experiment. The home computers seemed to replace it, but later the turnover data became more balanced when in the last months of the project technical problems arose concerning the Internet access at home. Still, the attendance of the CTC did not come up to half the attendance after the opening. The time devoted to the computers, especially the Internet, decreased even more drastically.

Table 4: CTC-statistics (May 2003-May 2004)

Month	Internet (min.)	Using computers (min.)	Printing (page)	Photocopying (page)	Fax (page)	Attendance (persons)
May	2711	2625	8	1	0	78
June	2117	1076	15	0	0	65
July	3816	2281	45	0	1	70
August	791	457	2	23	3	25
September	2734	2222	2	14	2	68
October (Beginning of the experiment)	1313	998	8	89	3	49
November	227	5	9	29	2	11
December	118	10	5	32	2	10
January	175	50	0	33	2	7
February	3	0	0	6	1	3
March	184	766	0	42	0	24
April	261	1616	0	0	0	30
May (End of experiment)	83	50	2	16	1	9

Source: Compiled by the leader of the Cserénfa CTC

Socially, the computer and Internet can be used for activities from recreation to acquisition of information and the extension of access to resources (DiMaggio, Hargittai, Celeste, & Shafer, 2004). Recreation activities include games, music, entertainment and movies; the acquisition of information may range from browsing, using the e-mail and chatting, while the expansion of resources may include learning, target-directed search, looking for jobs and telework. The categories may somewhat overlap, but the main difference is that concerning the goals, one group basically serves recreation, the other serves the enlargement of knowledge and solution of problems. By this categorization, both the participants and the visitors of the CTC primarily went in for recreation, first of all games and entertainment as well as listening to music. Such activities were somewhat more marked in the CTC than in the homes, because the CTC is mainly visited by children and young people. Certainly, the computers of the project participants had an ever-greater appeal to children among the visitors. However, in the intense phase of the project (October 2003-March 2004) the number of visitors did not exceed one a month and that of visits was not more than one a week, and most participants were adults. It is of course decisive who are the participants and the chief users within the family. Information gathering, chatting and e-mailing are around the mean but slightly more frequent in the CTC, while resource-expanding activities are more characteristic in the homes than in the CTC. This can be attributed to the fact again that there was a higher rate of adults among the participants of the experiments, more interested in getting jobs, partners (learning, though present, is represented with low intensity in the list of activities). At first sight, one might find that network-based home computers are more favorable for computerized resource expansion. However, this advantage can be recompensed if the CTCs take pains to involve the elder generations (organizing programs for the pensioners, adults, fixing time zones for different generations). Both information accumulation and

resource enlargement were more typical of people with advanced computer knowledge and higher education.

Table 5: Weight of computer activity in each participant's use

	Recreation			*Information accumulation*			*Resource expansion*		
	Games	Music, writing CDs	Film, enter-tainment	Browsing surfing	Chatting	e-mail	Learning	Targeted search, looking for partner, arranging matters, shopping	Telework, looking for a job
A1	+++	+++	++	+	+++	+	+	+++	-
B1	+	++	-	-	-	-	+	-	++
C1	++	+	+	++	-	+	+	-	++
D1	+++	+++	-	-	-	-	+	-	-
E1	+++	+++	++	++	+++	+	++	+	-
F1	++	++	+++	+++	+	++	++	+++	+++
G1	+	+	+++	+	+	+++	++	+++	+++
H1	++	++	+++	+	+++	+++	+	+++	*
I1	-	-	+	+	-	+	++	+++	+
CTC	+++	+++	++	++	++	+	+	+	+

Source: own data collection

Legend: +++ very typical
++ typical
+ noticeable
- not typical
* no information

What we actually have here as recreation, information gathering and resource extension are various types of a group of activities rather than contrasted phenomena that mutually exclude each other. Telework, learning and getting informed were little, if at all, present in the participants' activity. A middle-aged woman who completed the course received a job partly owing to her acquaintance with the computer. Another three female participants got jobs during the half-year period of the project, but they did not arrange it on the Internet but in person and computer knowledge did not count. A family member used the computer and the Internet to write a final thesis for the school. The majority, however, listened to music and downloaded games, and learnt to use the CD writer. Browsing characterized the participants who had been looking around on the Internet earlier, too, and e-mailing did not become popular. Thus, the Internet activity of the participants was predominated by a bent for recreation, and not for information gathering or resource extension. The place of making acquaintances is also an interim category in our typology. Most acquaintances were of course made by chatting, but the aim was not simply to acquire information. There was also target-directed search, which considerably influenced the social resources. The self-esteem and prestige of those who found partners seemingly grew, they spontaneously and willingly talked about their partner-seeking experiences Three of the nine participants looked for and found partners on the net during the half-year experimental period. Two relationships proved lasting (G1 and H1), and one (A1), previously married, only wanted occasional partners, which he found three times.

It is remarkable that looking for partners assumed such a great importance among the possible activities, as it appears to offer a solution to an urgent demand among young adults of small settlements. The spread of partner-seeking was just a bit short of that of recreative activities.

Side-effects had also to be reckoned with: suspected net-addiction (two cases), large telephone bills due to ignorance and the frustration and interpersonal tensions it entails (two cases), envy and the deterioration of one's social position in the village (one case).

Our expectations concerning the search for jobs and telework were not verified. Though several people tried to find telework, they failed, and only an intellectual who could read foreign language offers would have found a job. This service in Hungarian is inadequately structured and ill adjusted to the needs of the potential job seekers. Several participants got employed during the project period, but they did not learn about their new workplaces on the Internet and computer competence was an advantage in the case of only one candidate. The participants would gladly do telework (but found none) and would be ready to work somewhere near if commuting did not rob too much of their time from the family and if the travel costs were not too high. A regular service about vacancies in the small districts and the readiness of the labor center/employer to pay the travel costs would certainly promote success in searching for jobs in the labor market..

Information and application possibilities concerning entrepreneurship and village tourism are similarly inadequate. For a beginner in the field information is unattainable, while most information that could be had was insipid or unintelligible.

The only area where target-directed search was successful was looking for partners, and searching for sales, auctions also cropped up.

The effectiveness of searching for web pages heavily depended on user routine, language knowledge and level of education. The intensively browsing but inexperienced participants have failed in some one-fifth to one-fourth of the time spent on the computer. The proportion of failing webpage visit attempts was similar. This relatively high rate may cause frustration, but can be decreased by teaching target-directed search in the courses.

Table 6: Elementary indicators of the computer-generated log file database

Code of participant	Number of webpages visited	Number of failed webpage visit attempts	% of failure
F1	6603	1310	19,84
X1(control person)	3842	968	25,20
E1	4411	1563	35,43
G1	3336	556	16,67
C1	3994	835	20,91
A1	659	164	24,89
B1	1360	455	33,46
I1	3282	754	22,97
H1	4859	670	13,79

Source: own data collection

Emergent effects, summary

As to the question of how the spread of IT has influenced communal life, interpersonal relations, confidential contacts and a sense of security for the villagers, no strong findings can be reported of. To see all the secondary social impacts of the spread of computer and Internet would require follow-up research. Although together with our earlier research over a period of three years we have ample knowledge of the field, one may only modestly hint at saying that some signs of development and consolidation can be observed in Cserénfa. This fits in with an overall tendency of the district on the one hand, and is attributable to the fact, on

the other, that the local policy-makers are active, inventive, and ready to apply for grants. Most of this is not to be ascribed to the direct or indirect impacts of IT. But conversely, the positive attitude of key actors of the settlement toward IT might have a direct impact on digital literacy and spread of IT.

Table 7: Impacts of the experiment and what happened

	What happened?	IT- learning, radiating influence	Social impacts
A1	--- + -	+ -	--- +
B1	--	-	*
C1	+ -	*	*
D1	+ - -	- ++	+ -
E1	*	++	*
F1	--	+++	*
G1	++	++	++ -
H1	*	+	+
I1	- +	*	*

Source: own data collection

Legend: + positive happening/effect (strong:+++, medium:++, weak:+)

- negative happening/effect (strong:---, medium:--, weak:-)

* no information/effect

The events in the lives of the participants are little related to the experiment and the public life of the village, as they are more concerned with health, work, making a living and interpersonal relations. They are still mentioned here because these events constitute the background to the spread of IT and have an influence on it. The balance of personal events was neutral for most participants and negative for about a third, thus in sum the weight of negative events was larger than that of the positive ones. At the beginning of the project, the village leaders and the participants in the focus group declared that although the situation was better in the village than in the town, villagers had also become reserved, mistrustful, disinterested in the common good, dissatisfied, and unprepared to help. This mood did not change much to the end of the project. What we may venture to contend is that by the end of the project IT knowledge and aspirations increased. There were negative side effects, but the balance is on the whole positive. Our assumption that the spread of information technology would exert a strong influence on the evaluation of life chances cannot be verified in view of all the emergent effects. It applies only to the dispositions and opinions concerning IT itself. People got informed and more open toward this kind of technological changes

The three elements - course, CTC and network-based spread - both collectively and individually may have contributed to information accumulation, the extension of knowledge, relations and resources. One of our experiences is however, that during teaching computer and Internet use, attention should be called to valuable contents to be reached on the net.

Taking only the CTC and the deployed computers and net into consideration, one finds that the balance was more or less even during the experiment. Since the fluctuation of turnover suggests that both variants

satisfy the same potential demand, they are not expedient to be applied at the same time in a small settlement or residential area. Wherever a community can maintain a CTC a time schedule by age groups and preferential access for marginal people might be useful. Where there are no such conditions, individual applications for Internet access could be applied under clear-cut terms (reception of visitors, financial discipline, etc.). Both solutions are, however, grounded by computer courses for adults at reasonable prices, in order to reduce the digital gap between generations, income groups, and educational levels.

Table 8: Balance of the CTC and deployment

	CTC	Deployment	Balance
Acquisition of computer, software	yes	yes	CTC
Internet subscription	once	several times	CTC
Need for building	yes	no	Deployment
Pay of director	yes	no	Deployment
Pay of system operator	Once	Several times	CTC
Access to computer (person/computer)	8	9	-
Access to computer (occasion/computer)	29	30+	Deployment
Internet access (person/line)	32	9	CTC
Internet access (occasion/line)	117	180	Deployment
Access	Fixed	Flexible	Deployment
Expert advice, servicing	Standard	Occasional	CTC
Total of accesses (occasions) of the handicapped (total of those above 60, below subsistence level, Roma)	14	23	Deployment

Source: own data collection

The last table indicates that both CTCs and deployment actions may have functions in small settlements.. Their advantages and disadvantages are more or less balanced. For network-based dissemination, according to our experiences the deployment of computers has less importance now. However providing access to the Internet by tendering at places where there is not CTC or other Internet port might be useful. A project like this could be especially attractive for marginalized people and they may prove to be devoted participants. Careful monitoring and involvement of local key actors in distributive decisions may help to avoid negative side effects of conflicts and further marginalization in local society.

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