

Chapter 49

Web-Based Social Stories and Games for Children with Autism

Kanisorn Jeekratok

King Mongkut's University of Technology, Thailand

Sumalee Chanchalor

King Mongkut's University of Technology, Thailand

Elizabeth Murphy

Memorial University of Newfoundland, Canada

ABSTRACT

Children with (ASD) may respond well to web-based learning because computers can provide features such as repetition, visual stimuli and independent interactions that appeal to them. However, there has been limited testing of web-based learning especially outside of institutional settings. The study reported on in this paper involved the testing of open, web-based games and social stories for children with Autism Spectrum Disorder (ASD). The web-based learning was accessible by parents, teachers, health professionals and children in an institutional and home setting and consisted of four social stories and seven games housed in a website. Pre- and post-testing of the web-based learning took place over a three-month period with 10 children with ASD enrolled in a special-education center in North-Eastern Thailand. Testing was conducted using observation. Analysis involved descriptive statistics, parametric t-tests and Wilcoxon Signed-Rank tests. Results revealed improvement for all behaviors although not for all children. Implications include the need for future studies that rely on more participants and that focus on transferability of learned behaviors to real-life contexts. Future studies might also include longitudinal designs to determine sustainability of newly learned behaviors and the design of web-based environments that adapt to or are more specifically tailored to individual needs of children with ASD.

1. INTRODUCTION

The prevalence of children with autism, or what is more specifically referred to as Autism Spectrum Disorder (ASD) in eight-year olds in the U.S.A. is estimated to be as high as one in 88 children (Baio, 2012). In Thailand, where the study reported on in this paper was conducted, estimates for 2006 listed approximately 200,000 children with ASD (Ministry of Education, Thailand 2006). Children with ASD

DOI: 10.4018/978-1-5225-0034-6.ch049

exhibit a range of symptoms related to “social development, communication, and repetitive behaviors” (Sansosti & Powell-Smith, 2008, p.162), facial expression and emotion recognition difficulties (Leggett et al., 2010; Silver & Oakes, 2001), impaired communication and social interaction combined with restricted and repetitive behavior (American Psychiatric Association, 2000), lack of empathy (Bernard-Opitz, Sriram, & Nakhoda-Sapuan, 2001), impaired discrimination between and detection of colors (Franklin, Sowden, Burley, Notman & Alder, 2008), and exceptional attention to detail as well as a preference for rule-based, structured information (Baron_Cohen, 2002). They may also exhibit behaviors that can be characterised as disruptive, inappropriate and even dangerous (Kientz et al., 2007). Children with ASD may also exhibit patterns of thinking that are rigid and that may result in difficulties adapting to new rules but that can also be remediated using highly-structured intervention models such as the TEACCH approach (Texas Statewide Leadership for Autism, 2009, p. 1). An important aspect of the TEACCH approach involves providing an ordered and structured setting for students (Mesibov, Shea, Schopler, 2004).

Anecdotal reports have suggested that computer use may help remediate some of the problems faced by children with ASD and their parents/guardians and caregivers. Ultimately, computers “can potentially lead to novel and more effective treatment strategies and enhance quality of life for people with ASD and their families” (Bölte, Golan, Goodwin, & Zwaigenbaum, 2010, p. 155). Children with ASD may be motivated by computer use (Sansosti, & Powell-Smith, 2008) and by sound and action (Calvert, 1999). Additionally, use of computers may improve social skills in these children (Bernard-Opitz et al., 2001). One advantage of use of computers may be related to the ability to create predictable, rule-based systems with repetitive patterns to which children with autism tend to be naturally drawn and which may be “soothing...because of their ‘need for sameness” (Leggett et al., 2010, p. 271). Another advantage may relate to the children’s preference for visual stimuli (Mineo, Ziegler, Gill, & Salkin, 2009, p. 172). As Mineo et al. (2009) observed, “... the very nature of electronic screen media renders them ideal for the delivery of information to this population” (p. 172). Additionally, computers and their software serve as patient tutors, provide responses linked contingently with students’ needs and can create “an intrinsically interesting learning environment that appeals to children with autism” (Moore & Calvert, 2000, p. 359). Computer-animated agents, for example, are like “perpetual teaching machine”, not only available 365 days of the year but never becoming angry, impatient bored or tired (Bosseler & Massaro, 2003, p.667). Children with ASD may also benefit from the freedom from social demands characteristic of computer-based environments (Silver & Oakes 2001).

Other advantages relate to the fact that computers provide “multisensory interactions, controlled and structured environments, use of multilevel interactive functions, and especially individualized use and independence” (Hetzroni & Tannous, 2004, p. 96). Computer programs can also assist students with communication skills (Ramdoss et al., 2011) and social skills (Parsons, Leonard & Mitchell, 2006) such as following a schedule (Kimball, Kinney, Taylor & Stromer, 2004; Wainer & Ingersoll, 2011). Venkatesh, Greenhill, Phung, Adams and Duong (2012) noted that “computer-assisted intervention has been demonstrated to be effective in teaching language, reducing inappropriate verbalization, increasing functional communication, and improving generalization to a child’s daily environment (p. 865).

Another approach designed to help children with ASD involves use of social stories. First promoted by Gray and Garand (1993), social stories teach social skills (Gray, 1998) by making explicit the desired behaviors and their consequences (Sansosti, 2005) and by providing descriptive information concerning a social concept and “suggestions concerning how to respond to a given social cue or situation (e.g., how to remain calm and follow directions during a fire drill)” (Sansosti & Powell-Smith, 2008, p. 163). Reynhout and Carter (2011) theorized about the effects of social stories on children with ASD. They

17 more pages are available in the full version of this document, which may be purchased using the "Add to Cart" button on the publisher's webpage:

www.igi-global.com/chapter/web-based-social-stories-and-games-for-children-with-autism/151248

Related Content

Transition From the Perspectives of Kurahashi and Tsumori: Children's Inner World and Mutual Transformation

Ryutaro Nishi (2022). *Handbook of Research on Innovative Approaches to Early Childhood Development and School Readiness* (pp. 142-164).

www.irma-international.org/chapter/transition-from-the-perspectives-of-kurahashi-and-tsumori/299989

Reconceptualisation of Democratic Citizenship Education Against Social Inequalities and Electoral Violence in Zimbabwe

Monica Zembere (2021). *International Journal of Curriculum Development and Learning Measurement* (pp. 1-9).

www.irma-international.org/article/reconceptualisation-of-democratic-citizenship-education-against-social-inequalities-and-electoral-violence-in-zimbabwe/285977

What Can Data Tell Us?: Using Classroom Data to Determine Student Engagement

Kelly M. Torres and Aubrey Statti (2023). *International Journal of Curriculum Development and Learning Measurement* (pp. 1-13).

www.irma-international.org/article/what-can-data-tell-us/320219

Relationship of Collegiate Resiliency to Early Career Success in Professional Sales

John Andy Wood and Joseph M. Derby (2020). *International Journal of Curriculum Development and Learning Measurement* (pp. 31-52).

www.irma-international.org/article/relationship-of-collegiate-resiliency-to-early-career-success-in-professional-sales/260746

Meeting the Demand for Online Education: A Study of a State-Run Program Designed to Train Virtual K-12 Teachers

Jayme Nixon Linton and Wayne Journell (2015). *Exploring the Effectiveness of Online Education in K-12 Environments* (pp. 45-65).

www.irma-international.org/chapter/meeting-the-demand-for-online-education/116137