

Telework for Handicapped People: an Experience

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Abstract: The goal of the courses organized by Fondazione Pro Juventute in collaboration with A.S.P.H.I. (The Association for the Development of Information Technology Projects for the Handicapped) in computer software applications programming, is to secure employment to young disabled people and more than 80% of those qualifying find a job. The remaining 20% isn't able to find a job, usually owing to geographic origin and degree of autonomy. The interest of Fondazione Pro Juventute Don Carlo Gnocchi and A.S.P.H.I. in the concept of telecommuting fits into this framework.

1. Introduction.

The Foundation Pro Juventute Don C. Gnocchi has worked for several years in the sector of professional training for those with motor disability and in particular, in collaboration with A.S.P.H.I., has for twelve years implemented training courses in computer software applications programming for medium to large data processing centres. The goal of these courses is to secure genuine employment and, even with the difficulties connected with the economic situation, the achievement of employment by ex-students has to this date been satisfactory: more than 80% of those qualifying are engaged in the world of work. The remaining qualified ex-students, who are not employed, owe this situation to the coming together of two different problems:

a) *geographic origin*: The course collects students from all the national territory, even, that is to say, from small villages in areas not particularly economically developed.

b) *the degree of autonomy*: It is equally obvious that a limited personal autonomy, especially relative to primary needs, acts as a powerful brake on every attempt to gain employment in the absence of structures or initiatives adequate to overcome such obstacles.

The interest of the Foundation and of A.S.P.H.I. in the concept of telecommuting (working at home via a telecommunications link) fits into this framework.

While being conscious of the difficulties of relationship that such a way of working presents, we maintain that telecommuting can offer at least a partial answer to the primary need "to be of use". In 1992 we had the occasion for an initial experiment.

2. Parties Involved in the Experiment.

DC.R. is a disabled youth who qualified as a programmer in the year 1991-2.

The co-existence of objective logistical difficulties - those of geography (he lived in Foggia, in the South of Italy), and of serious physical difficulties (spastic tetraparesis), combined with a personal capacity acquired and demonstrated during the entire passage of the course made him seem the ideal candidate for this experiment.

NETSIEL is a medium-sized company belonging to the Finsiel Group. It was established in Bari in 1988 with the object of producing quality software components to supply to other operators in the sector which would assemble them and integrate them into finished systems for the end-user market. Today it has 310 employees with a high level of education and qualifications.

S.I.P. is the provider of the Italian telephone service. It was interested in the experiment and supplies the means to establish a data transmission link between NETSIEL(Bari) and DC.R.(Foggia).

A.S.P.H.I. (The Association for the Development of Information Technology Projects for the Handicapped) is a non-profitmaking association which aims to pursue the active integration of disabled people into society with the help of information technology and telecommunications.

The Foundation Pro Juventute Don Carlo Gnocchi is one of the most important institutions for rehabilitation in Italy (Institute of Scientific Care and Research).

3. The Working Environment.

From the technological point of view working activity will be carried out using: a Personal Computer and a printer which are the property of DC. R., an emulation card SDLC-3270 and the associated software made available by Netsiel and a modem made available by S.I.P. S.I.P. will implement a dedicated line between Netsiel and DC. R. Netsiel will supply the computing power and the mainframe IBM/MVS application development software necessary for the production of modular software in COBOL-CICS-DB2. To transmit messages DC. R. will have at his disposition an electronic mail function already in use in the company. Netsiel undertakes to give DC. R. the didactic support used in the company for basic training courses which is necessary to complete the training he has already received.

The output will regard some software components which can be assembled together to make part of an automatic procedure for the internal use of the company.

4. The Organization of the Experiment.

On the 16th March 1993 S.I.P. activated the direct digital link (4800bps) between the Netsiel establishment at Bari and DC. R.'s home at San Severo (Foggia).

Netsiel commissioned (according to article 2222 of the Italian Civil Code) the software components subsequently and separately. During the experiment the company guaranteed technical support which DC. R. made use of by means of the pre-arranged communication channel for all clarification of the work being carried out. The company, in agreement with the worker, also carried out the monitoring of

the various phases of the experiment to supply data concerning the connection times and the type of activity carried out (coding, testing, communication etc.).

5. Final Considerations.

"RESULTS ACHIEVED

(...) *From this point of view, the following aspects are considered to be:*

negative: the absence of continuous monitoring of the state of progress of the work made it impossible to carry out accurate rescheduling, and hence created dead times which influenced productivity throughout the entire period of the experiment. The lack of a direct, continuous and in person relationship with the programmer in the training phase slowed down the rate of learning.

positive: The efficiency of the tools used both for the software development phase and for communication between interlocutors. The compliance of the components with the specification supplied to the programmer. The efficiency of the communication channel. The entirely satisfactory quality of the products developed.

CONCLUSIONS.

The experiment has demonstrated that because of the time necessary to carry out the work a direct digital link is not an economic solution.

To achieve a correct cost/performance relation the experiment carried out suggests the use of products which permit operation in a stand-alone mode, simulating mainframe systems on workstations, together with the use of a non-dedicated connection. It seems desirable to organise periodic attendance of the interested party in the company, for example on the occasion of training activity. This could form a basis to encourage a more real integration into the company. From the systems/technical point of view the experience seems capable of being perfected and susceptible of further development. From the point of view of work organisation it is necessary to structure differently the feeding of work to the programmer, arranging a plan of activity for a longer period (three - six months) with periodical checkpoints.

The possibility of establishing a regular contract of employment is obstructed by the absence of any regulations governing a telecommuting relationship."

"DC. R. CONSIDERATIONS

(...) In the first place, I have to say that, on my side, there has been the greatest satisfaction with this experiment, as you already know. In fact, despite all the problems that the experience has little by little posed, in some ways I consider myself a normal worker. When you informed me that the tests of one of my programmes had had a positive outcome it gave me the greatest satisfaction. I also felt that I was charged with great responsibility since a successful outcome could bring about the extension of telecommuting to other people with problems similar to mine. I think (but you are better judges of this) that I have acquired greater competence during the year. I am naturally very appreciative of the accessibility and above all of the patience with which you have clarified my every doubt. Finally, I hope that at the next meeting it will be decided to follow up this experiment. (...)"