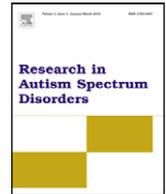




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Task engagement in young adults with high-functioning autism spectrum disorders: Generalization effects of behavioral skills training

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ABSTRACT

This study evaluated the effectiveness of a behavioral skills training package on task engagement in six young adults with high-functioning ASD who worked in a regular job-training setting. Experimental sessions were implemented in a small-group training format in a therapy room using unknown tasks. Data were collected on participant's off-task behavior and questions for help as well as on staff's behavior in the regular setting during regular job tasks (i.e., generalization). Intervention consisted of discrimination training, self-management strategies, behavioral practice, corrective feedback, and reinforcement. Following intervention, a significant decrease was found in percentage off-task behavior in the regular setting while performing regular job tasks. No changes were found in questions for help by participants or in behavior of staff. Effects were maintained at 6-week follow-up and at 6-month follow-up outcomes were still beneath baseline levels. Findings are discussed in relation to future research.

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1. Introduction

An important target in improving adaptive functioning in persons with autism spectrum disorders (ASD) is task engagement. Task engagement can be regarded as a pivotal response and is considered relevant in programming integration (e.g., Callahan & Rademacher, 1999; Pelios, MacDuff, & Axelrod, 2003; Ruble & Robson, 2007). Problems with task engagement in persons with ASD (with and without intellectual disability-ID) have been found in performing tasks across several domains. For example, in performing daily living tasks, play-, and leisure activities (e.g., Hume & Odom, 2007; MacDuff, Krantz, & MacClannahan, 1993; Machalicek et al., 2009; Pierce & Schreibman, 1994), and in performing academic tasks (e.g., Bouxsein, Tiger, & Fisher, 2008; Bryan & Gast, 2000; Coyle & Cole, 2004; Pelios et al., 2003; Ulke-Kurkcuoglu & Kircaali-Iftar, 2010; Watanabee & Sturmey, 2003), and employment tasks (e.g., Hume & Odom, 2007; Shields-Wolfe & Gallagher, 1992). Problems may manifest in various task-related behaviors such as, not using or not attending to task materials, using task materials in ways other than that for which they were designed, or engaging in inappropriate, not task-related, activities such as stereotypic behavior. Several factors may contribute to problems with task engagement in persons with ASD such as problems with self-regulation, maintaining attention, and/or problem solving (e.g., Ruble & Scott, 2002). Also, motivational challenges (e.g., Ulke-Kurkcuoglu & Kircaali-Iftar, 2010; Watanabee & Sturmey, 2003), problems in processing auditory information (e.g., Bryan & Gast, 2000; Massey & Wheeler, 2000), and

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problems in attending, initiating and generalizing skills (Carnahan, Hume, Clarke, & Borders, 2009) are considered contributing factors.

Task engagement has predominantly been targeted for intervention in studies with children with ASD in which self-management strategies (e.g., Callahan & Rademacher, 1999; Coyle & Cole, 2004; Pierce & Schreibman, 1994), choice making opportunities (Ulke-Kurkcuoglu & Kircaali-Iftar, 2010), visual activity schedules (e.g., Bryan & Gast, 2000; Massey & Wheeler, 2000), and visual work systems (Hume & Odom, 2007) were effective in improving task engagement. In most studies, strategies were part of a treatment package including prompt fading and/or reinforcement procedures. Several studies reported that effects generalized over time (e.g., Coyle & Cole, 2004; Hume & Odom, 2007), across activities (e.g., Bryan & Gast, 2000), and/or settings (e.g., Pierce & Schreibman, 1994). For example, Pelios et al. (2003) examined the effectiveness of a treatment package consisting of an activity schedule, fading of instructional prompts and instructor's presence, delaying reinforcement, and response cost on task engagement in three children (age range: 5–9 years) with autism and severe language deficits performing familiar activities (i.e., academic and leisure activities) in an experimental setting. The treatment package resulted in substantial increases in on-task responding for all participants using activity schedules with a supervisor only occasionally present. Results generalized across novel material, across a novel (experimental) setting, and over time.

Only a small number of studies have been conducted on task engagement in young adults with ASD. Interventions consisted of delivering choice making opportunities in ordering academic tasks in an activity schedule (Watanabee & Sturmey, 2003), teaching accurate use of an individual work system in performing employment tasks (Hume & Odom, 2007), and delivering specific task instructions (i.e., on task goal and on time frame) on academic tasks (Bouxsein et al., 2008). In these studies, one to three young adults with ASD participated of whom one was diagnosed with Asperger syndrome (Bouxsein et al.). Most studies were conducted in the natural (i.e., academic or employment) setting and familiar tasks were used. Regarding generalization, maintenance of results was reported in only one study (i.e., Watanabee & Sturmey) while generalization across settings and/or tasks was not measured.

Many adults with ASD rely on support from parents and service agencies in transitioning across the lifespan (e.g., Howlin, Goode, Hutton, & Rutter, 2004). To achieve successful employment, demands for vocational services and supported employment increase substantially (e.g., Hillier et al., 2007; Lawer, Brusilovski, Salzer, & Mandell, 2009; Migliore, Timmons, Butterworth, & Lugas, 2012; Taylor & Seltzer, 2011). Research on work skills training for persons with autism is limited (Hendricks, 2010; Matson, Hattier, & Belva, 2012; Palmen, Didden, & Lang, 2012). As task engagement is considered a highly relevant work skill for integration in vocational settings (e.g., Hume & Odom, 2007), further research is needed on this subject. The above studies on task engagement in young adults with ASD had limitations in that no data were collected on generalization across settings and/or tasks. Due to generalization problems in persons with ASD, job skills training seems to be considered most beneficial when it is provided in the natural job-setting using regular tasks (see e.g., Hendricks, 2010; Lattimore, Parsons, & Reid, 2006). However, when using an experimental (simulated) setting, explicit programming of generalization is necessary to establish generalization (Koegel, Koegel, & Parks, 1995; Stokes & Osnes, 1989). In the simulation training by Lattimore et al., common stimuli (i.e., same trainer, same task materials and same procedure [i.e., graduated guidance]) were used in enhancing generalization in four supported workers with ASD and ID (age: 29–32 years). The job-site training supplemented with the simulation training resulted in a more rapid job skill acquisition than did the job-site training alone.

Simulation-based training has also been effective in improving adaptive skills in the natural setting in young adults with high-functioning ASD. For example, Palmen, Didden, and Arts (2008) found that the use of silence prompts during tutorial conversations supplemented with behavioral skills training in a simulated setting resulted in a statistically significant higher level of question asking during regular tutorial conversations than the use of silence prompts alone in nine young adults with high-functioning ASD. The use of a self-management-strategy, visual cues, and multiple stimulus and response exemplars may have contributed to the generalization effects.

Given the importance of generalizing task engagement across a diversity of job tasks, the present study evaluated the effectiveness of a behavioral skills training package, implemented in a therapy room with unknown tasks, on task engagement in a regular job-training setting with regular job tasks (i.e., generalization setting) in six young adults with high-functioning ASD. As the occurrence of task engagement may be influenced by supervisor's presence, response prompting, and/or reinforcement contingencies (e.g., Pelios et al., 2003), data were collected on presence of staff and on staff's response prompting-, and reinforcing behavior toward the participant in the generalization setting to explore alternative explanations for improvement in task engagement by participants. Next to data collection by behavioral observations, data on off-task behavior were also collected by staff reports following each observation session to compare staff's opinion on the intervention with data of observation. Furthermore, a small group-training format was used as it gives the opportunity to involve more participants next to other benefits in terms of costs and learning opportunities. Finally, long-term follow-up data (i.e., 6 months following intervention) were collected as collection of maintenance data was limited in previous studies.

2. Method

2.1. Participants

The study was conducted in a treatment facility (Dr. Leo Kannerhuis) providing educational services such as domestic-, social-, leisure-, and job-skills training to persons with high-functioning ASD. Participants were six young adults who

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