Chapter 9

Microswitch-Based Programs (MBP) to Promote Communication, Occupation, and Leisure Skills for Children with Multiple Disabilities: A Literature Overview

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ABSTRACT

This chapter provides a literature overview concerning microswitch-based programs (MBP) to promote communication, occupation and leisure skills for children with multiple disabilities. The first aim of the chapter is to present an overview of the empirical studies about the use of MBP, published in the last decade (i.e. period from 2004 to 2014) to emphasize the most recent strategies for children with developmental disabilities, providing a general picture of the different options available. The second goal is to underline strengths and weaknesses of the various studies included in the overview. Finally, the third purpose is to outline issues and questions to be addressed in the future and discuss their implications for research and practice.

INTRODUCTION

Children with severe to profound multiple disabilities (PMD) (i.e., intellectual, motor and sensory disabilities) may be quite passive and isolated from the outside world due to their clinical conditions (e.g. medical, breath, postural abnormalities, lack of speech, unawareness of their off-task or chal-

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lenge behaviors) and may consequently experience serious challenges across their many environments (Borg, Larson, & Ostenberg, 2011; Lontis & Struijk, 2010). In addition to needing physiotherapy and pharmacological treatments, those children need specific help to: (a) interact and engage constructively and independently with surrounding preferred items and to (b) increase positive opportunities for communication, occupation and leisure. Moreover, they present incapacities to develop request and choice responses autonomously, although they have learning skills concerning adaptive responses (Kagohara et al., 2011; Reichle, 2011). The aforementioned conditions may have negative consequences on their quality of life (Felce & Perry, 1995).

One way of enabling that children with severe to profound multiple disabilities achieve the dual objective of reducing challenging behaviors and increasing the performance maintenance and generalization of adaptive responses is to use microswitches-based programs (mbp) combined with motivational strategies based on learning principles (i.e. the causal association between behavioral responses and environmental consequences) (Lancioni & Singh, 2014). A microswitch is a basic form of assistive technology (AT) that allows persons with a very limited behavioral repertoire to access and interact positively with their environment. Thus, a child can activate toys, music, lights, and vibratory stimulation through the exhibition of small behavioral responses. For example, depending on individual learning perspectives, (i.e. participant’s characteristics and/or skills) one may envisage a rehabilitative intervention with a microswitch enabling a child to turn on a brief period of stimulation by a small hand closure (Lancioni, Singh, O’Reilly, & Oliva, 2005). Alternatively, one may design a two microswitch program that provides a choice between two different categories of stimuli (e.g. visual and auditory) by performing two behavioral responses (e.g. hand closure and eye blinking) (Lancioni, Sigafoos, O’Reilly, & Singh, 2012).

In addition, practitioners can encourage a microswitch and Voice Output Communication Aid (VOCA) strategy that allows the individual to choose between access to preferred stimuli independently and social contact with a caregiver (Lancioni et al., 2009; Schlosser & Sigafoos, 2006). Furthermore, matched with a personal computer, a microswitch may supply a participant with a request and choice opportunity concerning preferred options (e.g., video, music, food, beverage, personal or physical needs) (Stasolla, Caffò, Picucci, & Bosco, 2013). Moreover, a microswitch cluster pursues the dual goal of promoting an adaptive behavior with the simultaneous reduction of a challenging behavior (Lancioni et al., 2008). Finally, a microswitch program with contingent stimuli may foster ambulation responses and fluency (Stasolla & Caffò, 2013).

For persons without intellectual disabilities who have extensive motor impairments, (e.g., children with cerebral palsy), a microswitch program linked to a keyboard emulator may enhance literacy. In addition, it may promote self-monitoring of on-task behavior during academic activities (Chiapparino, Stasolla, De Pace, & Lancioni, 2011; Stasolla, Perilli, & Damiani, 2014). Next to the importance of reducing passivity and encouraging an active role by those persons, professionals are dealing with improving their appearance and status and, consequently, their quality of life (Ivancic & Bayley, 1996).

The main aspect of quality of life is happiness, which includes three basic components: personal well-being, pleasure and contentment. Those components are particularly difficult to detect among individuals with developmental disabilities, especially if those persons are non-verbal individuals. To overcome this barrier, researchers refer to behavioral responses connected with happiness, labeling them as indices of happiness (e.g. smiling, laughing, excited body movements with or without vocalizations). Those indices are commonly recorded in a MBP or in a learning principles strategy in order to assess their effects on positive mood concerning the participants involved (Lancioni, Singh, O’Reilly, Oliva, & Basili, 2005).