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PEDAGOGIC METHODS IN THE EVALUATION OF SOCIO-  
-PROFESSIONAL REHABILITATION OF TETRAPLEGICS  
BY THE USE OF ELECTRONIC DEVICES FOR ENVIRONMENT  
CONTROL

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INTRODUCTION

This paper presents an experimental programme for the reeducation of tetraplegic patients and a discussion of the problems they face in the course of social and professional rehabilitation.

The experiment will take place in a hospital (Poincaré-Garches-France) and will be jointly sponsored by the Ministry of Health and Welfare, the Ministry of Professional Education and the Ministry of Employment (FRANCE).

The rehabilitation of tetraplegic patients will be commenced in hospital where progress during their treatment will be observed and assessed. Observation will be continued after they leave hospital.

The experiment will be based on the use of automatic and telematic devices which will be the basic elements on which the patients' autonomy will depend.

While undertaking this experiment we had in mind that the rehabilitation of tetraplegic patients should be conducted with respect to both the physical and psychological aspects of their handicap.

I) The dual purpose of long term care:

It is vital during prolonged treatment to give the patient as satisfactory a life as possible while pursuing the aim of socio-professional rehabilitation. Thus patient re-education management requires that all available resources be brought into use.

The purpose of our study is to answer the following questions:

- does an early consideration of the problems of the patients socio-professional rehabilitation modify the course of patient's recovery? Specifically, we shall consider to what extent early formulation of a concrete programme influences the rate and the scope of rehabilitation.
- does the use of electronic devices for environmental and communication control enhance the development of skills within the patients' own control and consequently help them in their search for autonomy.

II) Basis of methodology:

The progress of technology allows us to provide the means of autonomy to tetraplegic patients. It also introduces important improvements in communication, in their life style and slowly creates a new environment of work. As Alvin Toffler\* says: "A new civilization brings with it changed ways of working ... As the third wave sweeps across society we find more and more companies that can be described, in the words of one researcher, as nothing but people huddled around a computer. Put the computer in people's homes and they no longer need to huddle. Third wave white collar work, like third wave manufacturing, will not require 100 per cent of the work force to be concentrated in the work shop".

Experiments have already shown that with the use of computers, severely disabled persons can improve to the point where they can be usefully employed. One of these experiments was carried out in a hospital. The others were conducted after the handicapped

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\* Cf bibliography

persons had returned home. The most important study of this type bore on the rehabilitation of 15 disabled persons including several tetraplegics carrying on their professional activity at home. The study was sponsored in 1984 by the French administration (Ministry of Employment and Ministry of Telecommunications) and included collaboration with private companies (GIRPEH: groupement interprofessionnel pour la réinsertion des personnes handicapées)\*.

In the present experiment we intend to use the pedagogical methods developed in 1982 by the CNAM (Conservatoire National des Arts et Métiers)\*\* and the GIRPEH in an attempt to reinsert 30 unemployed individuals suffering from severe handicaps.

Computer assisted training will be used in collaboration with a center specialized in adult professional rehabilitation.

Collaboration with the AFPA\*\*\*, the association for the professional education of adults is also envisioned.

In summary, the philosophy of this study is borrowed from previous experiments and based on the use of electronic devices as well as on computer assisted tutoring.

### III) Experimental conditions:

The study will last 18 months. It will include approximately 15 patients permanently equipped with the electronic devices, and an equal number of control patients undergoing the same treatment, but without electronic equipment. The use of electronic devices by tetraplegic patients will be also evaluated with respect to other points: quality of life from the patient's stand point, working conditions for the nurses and cost of the treatment from the administration's point of view. The group of patients selected for the different studies is the same as has been described in another paper.

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\* Interprofessional group for rehabilitation of handicapped persons.

\*\* National Conservatory of Arts and Crafts.

\*\*\* Association pour la Formation Professionnelle des Adultes.

IV) Procedure:A) Patients' assesment:

Assesment of patients will concern their interests, capabilities, educational background and professional experience or choice.

Four cases will be considered for the determination of the kind of help a patient needs. They are the following:

- patient with poor educational background and no professional experience,
- patient with poor educational background but with professional experience, either employed or unemployed,
- patient with educational background with no professional experience,
- patient with educational background and with professional experience either employed or unemployed.

B) The choice of professional projects:

The choice of professional projects strongly depends on the patient's opinion regarding herself or himself. The disability creates a disharmony. A reasonable professional employment project should be a compromise between the patient's previous goals and educational background, his or her surviving capabilities and the possibilities of employment of the district. It is understandable that, at that stage, it will require the individual to give up at least a part of his or her past ambitions.

C) Identification of patient's needs:

The needs may be of different kinds:

- information concerning the rights of disabled persons,
- information concerning employment possibilities,
- education,
- arrangement of home conditions enabling the patient to carry out some professional activity.

D) The Educational Plan setting the goals:

Once the patient's profile is determined, goals can be proposed to provide guidelines for the educational staff. Those goals describe the desired position or the expected results.

It is important that goals should be fixed with reference to the probability of successful achievement. The Educational Plan describes the procedures and the means by which the patient's goal is likely to be achieved. This constructive step is expected to be an effective way of reducing anxiety and ensuring patient's cooperation.

Since patients' profiles differ from each other standard plan can be developed. However the Educational Plan is always a creative process. According to each profile the plan may include the following steps: preorientation, orientation, professional education, rehabilitation and future prospects. During the educational phase of the plan, the patient will use a computer built into his electronic device and endowed with tutorial software. This software will be either general purpose (office word processing) or specific purpose (according to the professional demands). The medical record of a patient will include his or her personal assessment and a description of his or her professional prospects.

#### DISCUSSION AND CONCLUSION:

Literature on the rehabilitation of tetraplegic person does not report experiments associating functional and socio-professional rehabilitation. It is therefore difficult to anticipate the results of this study, all the more so since social and professional life does represent a certain degree of uncertainty which may not be easily mastered. Nevertheless, since the implications of our experiment are both theoretical and practical, its benefits are expected to be two fold:

- first, from a theoretical point of view, it will demonstrate the value of reintroducing tetraplegics into a more or less "normal" social relationship and of developing the possibility of professional employment during their stay in the hospital. It will provide us with information concerning the feasibility of such projects and on the difficulties and constraints encountered in the course of their realisation;
- second, from a practical point of view the study may provide the basic information necessary for future planning of the

organization of rehabilitation services. Specifically, it is likely to provide us with clues concerning the means (both in terms of trained personnel and necessary funds) which may be required in order to conduct such projects.

It will show that electronic devices for environment and communication control do help the patients to make plans for their professional future. In other words it will provide us with the clues necessary for the evaluation of whether these means ought to be included in patients' room equipment or not.

This experiment does not consider all the aspects of our rehabilitation project, nor does the present description show all the variety of individual projects. For instance, it is likely that the above mentioned steps will actually be observed. The efficiency of the present enterprise will be determined according to the degree of independence achieved by the patients (given the costs that such a treatment entails) and with respect to their satisfaction.

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