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Introduction

In the Spastics Association of Hong Kong, Conductive Education (CE) has been adopted in pre-school and special school for more than a decade. Owing to the successful experience obtained from the cerebral palsied (CP) children, the philosophy of CE has been extended to adults. Obviously, modification is inevitable in order to meet the client's development, our centre's nature and the culture of Hong Kong. Also, the relationship between various terminologies commonly used in CE has been rearranged.

The System of CE in Adult Service

The *system of CE* in adult service aiming at encouraging CP adults to develop a positive personality with problem solving abilities and sense of independence, in order to meet the rapid changing lifestyle of the Hong Kong society. It is two-dimensional system consisting of longitudinal and transverse subsystems.

Longitudinal Subsystem

The *longitudinal subsystem* of the adult service establishes an upward mobility for CP adults, bringing them gradually from a routine lifestyle in a protected environment to a self-adjusted lifestyle in the community. Centres of the longitudinal subsystem are located in the public estates (community participation), which is crucial for mutual understanding and image enhancement.

Transverse Subsystem

The *transverse subsystem* establishes a consisted and coherent learning atmosphere throughout the whole day of the clients. The essence of this system is the *coordination between sheltered workshops and hostels* together with the *transdisciplinary approach* within each.

Normalization Versus Integration of CP Adults

When talking about normalization, we tend to think of training the disabled to meet the society norms. But why should the disabled match the standards of the abled? The disabled should be entitled to have their own identities. There is no point to request a CP person to drink with an ordinary glass with your assistance, when he can manage to drink independently with a double-handled mug! Thus, instead of normalization, we prefer to use the *term integration*. By integration, mutual understanding and respect of the identities of both sides are emphasized.

Open System

People are regarded as living in an *open system* (Kielhofner, 1980). An open system is a composition of interrelated structures and functions organized into a coherent whole that interacts with an environment. Interaction involves two way communication. People can work on the environment and cause changes. On the Other hand, environment can change a person's action or behaviour by a feedback process. This process of interaction requires utilization of the *underlying abilities* of a person (figure 1).

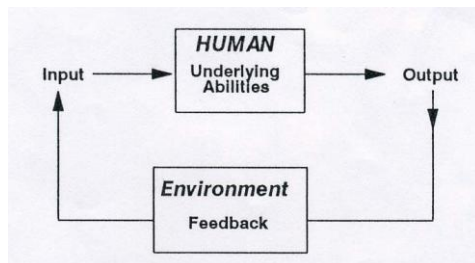


Figure 1. Mechanism of Interaction between human and his environment.

Underlying Abilities

The coverage of the underlying abilities here has a broader sense than its usual meaning. In our philosophy, *motivation*, *generalization* and *skills* are the underlying abilities which enable a person to satisfy his own needs by adapting himself to the demands from the environment. A two-level hierarchy exists among these abilities (figure 2). Motivation belongs to the higher level which governs the operation of the whole mechanism. The lower level consist of generalization and skills. To facilitate learning, *consistency* between skills and generalization is highly emphasized.

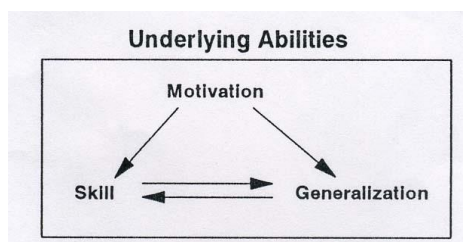


Figure 2. Hierarchy of the underlying abilities.

Motivation

Learning without motivation is impossible, and therefore our programs are centred on motivation. Determinants of motivation includes *personal values*, *interests* and *needs*, of which need is the most important determinant.

Individuals look for the importance or worthiness from their personal values before engaging in any action. Choices or decisions made are highly dependent on one's personal values. Interest is a personal disposition to find pleasure in certain objects, events, or people (Kielhofner & Burke, 1980). Interests are most often determined by past successful experience.

Need is the foundation of human motivation (Pancsoyay, 1975). Maslow (1970) proposed that human motivation is arranged in an ascending *hierarchy of needs*. From Maslow's hierarchy of needs, the lowest level is human basic needs. Training related to these needs, such as self-care training, should be very motivating. The second level is safety and functioning needs. A well planned and smoothly functioning *daily schedule* could induce a secure feeling which motivates a CP person to work for the day. Human are seeking recognition among their peers. Thus, *group* environment is definitely motivator.

The esteem needs become more prominent in adulthood. Sense of independence, confidence and capability are essential in satisfying the esteem needs. With the implementation of task analysis to a variety of work situation together with the provision of CE furniture and aids, most special school leavers are now able to find a suitable placement in sheltered workshop. Obviously, successful working experience is a strong motivator for CP adults.

The highest level is self-actualization. It enables a CP person to make his own decisions, to accept his limitations and to assume his responsibilities. In climbing up the hierarchy of needs, CP person experiences an upward movement of his motivation level leading to an *orthofunctional personality*. As program planners, we should be always aware of the hierarchy level reached by the clients together with their interests and personal values in designing training programs and determining the facilitation methods used.

Generalization

CE emphasizes the systematic utilization of both training period and free time (Pancsovay, 1975), and therefore a well-planned daily schedule and a well-organized transverse subsystem is crucial for generalization.

When an individual repeats certain actions, they become automatic habits (Kielhofner & Burke, 1980). Habituation means that the actions reach a concrete stage and are performed in daily life in a consistent way. However, a rigid formation of habits may cause difficulty in adapting when the environment changes. The habits formed should adapt to different situations and agree with the cultural norms. Thus, it is important to teach the clients to do the right thing at the right time in the right place. For instance, a client receiving household skill training was requested to clean up his table after meal in both workshop and hostel. One day, after he finished his lunch in a restaurant, he still cleaned up the table as usual! It indicates that the client has failed to discriminate his roles in different situations and over-generalized the skills.

Skill

The traditional approach for CP emphasizes the control of the positive symptoms such as spasticity, without much attention to the negative symptoms such as weakness, lack of coordination and inadequate control. In fact, it is the *negative symptoms* which contribute to the motor disabilities in CP (Emmanuel, 1985).

New knowledge in motor development and motor control is challenging many of the beliefs that have once been fundamental to our practise with CP. Increasing attention to motor learning, bioengineering and behavioural analysis, prompt us to refine our skill enhancement programs. Recent studies revealed that the inability to program movement in advance together with the impaired sensory and proprioceptive feedback are responsible for the negative symptoms of CP (Evarts, 1985; Eliasson, et al, 1991).

In addition, the restricted movement experience of CP hinders neural development leading to abnormal muscle growth with changes in biomechanical properties (Harrison, 1988). Wolpov (1985) indicated that active involvement is required for changes in segmental neural functioning which would not be produced by passive repetition. Thus, *goal orientated activities* which encourage the clients' *active participation* and working to maximize rewards are highly recommended. More important, *incentive and unambiguous feedback* should be provided so as to direct the clients' skill performed in the specified ways. Training content should emphasize functioning in task-specific activities. Alternatives to accomplish an activity should be provided and give the clients *freedom to make both correct choices and mistakes* and to learn from both. The activities chosen should be chronologically age-appropriate and of interest to CP adults according to their own personal values. The provision of *CE furniture and aids* provide freedom to move and function, giving the clients a chance for better motor learning. The design of these furniture and aids are based on the principles of bioengineering. Lastly, but most important, is the use of *basic motor patterns* which limit the degrees of freedom of body parts together with the use of *rhythmical intention* which calls for the cognitive input during acquisition of motor control. These form the backbone of our skills enhancement training.

Conclusion

In developing the CE system for CP adults, we are faced great difficulties in identifying the motivation needs of the clients and in modifying the system to suit a workshop and hostel environment. Apart from vocational guidance, no approach has been suggested for the habilitation of CP adults. Our strategy is to integrate the principles of CE with other compatible models including the human occupational model, the motor learning theory, the Maslow's theory and the principles of bioengineering. We hope that by integrating the development in physical, life and social sciences, a unified approach can be standardized for the neurologically impaired..

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