



ELSEVIER

Contents lists available at ScienceDirect

# Research in Autism Spectrum Disorders

Journal homepage: <http://ees.elsevier.com/RASD/default.asp>

## Assisting students with autism to actively perform collaborative walking activity with their peers using dance pads combined with preferred environmental stimulation

Ching-Hsiang Shih<sup>a,\*</sup>, Man-Ling Chang<sup>b</sup>, Shu-Hui Wang<sup>a</sup>, Chang-Lu Tseng<sup>a</sup><sup>a</sup> Department of Special Education, National Dong Hwa University, Hualien, Taiwan, ROC<sup>b</sup> Department of Special Education, National Taiwan Normal University, Taipei, Taiwan, ROC

## ARTICLE INFO

## Article history:

Received 20 August 2014

Accepted 25 August 2014

Available online 14 September 2014

## Keywords:

ASD

FPPDP

Dance pad

Collaborative walking activity

## ABSTRACT

The purpose of this study was to provide students with autism spectrum disorders (ASDs) the opportunity to cooperate with their peers. This experiment was designed so that students with ASD and their partners were required to perform the collaborative walking activity using dance pads combined with preferred stimulation. With the foot-pressing position detection program (FPPDP) software, standard dance pads could be used as foot-pressing position detectors to detect participants' collaborative walking activities. An ABAB design was adopted in this experiment, where A represented baseline phases, and B represented intervention phases. The experimental results show that the participants increased their willingness to perform the assigned task and the actual amount of collaborative walking activity also increased during the intervention phases compared to the baseline phases. Practical and developmental implications of the findings are discussed.

© 2014 Elsevier Ltd. All rights reserved.

### 1. Introduction

One characteristic of children with ASD is that they have difficulty in social interaction and communication with others (Wing & Gould, 1979). They lack the ability to learn to build relationships with others and to form basic social responses. They may exhibit some behaviors, such as ignoring others altogether, avoiding making eye-contact, and failing to respond. Therefore, children with ASD often fail to master social skills, and struggle when it comes to cooperation within groups. In addition, it is difficult for them to experience other people's emotions and feelings, and they often cannot express their own feelings using socially acceptable means.

Many related studies have proposed that increasing the opportunity to interact with peers is beneficial for children with ASD in terms of improving their social interaction and communication. For example, peer-mediated strategies were used to improve the social functioning for children with ASD (DiSalvo & Oswald, 2002). Peer-mediated social skills training programs have been adopted to assist children with autism (Chung et al., 2007). Pivotal Response Training through peer-mediated practice has been used to improve social interactions for children with autism (Harper, Symon, & Frea, 2008).

\* Corresponding author at: Department of Special Education, National Dong Hwa University, Hualien 970, Taiwan, ROC. Tel.: +886 3 8634881; fax: +886 3 8634870.

E-mail address: [schee@mail.ndhu.edu.tw](mailto:schee@mail.ndhu.edu.tw) (C.-H. Shih).

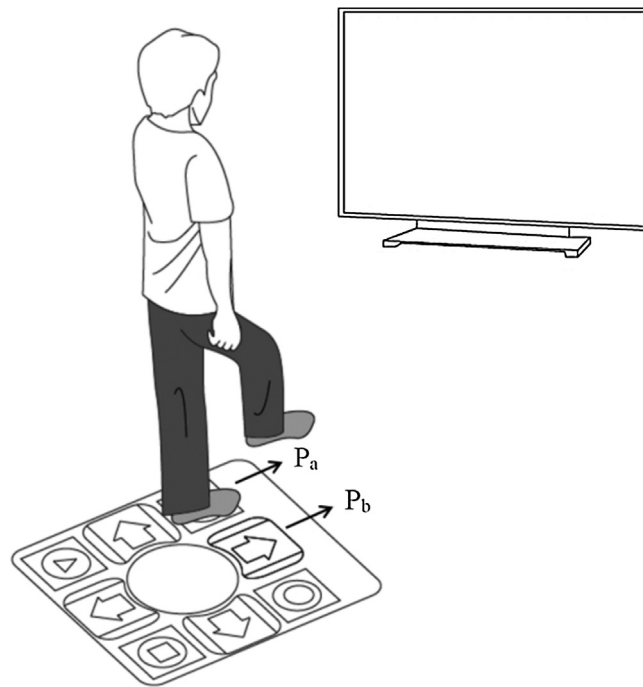


Fig. 1. The participant stepped on the dance pad, and a TV was connected to a control system to play his/her favorite video (Shih & Chiu, 2014).

Peer-mediated instruction and intervention strategies were used for children with ASD to acquire social skills (Sperry, Neitzel, & Engelhardt-Wells, 2010). Peer-mediated intervention was used for the improvement in social deficits in ASD (Corbett et al., 2014).

Recently, a study has proposed the use of a dance pad combined with response-stimulation strategy to assist obese students with intellectual disabilities (ID) to actively perform walking activity (Shih & Chiu, 2014). Customized foot-pressing position detection program (FPPDP) software was developed to turn a standard dance pad into a foot-pressing detector to detect participants' target responses; in that case, the participants continuously stepping on a dance pad within a period of time. As shown in Fig. 1, a control system was connected to a TV to play the participants' favorite videos when walking activity was detected. The video playback would be interrupted if the participant stopped walking. Given the ability to trigger their preferred environmental stimulation, participants exhibited a positive attitude toward performing walking activity. The experimental result showed that participants increased the rate of their walking activity during the intervention phase compared to the baseline phase, and retained the effective performance in the maintenance phase.

A dance pad, as shown in Fig. 2, is a flat electronic game controller used for application in dance games (DDRGame, 2014). Most dance pads are divided into nine square panels, and a switch sensor is embedded in each panel. When a player steps on a panel, the sensor can detect the player's foot-pressing and transmits the signal to the control system for playing dance games. With the application of software technology, the default functions of the dance pad can be expanded. A commercial dance pad can be used as an assistive technology (AT) device in the form of a foot-pressing detector for application in the fields of special education and rehabilitation (Shih & Chiu, 2014).

This study continued the above mentioned study which involved using a dance pad combined with preferred environmental stimulation. Two dance pads were used in this study for the purpose of increasing the collaborative walking activity among students with ASD and their peers by having participant step on dance pads. Two students were partners and each stood on an individual dance pad. These two dance pads were connected to the same control system, an AIO computer (Lenovo, 2014) that was used to play their common preferred stimulation (i.e., a music video). The target response was that the two participants were required to engage in walking activity together in order to trigger the preferred stimulation. The control system would trigger the video playback whenever collaborative walking activity was detected. Conversely, the music video would be interrupted if one or both of the participants stopped walking, and the interrupted video would play again only when the control system detected new collaborative walking activity.

The main purpose of this study was to evaluate whether students with ASD could actively perform collaborative walking activity with their peers through stepping on dance pads combined with preferred stimulation. It bears mentioning that in order to increase the motivation and willingness for participants to engage in collaborative walking activity, the choices of preferred stimulation are important. The preferred stimulation in the present experiment consisted of videos which were favorites of both participants and were recommended and provided by their parents and teachers.

Download English Version:

<https://daneshyari.com/en/article/10317107>

Download Persian Version:

<https://daneshyari.com/article/10317107>

[Daneshyari.com](https://daneshyari.com)