



Poster Presentation

Effects of a Modified Version of Tai Chi 'Fun Chi' on Academic Engagement

Shelby Muhn, Tim Hartshorne, PhD
CHARGE Syndrome Research Lab at Central Michigan University

Presenter Information

Shelby Muhn is third-year School Psychology Doctoral student at Central Michigan University and a current member of the CHARGE Syndrome Research lab. In 2016, she received a Bachelor's of Science in Psychology from Central Michigan University with a minor in American Sign Language. She has been involved in the CHARGE Syndrome community now for shortly over three years. She is interested in the psycho-social well-being of parents of children with CHARGE Syndrome, as well as, mind-body interventions to promote the well-being of individuals with CHARGE Syndrome. She is currently studying the effects of a martial arts intervention, Fun Chi, for on-task behavior in classrooms. Her future research seeks to address mediating variables for Post-Traumatic Growth in parents of children with CHARGE Syndrome.

Tim Hartshorne is a professor of psychology, specialized in school psychology, at Central Michigan University. His doctoral degree is from the University of Texas at Austin. He also has a master's degree in counseling and is a licensed professional counselor. He is the grant holder for DeafBlind Central: Michigan's Training and Resource Project, which provides support to children who are deafblind in Michigan. Much of his work is influenced and motivated by his son Jacob, who was born in 1989 with CHARGE syndrome. Tim's particular interests include understanding the challenging behavior exhibited by many individuals with deafblindness, CHARGE, and related syndromes, and also how severe disability impacts the family. He is the lead developer of a deafblind intervener training module on behavior for the National Center on Deaf-Blindness. He has been awarded the Star in CHARGE by the CHARGE Syndrome Foundation. His research was recognized in 2009 with the Central Michigan University President's Award for Outstanding Research. He is a frequent presenter on CHARGE and deafblindness.

Presentation Abstract

On-task behavior enables academic learning and improves student success, not only for typically developing children but also for children with disabilities. Extensive research has found positive effects of physical activity breaks that incorporate mind-body awareness within general education classrooms. Little research has studied the effects of these interventions for individuals with disabilities, specifically addressing on-task behavior. With the lack of evidence supporting the implementation of such interventions for children with disabilities, the current study seeks to fill the gaps. The modified version of Tai Chi ('Fun-Chi'), sought to improve academically conducive behavior for students with disabilities and was implemented in a special education classroom. The results from the single-case study are presented.

Research Questions:

- Does 'Fun-Chi' as a classroom-based movement intervention increase on-task student behavior outside of the intervention?
- Does a group intervention promote Social Interest within the academic setting?
- Do teachers find that the intervention is easy to implement and useful for their students?

Setting: Special education resource classroom or mild cognitive impaired classroom.

Participants: Students who qualify for special education and spend the majority of their day in more restrictive environments.

Independent Variable:

- 'Fun-Chi' standardized video

Dependent Variables:

- Systematic direct behavior observations
- Social Interest scales
- Social Validity scales

The current study proposes to conduct single-subject research to measure effects of Fun-Chi intervention on student on-task behavior. Additionally, social interest and social validity measures will assist in understanding the acceptability of the intervention from the students and classroom teacher.

References

- Brophy, J., Good, Thomas L., Program for Teaching Instruction, & Michigan State University. (1984). *Teacher behavior and student achievement*. Institute for Research on Teaching, Michigan State University.
- Felver, J. C., Hoyos, C. E., Tezanos, K., & Singh, N. N. (2015). A Systematic Review of Mindfulness-Based Interventions for Youth in School Settings. *Mindfulness*, 7, 34-45. doi:10.1007/s12671-015-0389-4
- Hernandez-Reif, M., Field, T. M., & Thomas, E. (2001). Attention deficit hyperactivity disorder: benefits from Tai Chi. *Journal of Bodywork & Movement Therapies*, 5, 120-123.
- Kabat-Zinn, J. (1994). *Wherever you go, there you are: Mindfulness meditation in everyday life* / Jon Kabat-Zinn. (1st ed.). New York: Hyperion.
- Lazar, S. W., Bush, G., Gollub, R. L., Fricchione, G. L., Khalsa, G., Benson, H. (2000). Functional brain mapping of the relaxation response and meditation. *Journal of Autonomic Nervous System*, 11, 1582-1585.
- Li, J., Hong, Y., Chan, K., (2001). Tai chi: physiological characteristics and beneficial effects on health. *British Journal of Sports Medicine*, 35, 148-156.
- McDonnell, J., Thorson, N., Mcquivey, C., & Kieferodonnell, R. (1997). Academic engaged time of students with low-incidence disabilities in general education classes. *Mental Retardation*, 35, 18-26.
- Ramirez, M. A. (2013). *The adaptation and assessment of social validity of an adapted form of tai chi video for children with CHARGE syndrome*. (Masters Thesis). Central Michigan University.

Please contact Shelby Muhn or Timothy Hartshorne, if you have any questions:

Muhn1ss@cmich.edu

Harts1ts@cmich.edu

A Modified Version of Tai Chi – 'Fun-Chi' – as a School-Based Intervention for On-Task Behavior

Shelby Muhn & Timothy Hartshorne • Central Michigan University • CHARGE Syndrome Research Lab

Engagement

- One of the best predictors of student achievement is the opportunity for the learner to be actively engaged (Brophy & Good, 1986).
- On-task behavior, otherwise known as active academic engagement, is important when students are learning new skills and when independently practicing skills.
- McDonnell et al., (1997) found that children with disabilities in general education classes did not display significant differences in academic responding and managing instructional task/materials, although did display significant differences in the frequency of competing behaviors (e.g., self-stimulatory behaviors & involuntary movements).

The Diverse Needs of Children with Disabilities

- Interventions that promote mobility, improve posture, balance, and stimulate sensory receptors.
- Activities that promote cognitive and neurological functioning such as processing speed, working memory, fluid intelligence, executive functioning
- Active interventions that promote sustained attention, focus and self-control.
- Need for inclusive environments to improve adaptive abilities such as social behavior, thus encouraging social interest.

Benefits of Martial Arts and Movement Interventions in Schools

There is growing evidence showing that martial arts and mindfulness-based interventions have positive impacts and benefits in schools. Although, a systematic review conducted by Felver (2015) found that few studies included children with disabilities.

Children with disabilities should be at the front of this research as interventions have shown to improve executive functioning, self-control, and have shown positive effects on educational outcomes including the sense of belonging in the classrooms

Key Aspects of Tai-Chi

Tai Chi is a martial arts practice that involves:

- Circular movements
- Stretches
- Deep breathing
- Mental awareness (mindfulness)
- Relaxation

Fun-Chi

- Sharon Barrey-Grassick's adaptation of Tai Chi is not only suitable for all children, but was specifically designed for children with sensory loss and physical impairments.



- Ramirez (2013) established that Fun-Chi could be delivered in a standard form to participants via video. Therefore, the implementation of Fun-Chi in school settings may be beneficial and socially valid.

Benefits of Tai Chi

- One of the aspects of Tai Chi is meditation. Meditation has been shown to increase neural structures involved in attention and autonomic control (Lazar et al., 2000).
- Decreased anxiety and hyperactivity in children with Attention Deficit Hyperactivity Disorder (ADHD) following a five week Tai Chi intervention (Hernandez-Reif et al., 2011).
- Tai Chi has shown to increase balance, range of motion, and improve sensorimotor control in samples of adults (Li, Hong, & Chan, 2008).

Importance of the Mind Body Connection

- Teaching strategies that increase awareness of the mind-body as an organic whole promotes sensory feedback (Kabat Zinn, 1994), which is essential for children with disabilities.
- Encouraging children's engagement through opportunities to attend and interact with their environment fosters adaptive behavior and promotes the sense of belonging.
- By explicitly teaching children to control their breathing and body movements, they have the skills to acquire self-control that extends to the control of competing behaviors that disrupt active classroom engagement.

Classroom-Based Exercise Breaks

- Mahar et al. (2006) found that students who engaged in classroom-based activity breaks showed increased concentration, mental cognition, and increased on-task behavior during instruction compared to a control group.

