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## Relationship between Visual Perception and Imitation in School Function among Autism

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### Abstract

Twenty children with autism (4 to 9 years 6-month-old) participated in this study. All the participants tested with Developmental Test of Visual Perception: Second Edition, Motor Imitation Assessment, unstructured Motor Imitation Assessment and School Functional Assessment (SFA). The result revealed that school function of autistic children has a significant relationship with their visual perception and imitation performance. About fifteen components of SFA had relationship with visual perception subtest in Motor Reduced Visual Perceptions (visual motor integration  $r = 0.462$ ) and for the imitation task (unstructured gesture imitation  $r = 0.472$  and unstructured object imitation  $r = 0.559$ ).

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*Keywords:* Autism; imitation; visual perception; school function

### 1. Introduction

Autism have differences in the sensory, visual perception, gross-motor and imitation (Smith, 1994; Provost, Heirnerl, & Lopez, 2007; Volker, Lopata, Vujnovic, et al., 2010; Novales, 2006; Rogers et al., 1991; Frith, 1970; Milne, Griffiths, Buckley, & Scope, 2009; Ming, Brimacombe, & Wagner, 2007). Developing a children's activity on school tasks may optimistically affect interest, self-confident, and decrease motivation and abnormal behaviors (MacDonald, 2010). Academic need for the children with autism is very important because it reduces the abnormal behavior. Whitby et al., 2009 stated that the academic commitment of children with autism can reduce the behavior problem in the classroom. Autism is a neurodevelopment disorder has the impairment of social, communication and

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behavior patterns (DSM IV, 1994). Children with autism also have a deficit in imitation (Smith, 1994). The imitation deficit may affect symbolic thinking, emotion-sharing, and share attention in autism (Rogers et al., 1991). The researcher also suggested that deficit in mirror neuron system in autism. This mirror neuron is mainly responsible for imitation, social relation and emotional response (Williams et al., 2001). Autism shows significant deficits in various types of imitation such as object, body (Stone et al., 1997; DeMyer et al., 1972; Stone et al., 1997b), vocal (Sigman et al., 1984), pantomime (Rogers et al., 1996) and gestural (Curcio, 1978; Sigman et al., 1984;). Imitation impairment has not only been associated with autism but also with deficits in Visual perspective taking (VPT) visual perception and visual dysfunction (Yu, Su & Chan, 2011; Milne & Griffiths, 2007).

The visual perception dysfunction affects the school function skills in autism especially in handwriting, reading, fixation with the object and maintaining eye contact. For example, the autistic children mostly perform spinning wheels of toys car or preoccupy in imagination world (Milne & Griffiths, 2007). School functional performance is needed to the children because it is one of most important function to develop the new learning behavior. The researcher reported in cognitive psychology literature; children with autism are in unusual cognitive style (Motttron et al., 2006) and sensory patterns (Hazreena, 2012). According to Steven Dakin, 2005 stated that abnormalities in the superior performance of a visual task of the superior temporal sulcus (STS) that may provide a connection between visual perceptual and socio-cognitive deficit with autism. The visual search, visual attention, learning high confused pattern, drawing, visual processing and postural hypoactive deficit occurred due to abnormalities of STS in autism (Gepner et al., 1995; Plaisted et al., 1998 b; Motttron and Belleville, 1993; Plaisted et al., 1998 ; O’Riordan et al.,2001;). Based on the early studies reported that foundation of visual perception and imitation linked to school performance of autism, but limited studies conducted in this area (Milne & Griffiths, 2007; Nurul et al., 2014).

The occurrence of visual impairment in autism was greater than the normal children (Kaplan et al., 1999). Analysis of eye gaze is a primary skill for social-perceptual but it's badly impaired in autism (Losh&Piven, 2007). A recent study examined the visual perception task (VPT), and imitation has impaired in children with autism. The findings suggest a problem in coordinating the perspective of self and others underlies both the imitation and visual perception in autism (Yeu Yu et al., 2011). The children with autism were difficult to understand the demonstrator performance. Thus, the child may be difficult to imitate and learn fundamental skills.

The school psychologists reported that autism have difficulty in regular classroom demands and visual instructions (Mayes & Calhoun, 2007; Landry, Mitchell, &Burack, 2009). Visual perception deficit plays an important role for imitation deficit. The visual perception and imitation linked with a school function. There is evidence that fundamental visual function may affect the functional performance in autism, but limited studies conducted on the specific deficit affect the visual perception that related to school performance (Milne & Griffiths, 2007). Many studies conducted on the relationship between visual perception and imitation among autism, but early studies were neglected to identify the relationship between visual perception and imitation in the school function. The school function is the one of the most important function of learning basic and also new skills. The school-related occupational performance deficit affects the everyday education tasks and quality of life of the children (Law, Missiuna, Pollock, & Stewart, 2001).

The early research stated that a motor, social, cognitive and attention are the important factors of school-functional performance with neurodevelopment disabilities (Leung et al., 2011). For finding the social and school function the assessment used was Vineland Adaptive Behavior Scales (Wu, Chang, Lu, & Chiu, 2004) and the School Function Assessment (SFA; Coster et al., 1998). Another study identified the relationship between school function and with both sensory processing disorder and cognitive function (Zingerevich& La Vesser, 2009). An early study used to Developmental Test of Visual Perception, 2nd Edition (DTVP-2) assessment for the visual perception in autism (Lee, 2013; Marlie, 2012) but not related to school- functional performance. None of the studies identified relationship between school functioning skill that related to imitation and visual perception in autism. Therefore, the purposes this study is aimed to examine the significant relationship between visual perception and imitation in the school function among autism.

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