

# A personal digital assistant intervention reduced job coaching support hours without reducing work performance among workers with autism

## Synopsis

**Summary of:** Gentry, T., Kriner, R., Sima, A., McDonough, J. & Wehman, P. (2015). Reducing the need for personal supports among workers with autism using an iPod Touch as an assistive technology: Delayed randomized control trial. *Journal of Autism and Developmental Disorders*, 45, 669–684. doi: 10.1007/s10803-014-2221-8

**Research objective:** To determine if using a personal digital assistant (PDA) reduced the need for personal supports and improved work performance and competence among adult workers with autism spectrum disorder (ASD).

**Design:** Waitlisted randomised controlled trial (RCT) with two intervention groups: the experimental group received the PDA intervention upon starting their job placement; the control group received the same intervention 12 weeks after commencement.

**Setting:** Competitive employment work settings in Virginia, United States.

**Participants:** Fifty-five adults with ASD commencing paid work placements with the support of a job coach consented to participate. Participants were randomised to either the experimental group ( $n = 28$ ) or control group ( $n = 27$ ). Two and three participants dropped out of the experimental and control groups, respectively, and were not included in the final analysis, leaving a final sample of 50.

**Intervention:** An occupational therapist determined individual participants' support needs, configured relevant applications on PDAs and provided training to participants on how to use the applications at work. Applications included task lists and reminders, visual prompts, way-finding tools, Wi-Fi-enabled communication with their job coach and behavioural adaptation cues. The occupational therapist shadowed participants at work and faded support as applications were integrated into work tasks.

**Outcome measures:** Baseline functional independence was measured with the Craig Handicap Assessment and Rating Technique (CHART). Job coaches used the Employment Subscale of the Supports Intensity Scale (SIS-EPS) to assess participants' work-related support needs at 4, 12 and 24 weeks. Quality of work performance was rated by job coaches using the Employee Performance Evaluation Report (EPER). Number of hours worked by participants and job coach support hours were reported by the job coaches.

**Main results:** Participants used no more than five PDA applications for job support. The experimental group

received 1.56 times less cumulative hours of job coach support compared to the control group at 12 weeks ( $P = 0.0056$ ), and 1.67 times less support at 24 weeks ( $P = 0.0061$ ). Occupational therapy support hours were not reported. Estimated savings in job coaching costs averaged \$379 over 12 weeks and \$2,025 over 24 weeks. SIS-EPS and EPER scores did not differ between the experimental and control groups at all time points.

**Authors' conclusions:** The PDA was a cost-effective adjuvant support, and when introduced at job commencement, did not decrease job performance while significantly reducing the number of personal support hours provided by job coaches. Occupational therapists should be trained in the use of PDAs as cognitive-behavioural aids before trialling them in vocational settings.

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## Commentary

People with ASD face unique challenges in finding and maintaining employment due to difficulties with social communication, behaviour, cognition and sensory processing. There is growing demand to explore various supports, including mobile assistive technologies (AT), to facilitate employment success (Hendricks, 2010). Although widely used with children with ASD (Goldsmith & LeBlanc, 2004; Hayes *et al.*, 2010; Laarhoven, Kraus, Karpman, Nizzi & Valentino, 2010); there is limited research on AT use with adult workers (Gentry *et al.*, 2015).

Using individualised applications on a PDA at job commencement significantly reduced personal support hours for workers with ASD; however, the authors did not indicate what level of reduced support was clinically important. Using outcome measures with potential ceiling (EPER) and floor (SIS-EPS) effects may explain no between-group differences in job performance or support needs. Statistical significance of within-group changes in EPER and SIS-EPS scores over time were not reported to substantiate claims of no reduction in work performance. Use of non-blinded job coaches to

collect all data pertinent to the study objectives, including their support hours worked, introduced possible assessor bias.

The PDA intervention provided support for completion of job tasks; however, workers with ASD often require personal support to navigate social environments at work. This intervention may allow job coaches to focus their on-the-job support time on developing necessary social skills, including understanding social rules of the workplace, accepting directions and feedback, and appropriately using verbal and/or non-verbal communications with work colleagues.

Using mainstream technology as a natural prompt normalises the intervention; however, funding to purchase the PDA is a consideration in the Australian context. Historically, AT that are not purely for communication purposes have not been government funded. Under the National Disability Insurance Scheme there may be more scope to fund AT if they help achieve specific goals in the individual's plan.

The occupational therapist providing the PDA intervention was experienced in AT. Less experienced therapists may take longer to source and train workers to use suitable applications; moderating the effects of reduced job-coaching hours. Although this study's findings are promising, clinicians should critically reflect on whether this is the most suitable option for their client's individual needs. Given the complexity of supporting workers with ASD, it is unlikely that any

single intervention will provide a panacea. Further research is needed on how AT interventions combined with other environmental or task adaptations, social skills and job skills training, may help maximise employment outcomes.

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## References

- Goldsmith, T. & LeBlanc, L. (2004). Use of technology in interventions for children with autism. *Journal of Early and Intensive Behavioral Intervention*, 1, 166–178.
- Hayes, G., Hirano, S., Marcu, G., Monibi, M., Nguyen, D. & Yeganyan, M. (2010). Interactive visual supports for children with autism. *Personal and Ubiquitous Computing*, 14, 663–680.
- Hendricks, D. (2010). Employment and adults with autism spectrum disorders: Challenges and strategies for success. *Journal of Vocational Rehabilitation*, 32, 125–134.
- Laarhoven, T. V., Kraus, E., Karpman, K., Nizzi, R. & Valentino, J. (2010). A comparison of picture and video prompts to teach daily living skills to individuals with autism. *Focus on Autism and Other Developmental Disabilities*, 25, 195–208.