Published in R. Joiner, K. Littleton, D. Faulkner & D. Miel (Eds.),
Rethinking collaborative learning (pp. 229-247), 2000
which should be used for any reference to this work

Collaborating and learning in a project of regional development supported by new information and communication technologies

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[1]This research could take place thanks to the subsidy no. 500479 as part of the Priority Program "Switzerland tomorrow" of the Swiss National Science Foundation at A.-N. Perret-Clermont, J.-F. Perret and L.-O. Pochon's request. We thank these two colleagues warmly for their contribution to the work that we present here and of which they are also in part authors.

4.1 Introduction[2]

Research in education if it wants to offer some means for efficiency in the field requires a double commitment: first to the understanding of the psychological processes that mediate learning and teaching and that allow for the appropriation by the individuals of new skills and knowledge; and second to the "nesting" of these processes in the complexity of the historical events in which the educational endeavour takes place and in which the learners but also the wider society have stakes and from which learning gets its meaning. This latter reality is not a just a "context" for the learning nor just the "background" of the scene on which the didactic action takes place: it is the scene itself in which the social actors come to negotiate their offers and their needs, learning being one among others. Learning is not always an aim per se, it is very often a mediational activity toward other goals. What are these other needs? And to what extend do they sustain or impeach learning, or more precisely the learning of what the teacher or the programme try to transmit?

Methodologically a double approach is needed to deal with these questions in a continuous back and forth movement from the field to the laboratory. If the laboratory is seen as "manufactory" of intellectual "lenses", and the field as the place were the newly made lenses are tested, the back and forth movement between these two areas can be an opportunity to both ameliorate the lenses (or identify the need for other types of lenses) and deepen the understanding of the educational enterprise under scrutiny.

It is with these types of questions and scopes that our research group accepted an invitation extended by the promoters of the Poschiavo Project to observe their launching of an experience of adult education intended to teach both human ecology and new technologies of information and communication to linguistically and geographically isolated inhabitants of an Alpine valley[3]. We will not present here the whole Pochiavo Project nor the entire monographic study carried out to document this experience, via participant observations, study of the archives, transcriptions of video-

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[2] We warmly thank R. Joiner for his comments and helpfull reading of this chapter and M. Dubois for her help for the translation work.

[3]Our gratitude goes to the Poschiavo Project Foundation, the Istituto Svizzero di Pedagogia per la Formazione Professionale (ISPFP, Lugano), D. Schürch, who is the promoter of the project and the director of the ISPFP Lugano, his colleagues, as well as the inhabitants of the Poschiavo valley, and more particularly Danilo Nussio, for their invitation to join them on the field and share with them its social (and technical!) as well as intellectual life. The observations and reflections that are presented here, for which we alone take responsibility, would not have been possible without their partnership.

registrations of important decision-making meetings, interviews, etc. In this chapter we will concentrate on the main hypothesis i.e. that the nature of the collaboration that gets established more or less suitably between the teachers and the learners plays a crucial role in the success of the endeavour. Laboratory studies were sustaining us with good reasons to make this hypothesis and encouraged the promoters' actions in investing efforts on this line. But the confrontation with the reality of the field has made us and the actors of the Poschiavo project even more aware of the crucial importance of this factor . It has the promoters of the experience to an in-depth reconsideration of what being a "teacher" or a "learner" meant on such a scene and to radically change of their project.

This is the story that we will tell in this chapter as an opportunity to reflect on the use and meaning of "collaboration" in such a project. Our approach is a qualitative monographic description of some of the psychosocial processes at work. The description is informed by laboratory work but is not so much aiming at establishing facts as at developing theoretical means to understand a little better the complexity of the negotiation between those who want to teach and those who want to gain the experts' knowledge.

4.1.1. Collaboration and new technology in education

In general, new technologies are part of educational programmes offered by various institutions (e.g. primary schools, secondary schools, universities, but also businesses). In order to understand what happens in terms of learning, we have to consider the situation as a whole and examine how the meanings it has for the different actors are shared. From this perspective, we can then analyse the actual processes observed in the field.

From a social constructivist perspective the success of an education and learning activity is linked with the psychosocial processes of collaboration that underlie it (Joiner, 1999 ; Van der Linden et al., in press). For many years, numerous studies (Brown et al., 1989 ; Carugati, 1990; Elbers, 1991 ; Foot et al., 1994 ; Lave & Wenger, 1993 ; Light & Butterworth, 1992 ; Light & Perret-Clermont, 1998; Perret, 1985; Perret-Clermont & Schubauer-Leoni, 1989; Resnick et al., 1991 ; Säljö & Wyndhamn, 1993 ; Sirota, 1988 ; Woods, 1980; Woods, 1990) have shown that the subjects who are

involved in an educational task interpret it. These interpretations concern the situation, the objectives, the tasks, the status or the partners. They are linked with the respective expectations and representations of the individuals (Gilly, 1992) and they effect the learning of individuals (Grossen, 1989; Liengme Bessire & al., 1994).

It has been observed that in learning activity participants have to share the definition of the situation to be successful. According to that, the individual is going to develop various ways of "inhabiting the situation", which not only concern the strategies of resolution of a task but also social strategies of communication (Engeström & Middleton, 1996 ; Mercer, 1995).

Process-oriented studies (Baker, 1995; Dillenbourg et al., 1996; Fonzi & Smorti, 1994 ; Light et al., 1994 ; Marro Clément, 1997; Marro Clément, 1999 ; Slavin, 1992) have shown the great diversity of the processes at work in joint activity towards a mutual goal. These processes of collaboration and negotiation apply to the distribution of the work between the peers (task and role), the verbalisations regarding the various ways of resolving a task, the resolution of sociocognitive conflicts, etc. Are the processes of collaboration of the same nature in educational programmes involving new technologies? Does the presence of technological tools influence the relationship to knowledge or interpersonal relations? What is the role of the mediators in the teacher-learner relationship and in the fulfilment of the activities?

Studies which analyse more particularly situations of collaborative learning mediated by computer or situations of distance education give interesting answers to these questions. Perriault (1996) described the nature of distance education in terms of its historical and institutional aspects and of its goals. His approach shows the influence of these various aspects on the activities of the learners and on their attitudes towards the information and communication technology (ICT).

The nature of students' attitudes in learning contexts involving new technologies has also come under scrutiny. For example, De Grada and colleagues (1987), who conducted comparative studies of the attitudes of computers among Italian high school students in the classical, scientific and technical branches; Galli's (1988) study of young adults' attitudes towards new technology in Italian-speaking Switzerland; and the observations of Schubauer (1989) of the kinds of attitudes developers, teachers and pupils are likely to have of mathematics software. Whether they are really or virtually present, each of the partners (promoter, user, tutor) sees the technological tool

according to his/her representations of its role in the planned activity. When a user is in such a context, she/he is not only confronted with a new technology but also with the logic, attitudes, and expectations of other individuals (Perriault, 1989; Grossen & Pochon, 1988).

Other research studies have been concerned with specific features of this educational context. In particular, studies have focused on computer-mediated social interaction (see for example the experiments documented by Cohen, 1995); on changing expectations on the part of new consumers of distance education (Perriault, 1991, 1993); and on changes in interpersonal relations and educational practice accompanying the introduction of new communication tools into the educational process, tools such as the fax (Dudezert-Delbreil, 1994), the videoconference (Duchaine & Bellet, 1994), the videophone (de Fornel, 1992) and the minitel (Toussaint, 1992). Other interesting studies have been conducted, at the crossroads between psychology and anthropology, on the "ecological nest" of technical tools and on the way they are used, often for purposes other than those intended (Perriault, 1989; and the studies presented in Chambat, 1992), opening the way for a psychology of the user. The technological tool mediatizes the relationship between users and promoters and is transformed through the interactions.

There is a lot of evidence that the individuals in presence (teacher and learners) develop competencies and acquire knowledge through a continual work of adjustment and sharing of meanings (Adams et al., 1990; Carugati & Perret-Clermont, 1999 ; Cestari, 1997 ; Edwards & Mercer, 1989 ; Mercer, 1997 ; Perret & Wirthner, 1991 ; Pontecorvo, 1993 ; Renshaw & Brown, 1997 ; Schubauer-Leoni, 1986 ; Schubauer-Leoni et al., 1992). This collaborative activity is worked out as the interaction proceeds, but also according to individuals' previous experiences. Can such processes be observed in an educational programme like the Poschiavo Project too ?

4.1.2. Collaboration in a specific educational programme

The question of collaborative learning in an educational programme supported by new technologies is seen in this chapter at two levels. At the first level we want to study processes of negotiation that took place between the project team and all the users when the latter were confronted with the constraints of the ICT based programme that

they were being offered. At the second level we analyse the collaboration between adult learners and the evolution of their attitude towards ICT and training.

4.1.2.1 The Negotiation between the Project Team and the User groups

When we arrived in the field, we realised that we could not straightaway analyse the education processes and the role of new technologies in terms of their impact on learning or on interpersonal relations. Indeed, we were dealing with groups of adults whose interests and expectations regarding new technologies or the educational programme as a whole were quite different from the project teams'. The processes of negotiation between the project team and the user groups, considered in their economic, political and social context, had to be considered first and foremost.

As in our other recent field studies (Garduno Rubio, 1998; Golay Schilter et al., 1999; Muller & Perret-Clermont 1999; Perret & Perret-Clermont in preparation), before focusing on the learners' psychology, we first had to examine the wider context. In this situation of education integrating ICT and concerning a population of adults, what will be the characteristics of this encounter between project team (teachers) and the users (learners)? What do their respective adjustments teach us? What are the conditions for the success of such an enterprise? We chose to analyse the first moment of the encounter between this educational programme and the users since it allows us to observe a group of processes which are crucial to the understanding of the subsequent issues and dynamics of collaboration and learning: the dynamics between the goal directed activity of the learners and their learning of new technology of information and communication.

4.1.2.2. The observation of the adult learners' attitude towards ICT and training

The second objective was to understand the evolution of the user groups attitudes to ITC and training of the inhabitants of the valleys (adults who do not necessarily correspond to the usual learners of classic education studies) between their initial encounter with the Poschiavo Project and the realisation of its objectives.

The dynamics of learning and education takes place in a field where cognitive processes (reasoning, acquisition, application of new knowledge, transmission of knowledge, etc.) and social processes (sense of belonging to a group, interactive processes, intersubjectivity, etc.) are closely intertwined. The learners, all the more as

they were adults, developed a wide range of competencies. The education concerns these various competencies but some of which could not be envisaged at start by the project team. The training offer may change through the contact with the users. We put forward the hypothesis that the concerned individuals constructed together, but also probably individually, different types of activity in order to realise their goals. Do these activities require the acquisition of competencies that had not been planned initially? Are they claimed to be education activities from the actors' point of view? What is the role of technology?

4.2 Implementing an ICT based distance education program and facing the reactions of the users: a new type of social encounter for both sides

In the Poschiavo Project, the project team was quickly confronted with the needs of the population. Although the consideration of the users groups' reactions and needs was a major component of the pedagogic model advocated by the project team, it went far beyond a mere adjustment of viewpoints. This confrontation and its consequences are interesting from the angle of social psychology of knowledge dissemination and collaborative learning in a context of education integrating new technologies.

In order to understand the transformation of the Poschiavo Project, we took part in a series of activities. For example we participated in twenty meetings where the learners who presented themselves as members of the regional, economic, cultural, or welfare projects and the teachers (who were members of the project team and were to become responsible for the supervision and follow-up of these projects) were gathered. The history of the project, its social and institutional insertion and its support network are also important to know in order to understand its development and the expectations of learners and other social actors of the concerned valleys. Therefore, we analysed the available sources: written documents of varied nature, audio-visual documents, articles published in the press.

4.2.1. The Poschiavo Project as it had been initially planned

The name of Poschiavo came to mean “group of Italian-speaking valleys of the canton of Graubünden that is distant from the administrative, linguistic and cultural centres of Switzerland”.

The Poschiavo Project was initiated by D. Schürch (Schürch, 1996 ; Schürch, 1999), director of the Istituto Svizzero di Pedagogia per la Formazione Professionale (ISPFP) of Lugano. This Institute, is responsible for the training of teachers for the professional schools of Ticino, the Italian-speaking valleys of the canton of Graubünden and it works with the professional school of the Poschiavo valley. Within this collaboration, problems linked with distance, and so with the training of teachers and students, emerged. Thus, in order to overcome these problems the Institute tried to encourage communication and information exchanges between the professional schools of Lugano and Poschiavo as well as the development of joint education programmes. A working group of the Institute (called “operative group”) was set up. This group’s task was to think about the potential offered by ICT. It was set up to define the main objectives of the educational programme (which was to become the Poschaivo Project). These main objectives were: training and familiarising the population with new technologies and with the possibilities of access to information that they offer; introducing the most modern technologies in a global and coherent way in order to develop isolated regions that are far from the centres of knowledge and developing a region by making it known.

The training in the technologies was designed with the goal of achieving long term autonomy for the region, in terms of training. The plan was to first train a limited number of inhabitants of the valleys in new technologies. These people would then constitute a group of “experts” called “practice assistants”. Once trained these “practice assistants” would serve as tutors with the participating population and, in doing so, they would disseminate the technological knowledge into the valleys, and thus this region would not be dependent on Lugano for the delivery of its new technology training .

The central concept of the programme was the concept of “human ecology” which brings together the environmental, economic, social and cultural aspects of the development possibilities of a region including ICT. It's a multidisciplinary approach of relations between human and environment , between environment and technology (Del Don & Schürch, 1998). In that sense, new information and communication technologies must be available to an entire region in order to promote its development in respect with human, environmental and cultural aspects. This concept was chosen by

the operative group, which developed the idea of offering distance courses on human ecology to certain categories of the population of these valleys.

In the long term, the effects of the overall programme had to go far beyond the mere experimentation of ICT. The aim of the training programme was not only to introduce a population to new technologies through the training in human ecology, but also to create a new image of these isolated valleys, an image that combined modernity and cultural heritage. This programme, offering distance courses on human ecology, was then presented to the authorities and to the people in charge of the professional teacher training in the valleys.

4.2.2. From confrontation to co-construction

From the first consultations onwards, the potential users showed a definite interest in the project, which they comprehended in terms of their specific socio-economic history. In accordance with the dynamics that already existed within the communities of the valleys, the idea of a possible opening up through ICT was adopted from the outset. Indeed, despite the actual geographical and linguistic[4] barriers, it transpires (history and facts show it) that the inhabitants did not await the advent of new technologies to establish links with the outside world and preserve their cultural heritage. Seen from the outside, for example, Poschiavo gives the impression of already adapting to new technological developments. It can be observed in the types of local shops: hi-fi equipment and electronics, upmarket watchmaker's or organic food. In addition to that, the inhabitants claimed an ecological, cultural and community life consciousness that did not exactly correspond to the gaps assumed by the designers of the project.

The project team had to adapt their initial proposal (distance courses of human ecology) by taking the population's suggestions into account. The inhabitants wished to use the benefits of the new technologies to support what was already established in the different sectors of the community (economy, education, culture and tourist industry). These negotiations led to the creation of another distance education programme, in which human and technical resources of the Poschiavo Project were at the service of the creation of regional development projects (Project Groups) that were conducted by the

[4] The administrative language of the other Alpine valleys are not Italian but Rumantsch or German.

inhabitants themselves. The Poschiavo Project provided the infrastructure from which it was possible to realise many different projects. In that sense, the Poschiavo Project became the "house" of many Project Groups (PG). This was a complete change to the initial programme.

The new programme was designed to be achieved in a number of stages. During the first stage of the project, the project team, based in Lugano, was in charge of training the 13 practice assistants responsible for the PGs (for more details see Johnson & Schürch, 1995). The inhabitants of the valleys were then invited to make project tenders. According to a certain number of criteria defined in terms of principles of human ecology, various projects were selected by the operative group to take part in the project and benefit from the human and technological resources that were made available by the programme. The second stage of the project was the realisation, through networking, of the objectives of the various PGs. In addition to their specific goals, the PGs had to develop a web sites that would be a part of the main web site of the Poschiavo Project[5]. The third stage of the Poschiavo Project, which was still under way at the time of publication of this chapter, was aimed at continuing the activation of the distance contact network and at allowing the inhabitants of the different valleys to become independent of the infrastructure offered by the project team.

From this invitation to tender, 21 PGs (about 120 people), distributed in various sectors of activity, were accepted. Each PGs developed a specific program of activity and had at its disposal people (the practice assistants and the members of the operative group) with distinct and complementary knowledge and skills.

4.2.3. A model of education with ICT closely linked with the reality of a community: a new form of collaboration

As a consequence, the model resulting from the collaboration between Lugano and those remote valleys of Eastern Switzerland was not a model of distance education in the classic sense of the word. This was no longer a top down offer of education from a group of teachers to a group of learners. The user groups did not so much wish to receive a general training in new education and communication technologies but they wanted scientific and technical support for the shaping and realisation of development

[5]The address of the site of the Poschivo Project is as follows: http://www.progetto-poschiavo.

projects that concerned the community. The Poschiavo inhabitants' demanded a network of activities, that were initiated by the users, in a bottom-up fashion.

We could observe the creation of a negotiation that resulted in rethinking the initial educational model. This creation was made possible, on the one hand, by the promoters' desire to develop a concept of distance education closely linked with a human, economic and social reality and, on the other, by the user groups' expression of a number of needs relating to technology and to the development of their community. Thus, the framework of the Poschiavo Project, as it had been initially designed, was considerably modified, more radically, than could have been predicted from our reading of the literature. From a relatively fixed framework it turned into a framework that was specific and "structured" enough to allow the promoters to help/support/train the inhabitants, but was also "flexible" enough to enable each group of users to exploit it in its own way. The roles and the tasks were redefined: the task, initially defined as the possibility of taking a distance course in human ecology, turned into a task of realising a project with the help of ICT; the "learners" turned into "entrepreneurs" (in the sense of Aumont & Mesnier, 1992) and the "tutors" into "coaches".

This phase of transformation of the Poschiavo Project was the story of a negotiation between an "education offer" and the inhabitants' needs. This negotiation led to a departure from a classic distance education model to a more support model for the users actively engaged in an endogenous economic, cultural, social and technological developments. Insofar as we were interested in collaborative learning and in the use of ICT in different educational contexts, the psychosocial processes of negotiation observed at this initial stage showed us the importance of the characteristics and potentialities of the field in accepting an education programme and in allowing technology to find its "nest" ("nest" in the sense defined by Perriault, 1989). And, reciprocally, it alerted us to the active role of the learners who, in the programme, look where to "nestle" in order to achieve their objectives. This new form of collaboration between the learners and the teachers is essentially based on the opportunity for the both actors to co-construct a learning situation which satisfies theirs expectations and theirs needs. The processes of negotiation and of reinterpretation led, insofar as the different partners were aware of them, to modifications of the interaction framework and, so, of the activities that will take place in it.

4.3 Adult learners' attitudes towards ICT and training: their determination by ongoing activities within the community

During the realisation of the activities planned by the PGs, we could observe a richness and an amazing complexity in the diversity of the functioning of these PGs, the established communication networks, the use of the resources offered by the device, the acquired competencies in terms of mastering the technologies, etc. What can be learnt about all the elements of this complexity? We will describe here some processes that could be observed

- learning to collaborate and supervise a project,
- learning to surround oneself with competent people,
- learning to use ICT.

To observe the development of these projects and how they were integrating the technological training demand, we carried out twenty-four interviews (eight PGs at three different moments of the realisation processes) of project actors during the different phases of realisation and this in the different areas of the Poschiavo Project: culture, economy and tourist industry, training and administration. The results of these, together with other information (gathered from participants in all official meetings, analyses of official documents or video-conferences of the different meetings), permitted the writing up of various monographs describing the experiences of each PG, paying particular attention to the dynamics between the goal directed activity of the PG and their learning of new technologies of communication and information.

4.3.1. The various Project Groups

We notice that participation in the Poschiavo Project led to the development of very different skills because of the diversity of the PGs. Let us illustrate this diversity by presenting a few representative projects.

PG 1: Poschiavo-Una Vallata Alpina and the making of a book

The PG1 was made up of four people. Its aim was to publish a book about the valley, using photographs of everyday life and selected texts. In addition to the "paper"

version of the book, the participants planned to make a compact disk version of the material.

PG 2: Economia on Line and the marketing of local products

PG2 was made up of four people. Its main objective was to develop an internet site, with the cooperation of an association of shopkeepers to sell typical products of the valley.

PG 3: Informazione, aggiornamento e consulenza a distanza in ambito sanitario : continuing education of doctors and nurses

PG4 was made up of five people (doctors, nurses and the administrator of the hospital). It was in charge of the organisation of the training and the continual professional development of all the employees in the hospital. Its main objective was to organise videoconferences for the continuing professional development of doctors and nurses in this institution.

PG 4: Il centro artiganale preindustriale: Dal punt da la Rasiga in Aino : restoring a mill

PG4 was made up of 4 participants. The main objective of this group, , was to restore a pre-industrial craft centre, in order to safeguard an historical and architectural "jewel" of the region. Besides the technical part of the renovation, the group intended to investigate the historical, technical, anthropological and didactic aspects of this site. The information gained from this investigation would enhance the experience visiting the site and it would also be published on a website so people could visit the site virtually.

PG 5: Biblioteca: Una finestra sul mondo : management in a library

PG5, made up of five people who all work at the library of Poschiavo, pursues different goals with a view of openness to the world thanks to new technologies. It's main objective is to use new technologies to manage their activities, to be in contact with other libraries through networking and to organise activities within the school.

4.3.2. What do these cases-studies reveal ? a process of enhancing learning via entrepreneurship

4.3.2.1. Learning to collaborate and supervise a project

At the beginning of the Poschiavo Project, the PG differed from each other according to whether they existed already as a group, which was then grafted onto the Poschiavo Project, or whether they were formed on the occasion of the invitation to tender, in order to benefit from the support offered.

The first type of PG had already developed methods of working: the members knew each other and they already had experience of various forms of communication and collaboration before the implementation of the education programme. Their attitude was thus one of revision and/or improvement of these skills within the "possibilities and constraints" imposed by the new framework. We notice, for example, that the PG1 *Una Vallata Alpina*, which was a group that had been established before the programme, made the most of the opportunity offered by the general programme.

> *" probably, we are in a somewhat particular situation... our project began before the beginning of the Poschiavo Project... it started differently... if we had to start from scratch, with the real Poschiavo Project, I imagine that it would be very different from what it is now... "* [6]

They used it as a motivating framework (meeting deadlines for example), and to solve a number of communication problems linked with distance. The participants also saw in it an opportunity for self-promotion.

> *" also because we saw that the Poschiavo Project was becoming known outside too… and also a new way of carrying information also promotional if we want "*

In the other PGs which were formed at the start of the programme, the participants declared that they developed a good many new skills. In the PG2 *Economia on Line* for example, the members said that they had to develop a group of new skills that were not only linked to ICT but also to the achievement of the group's objective as a whole, that was to say the sharing of the resources regarding the products, the construction of a collaborative strategy in terms of advertising and distribution, the organisation of the work and the planning of the tasks that are to be performed, etc. [7] :

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[6]These extracts are taken from the interviews that we made with the participants in the PG during the different phases of realization.

" everything started with the Poschiavo Project, before nothing of all that existed "
" it was difficult to know how to develop four goals that had to be integrated in a global project. It was discussed, we put themes and we worked them out. We had to take account of various factors such as economy, geography, ecology... it was constructed slowly, often by chance, by comparing with the others "

4.3.2.2. Learning to surround oneself with competent people

Contrary to what was envisaged in the promoters' model, some PGs did not directly take part in all the phases of their project. Whether it was at the level of specific skills or of the mastery of new technology, many PG members did not learn to master ICT but "hired" practice assistant or experts from the field for specific activities. This was a surprise to the designers of the Poschiavo Project. It was responsible for familiarising the inhabitants of the valley to ICT who, once familiarised with them, "externalised" the costs of having to learn to master them. A clever strategy indeed!

For instance, PG5 *Una finestra sul mondo* or PG1 *Una Vallata Alpina* systematically contacted the practice assistant when aspects linked with the implementation of technology and with the resolution of problems regarding the instructions coming from the project team were concerned:

" the practice assistant was the one who was most often confronted with the computer because he has been trained in ICT "
" it was our practice assistant who made the links on the web site, we just gave the text "

In addition to that, for the PG1 *Una Vallata Alpina*, the participants said that they worked in a delegation mode. The group collaborated with various specialists in the field: graphic designer, advertising executive, marketing organiser:

" Marco is our companion and colleague who lives in French-speaking Switzerland. He is...works for an advertising agency, he is experienced in the field... he met us... he will have to perform certain tasks such as dealing with... all that regards printing "
" the graphic designer developed a concept for the book and, afterwards, for the web page "

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[7]This observation ties up with those we made in other studies on dyads and small groups of young adults or of children taking part in tasks of resolution of problems (with or without computers) (Golay Schilter, D. et al., 1999; Grossen, M. et al., 1998; Marro Clément, P., 1997; Marro Clément, P., 1999)

4.3.2.3. Learning to use ICT

And what about the effect of the introduction of on the participants' attitudes to ITC? The diversity of the actors' needs with regard to the use of the network or to the work on the network (creation of web pages and/or compact disks, preparations for the videoconferences) led to very different attitudes towards new technologies. Interviews and observations revealed that the participants used ICT in different functions.

One function of ICT was covering the distance that separates the inhabitants from their potential interlocutors:

> *" … and also with the two others who are not always here... so, it is better to send the things and then to phone each other from time to time too "*
> *" … to meet, instead of phoning each other, we send an e-mail "*

Another function of ICT was "a specific tool of communication". For some PGs (PG3 *Progetto di informazione, aggiornamento e consulenza a distenza in ambito sanitario* or PG4 *Dal punt da la Rasiga in Aino*, for example), the technological tool was straightaway considered in its specificity. Thus, the individuals developed a reflection not only on the advantages and limits of technology but also on the organisation of the communicational and pedagogical content that it carried (selection of information, mastery of the hypertext, etc.), the interlocutors at whom it was aimed, and the general context in which it was integrated.

To illustrate an aspect of this function, we refer here to the videoconference experience made in the PG3. From the start, the participants developed a critical reflection on the way to integrate the videoconference, which seemed to offer a conservative educational approach that did not correspond to their usual one:

> *" I have been working at the Nursing School for six years. They changed all the methods for the courses. Now there is much group work in the school program… the videoconference would be a step backwards "*
> *" ... we should study the problems of how group works can be organised and how subtler technologies could be used in coherence with different teaching methods "*

This short example illustrates another attitude towards technology: not a constraint to adopt blindly but a communication tool whose advantages and limits must

be understood so that its use can be optimised in a specific educational context with defined goals.

4.3.3. Beyond learning and entrepreneurship: the fun of a new game?

Finally, we noticed the existence of an attitude that went beyond the specific objectives of each project. This attitude was one of attraction to the novelty and curiosity of the new technology itself, regardless of its functionality. Indeed, many participants were surprised by the possibilities of the technologies, which they tried to explore and use in a creative way. Communicating by e-mail among members of a family from a room in the house to another, using data bases to classify recipes, “surfing” on the web to find information that was necessary for a school work. These were a few examples of this type of attitude from which a range of skills develops.

4.4 By way of conclusion

In this kind of ICT educational programme project – perhaps even more so than in other educational contexts - we have explored two main challenges that the promoters ("teachers") have had to face and we have had to reflect on what can be learned about the necessary collaboration between experts and novices in such a venture.

The first main challenge concerned the negotiation of the teaching offer. We have seen that the valley, although attracted by the idea of being helped to join "modernity" via ICT (at a time when these were perceived, sometimes as a threat and sometimes as almost magic keys for the future) and in spite of having accepted the project, started by refusing the training considering that it was not adequate to their needs.

The second challenge for the teachers was to discover that adult learners are quite different from children novices. Pupils at schools are used to receive knowledge offered top down to them by acknowledged adult experts. They develop strategies to make sense of it and do their "job" of students: learn and show that they learn. But adults engaged in daily responsibilities and work, who are only part time occasional learners, have quite different attitudes towards learning. Of course sometimes they just

want to learn for the pleasure of learning, of discovering new technologies, or reflecting on the equilibrium between the ecological, social, cultural and economical characteristics of their environment. But quite more often, they do not view themselves as learners but as entrepreneurs who need new knowledge to reach their goals. This has at least two consequences: they have precise expectations that cannot always be fulfilled (for instance when the teachers and/or the technology cannot cope, or when they have no expectations regarding the expert or the technological offer); and they are likely to find other routes than "learning" to reach their goals (for example we have seen them hire the adequate expert rather than learning themselves to use the computer!). Teaching is a complex process: learners are not just learners. But this doesn't mean that they are not likely to get caught by the fun of learning or the surprises hidden in the technology.

4.5 References

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