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Using tablet assisted Social Stories™ to improve classroom behavior for adolescents with intellectual disabilities



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ABSTRACT

The present study examined the use of tablet assisted Social Stories™ intervention for three high school students with severe intellectual disabilities whose problem behavior interfered with their learning and caused classroom disruptions. A multiple probe design across participants was employed to test the impact of the tablet assisted SS on the participants' target behaviors. During intervention, the participants read the Social Stories that were created on Prezi and accessed via Quick Response (QR) codes using a Galaxy Tap smart tablet before participating in an academic period. Data indicated that the SS intervention decreased disruptive behavior and increased academic engagement in all three participants. All three demonstrated generalization of behaviors to a nontargeted academic period and maintenance of improved behaviors at the 2-week follow-up.

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1. Introduction

Individuals with intellectual disabilities (ID) have difficulty applying knowledge to new problems and situations (Smith & James, 2005) and effectively communicating with others (Cheslock, Barton-Hulse, Ronski, & Sevcik, 2008; McLean, Brady, & McLean, 1996; Lindsay, 2002). These deficits in cognitive and communication skills often manifest themselves in severe problem behavior in home, school, and community settings (Carr, Newsom, & Binkoff, 1980; Gardner & Griffiths, 2005). In a large school-based sample, it was found that the prevalence of behavior problems was high in adolescents with ID (Oeseburg, Jansen, Dijkstra, Groothoff, & Reijneveld, 2010). Problem behaviors such as aggression, property destruction, and self-injury have been found to be common in individuals with ID (Allen, 2008; Gardner, 2007; Rojahn & Esbensen, 2002). Such behaviors can interfere with successful participation in academic activities in school and can be challenging for teachers.

A variety of empirically validated interventions have been attempted for children with ID who display problem behavior during classroom activities and routines. These interventions include visual support (Dettmer, Simpson, Myles, & Ganz, 2000; Irvine, Erickson, Singer, & Stahlberg, 1992), video modeling (Hammond & Whatley, 2010; Norman, Collins, & Schuster, 2001), functional communication training (Durand & Merges, 2001), curriculum and instruction adaptations (Browder, Jimenez, & Trela, 2012; Knight, Spooner, & Browder, 2013), choice and preference (Foster-Johnson, Ferro, & Dunlap, 1994), noncontingent reinforcement (Borrero & Vollmer, 2006), differential reinforcement (Chowdhury & Benson, 2011), peer-mediated intervention (Carter, Sisco, Chung, & Stanton-Chapman, 2010; Peck, Sasso, & Jolivette, 1997), and positive behavior

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support (Carr et al., 1999). These interventions have been linked to positive student outcomes, including increased student academic engagement and decreased problem behavior.

1.1. Social Stories™

One empirically validated intervention that has been found to be effective in improving behavior in children with disabilities, including ID, is Social Stories™ (Gray, 2004). Social Stories™ (SS) has been used for a variety of purposes including increasing task performance or compliance (Hagiwara & Myles, 1999), social interaction (Barry & Burlew, 2004; Crozier & Tincani, 2007; Delano & Snell, 2006), and engagement in activities and decreasing problem behavior (Brownell, 2002; Crozier & Tincani, 2005; Ozdemir, 2008). However, a meta-analysis by Kokina and Kern (2010) indicated that SS intervention is more effective for behavior reduction than for teaching appropriate behavior, and that studies rarely targeted academic skills. In addition, SS has primarily been used to address social difficulties of children with autism spectrum disorders (ASD). In one study, SS was successfully used to increase self-determination related knowledge (i.e., knowledge of adult outcome areas and opportunities) in youth with ID (Richter & Test, 2011).

However, due to very limited research on this population, the extent to which SS can benefit children with ID in the school setting is not clear. Several researchers argued that SS was more likely to benefit children with basic language skills and higher intelligence (e.g., Kuoch & Mirenda, 2003; Reynhout & Carter, 2006). Reynhout and Carter (2008) used SS to address academic engagement (i.e., looking at a book) during group reading time for an 8-year-old child with autism who had limited language skills and intellectual disability. The results indicated that the SS intervention was not successful in increasing the child's target behavior.

SS is commonly read immediately prior to the targeted situation or activity and incorporates several well-researched antecedent-based interventions such as activity schedule and priming in which future events are previewed so that they become more predictable (Duttlinger, Ayres, Beville-Davis, & Douglas, 2013; Ivey, Heflin, & Alberto, 2004). SS is typically written from the first- or third-person perspective and presented in a written format with or without visual illustration (Gray, 1998). However, the results of a meta analysis by Kokina and Kern (2010) indicated that SS utilizing visual illustrations resulted in better outcomes than SS with no illustrations. In addition to visual illustrations, computer assisted SS that utilized multimedia was found to be effective in promoting social skills in children with ASD (Hagiwara & Myles, 1999; Mancil, Haydon, & Whitby, 2009; Sansosti & Powell-Smith, 2008) and self-determination related knowledge in youth with ID (Richter & Test, 2011).

1.2. Tablet assisted interventions

In recent years, smart tablets such as the Apple iPad and iPod Touch have emerged as a popular educational technology for children with disabilities because of the touch screen that makes the devices highly accessible, and visual displays that are often highly appealing and motivating for children with disabilities (Zaranis, Kalogannakis, & Papadakis, 2013). For some children with disabilities, tablets can provide an economical, flexible, and socially acceptable means of communication, extending beyond augmentative communication devices (Sennott & Bowker, 2009). Although the outcomes of using smart tablets have not been reported in the SS literature, studies have used augmentative and alternative communication (AAC) systems via iPod Touch to increase communication skills of children with ASD (Achmadi et al., 2012; Flores et al., 2012; Kagohara et al., 2010, 2013; Sennott & Bowker, 2009) and video modeling via iPad to improve transitioning behavior, communication skills, and academic skills for children with ASD (Burton, Anderson, Prater, & Dyches, 2013; Cihak, Faherenkrog, Ayres, & Smith, 2010; Jowett, Moore, & Anderson, 2012). The iPad has also been used to deliver academic activities such as handwriting and color matching which was successful with language arts instruction for children with language disorders (Cumming & Rodriguez, 2013), reading instruction for children with ID (Kwon, 2011), and decreasing challenging behavior and increasing academic engagement for students with ASD (Neely, Rispoli, Camargo, Davis, & Boles, 2013). However, research on the use of tablets and mobile devices as educational and intervention tools for children with disabilities is in its infancy. As discussed above, the motivational aspect of the tablets has the potential to increase attention and reinforcement during story reading and instructional time for children with disabilities who have a reduced motivation for social interaction (Neely et al., 2013). In addition, since children can easily navigate the story using the touch screen display, the tablet-assisted SS may increase self-directed learning and independence (Rodriguez, Strnadova, & Cumming, 2013).

1.3. Current study

The current study was conducted in South Korea where technology integration into curriculum activities has been emphasized to support students with disabilities. Tablets have been used in South Korea as AAC devices and instructional materials for children with disabilities (Han, Kim, & Park, 2012; Joe, 2012; Lim & Park, 2011). In several studies, SS with multimedia or videos were delivered via computer to reduce problem behavior and teach functional communication skills (Jeong & Jeon, 2010, 2011), social communication skills (Lee, Lee, & Joe, 2007; Lee & Moon, 2011), self-determination skills (Kim, 2005), and academic skills (Kim & Lee, 2012) for children with ASD. However, addressing problem behavior and promoting academic engagement in children with disabilities by using tablet assisted SS have not been reported in the Korean literature.

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