

M.O.V.E RESEARCH

Gilbert Thomson, PT

The Mobility Opportunities Via Education (MOVE) curriculum is an activity-based program that has been designed specifically for children with severe disabilities. It is intended to teach children the functional motor skills needed to sit, stand, and walk as independently as possible. Although it was developed from a special education perspective, there are many parallels between MOVE and the implications of motor control and motor learning research.

The MOVE curriculum is based on the assumption that every child, no matter how severely disabled, can learn motor skills if the time and effort is applied to teach. The curriculum emphasizes the active practice of functional movement skills throughout the school day. Activities that need to happen every day, such as eating, toileting, and moving from one place to another, are used as natural opportunities to practice. In order to expand the practice opportunities of the child, collaboration between teachers, therapists, and paraprofessionals is emphasized. This allows the child to consistently work on the same skills throughout the day. The development of active mobility is considered to be very important for the development of skills in other areas, such as cognition, communication, academics, and socialization. Instead of the child being a passive recipient of care (being fed, diapered, lifted, stretched and moved) the child actively participates as much as possible in self-feeding, toileting, transferring and mobility, with assistance as needed. The emphasis for educational and therapy staff is on teaching functional skills rather than substituting for skills the child lacks.

In some ways the concepts of MOVE are similar to Conductive Education in that both use intensive, active practice to improve motor function. (Olney & Wright, 1994) The MOVE program is unique, however, in using the natural school setting and typical daily activities as the basis for teaching motor skills, and in its inclusion of children with severe cognitive impairments. The MOVE curriculum itself is a 280-page book that covers how to use the MOVE program in a variety of school settings. It is now in its 6th printing and is being used all over the world (Bidabe, 1999). Much of

the material in this chapter is adapted and summarized from the MOVE curriculum with permission.

The MOVE program started out in 1986 as a pilot program for 15 students in a special education classroom at the Blair Learning Center in Bakersfield, California. These children were between 6 and 16 years old, non-ambulatory, diagnosed with multiple disabilities, and all had regressed developmentally. The staff began a program of teaching simple functional movement skills throughout the school day. The progress made by the students in the first few months of the program convinced the school to continue the study. After three years, significant improvements in sitting, standing, walking, and transitional movements were recorded for many of the students. (Bidabe, 1999, p. 20) The knowledge gained from this pilot study, together with

further experience and research by Linda Bidabe, was first published in the MOVE curriculum in 1990. [see figure]

Although the amount of formal research on the efficacy of the MOVE curriculum is still limited, two research studies in the form of doctoral dissertations have shown positive results. The first study by Kathleen Elkins used a quasi-experimental nonrandomized control-group pretest-posttest design with the independent variable being the instructional method used to teach functional motor skills. (Elkins, 1994) It compared the MOVE

MOVE Pilot Study

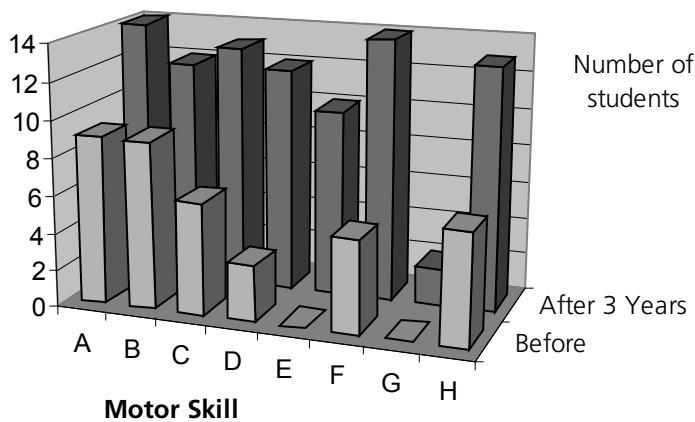


Figure 1-2 Results of MOVE pilot study, showing the number of students who mastered various motor skills during the 3-year pilot study.

(Data from: Bidabe L. MOVE: Mobility Opportunities Via Education. Bakersfield, CA: Kern County Superintendent of Schools; 1999:20.)

curriculum with traditional methods over a seven-month experimental period. The results were that a significantly larger number of students in the treatment group made progress toward achieving sitting and walking skills, compared to those in the control group. Limitations of this study include the questions: whether the sixty-six students with severe multiple disabilities who participated are representative of the population, and whether other factors that were not controlled or randomized (home environment, practice opportunities outside of school, and teacher selection and training) influenced the study. In addition, the test used to assess progress in this study (the Top-Down Motor Milestone Test from the MOVE curriculum) had not been fully tested for validity and reliability. In spite of these limitations however, this study was important because it was one of the first published studies of the efficacy of MOVE, and it showed positive results over a seven-month period.

The second research project, completed by Stacie Barnes in 1999, used a multiple-baseline across subjects design with five elementary-aged students with severe multiple disabilities. (Barnes, 1999) A multiple-baseline design means that intervention was started at different times for the different children, which acts as a control. One child would start the intervention, and when an upward trend was observed in a dependent variable, the next subject would begin the intervention phase. The independent variable in this study was implementation of the MOVE curriculum for each of the five children in their school setting. All students demonstrated progress in functional mobility skills during intervention or maintenance phases of the study as compared to baseline measurements. Repeated measures were taken of operationally defined behaviors (such as number of reciprocal steps or seconds in standing) throughout all three phases (baseline, intervention, and maintenance), and the results were plotted for visual analysis. This excellent study clearly demonstrates the ability of students with severe multiple disabilities to learn functional motor skills when the MOVE curriculum was employed as the intervention.

At the time of this writing, several other research projects on the MOVE curriculum are under way. Hopefully more research will be carried out in the near future to more fully explore the possibilities of this exciting new method for improving the functional abilities and quality of life for children with severe disabilities.

REFERENCES

- Barnes SB, Whinnery KW. Mobility opportunities via education (MOVE): Theoretical foundations. *Physical Disabilities*. 1997;16(1):33-46.
- Barnes SB. *The MOVE Curriculum: An Application of Contemporary Theories of Physical Therapy and Education*. [dissertation] Pensacola, FL: University of West Florida; 1999.
- Bidabe L. *MOVE: Mobility Opportunities Via Education*. Bakersfield, CA: Kern County Superintendent of Schools; 1999.
- Bradney M, Pearce G, Naughton G, et al. Moderate exercise during growth in prepubertal boys: changes in bone mass, size, volumetric density, and bone strength: a controlled prospective study. *J Bone Miner Res*. 1998;13(12):1814-1821.
- Campbell PH. Evaluation and assessment in early intervention for infants and toddlers. *Journal of Early Intervention*. 1991;15:36-45.
- Carr JH, Shepherd RB. A Motor Learning Model for Rehabilitation. In: Carr JH, Shepherd RB, eds. *Movement Science: Foundations for Physical Therapy in Rehabilitation*. Maryland: Aspen Press; 1987:31-91.
- Carr JH, Shepherd RB. *Neurological Rehabilitation: Optimizing Motor Performance*. Oxford: Butterworth-Heinemann; 1998.
- Elkins KM. *A Comparison Between the Achievements of Students with Severe Multiple Disabilities Using a Functional Mobility Curriculum versus Traditional Programs*. [dissertation] La Verne, CA: University of La Verne; 1994.
- Gentile AM. Skill Acquisition. In: Carr JH, Shepherd RB, eds. *Movement Science: Foundations for Physical Therapy in Rehabilitation*. Maryland: Aspen Press; 1987:93-154.
- Horak F. Assumptions underlying motor control for neurologic rehabilitation. In: Foundation for Physical Therapy. *Contemporary Management of Motor Control Problems, Proceedings of the II STEP Conference*. Alexandria, VA: Foundation for Physical Therapy; 1991:11-27.
- Liepert J, Bauder H, Wolfgang HR, Miltner WH, Taub E, Weiller C. Treatment-induced cortical reorganization after stroke in humans. *Stroke*. 2000;31(6):1210-1216.
- Montgomery PC. Organizing Treatment Sessions and Establishing Behavioral Objectives. In: Connolly BH, Montgomery PC, eds. *Therapeutic Exercise in Developmental Disabilities*. 2nd ed. Hixson, TN: Chattanooga Group Inc; 1993:35-50.
- Olney SJ, Wright MJ. Cerebral Palsy. In: Campbell SK, ed. *Physical Therapy for Children*. Philadelphia, PA: WB Saunders Co; 1994:489-523.
- Rainforth B, York-Barr J. *Collaborative Teams for Students with Severe Disabilities*. 2nd ed. Baltimore, MD: Paul H. Brooks Publishing Co; 1997.
- Shumway-Cook A, Woollacott M. *Motor Control: Theory and Practical Applications*. Baltimore, MD: Lippincott, Williams & Wilkins; 1995.
- Taub E, Uswatte G, Pidikiti R. Constraint-induced movement therapy: a new family of techniques with broad application to physical rehabilitation – a clinical review. *J Rehabil Res Dev*. 1999;36(3):237-251.
- Taub E. Constraint-induced movement therapy and massed practice. *Stroke*. 2000;31(4):986-988.
- Taub E, Ramey SL, DeLuca S, Echols K. Efficacy of constraint-induced movement therapy for children with cerebral palsy with asymmetric motor impairment. *Pediatrics*. 2004;113(2):305-312.

Thomson G. *Children with Severe Disabilities and the MOVE Curriculum: Foundations of a Task-oriented Approach*. Chester, NY: East River Press; 2005.