Critical Review:

Do speech-generating devices (SGDs), when combined with naturalistic teaching methods promote communication in children with Autism Spectrum Disorder (ASD)?*

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This critical review examines the current research regarding whether the use of a speech-generating device (SGD), increases spontaneous communication in children with Autism Spectrum Disorder (ASD) when taught by naturalistic teaching methods. A systematic literature search using electronic databases yielded five articles in accordance with selection criteria. All studies were single subject designs. Research results indicate suggestive evidence that SGDs, when taught using naturalistic methods, can increase the frequency of spontaneous communicative behaviours in children with ASD. Clinical implications, conclusions and recommendations for further research are discussed.

Introduction

Autism Spectrum Disorder (ASD) is a developmental disorder where individuals present with: deficits in social communication and social interaction; restricted or repetitive behaviour; and communication impairment (American Psychiatry Association, 2013; Sigafoos, OôReilly, Lancioni, & Sutherland, 2014). Children with ASD develop limited speech, language and functional communication abilities (Sigafoos et al., 2013; Van der Meer & Rispoli, 2010). Instead, these children tend to rely on more pre-linguistic behaviors such as pointinio

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for requesting, allowing for strong inter-rater reliability (86-100%).

Although there was a well-established set of inclusion criteria, participants were not matched for the amount of previous intervention received by a Speech-Language Pathologist (SLP). This could have influenced how responsive and compliant each child was to the presented intervention. Additionally, no statistical analysis was applied to the results to determine significance or effect size, which would have further supported visual inspection. With the outlined strengths and weaknesses considered, the level II evidence presented in this study is considered suggestive.

Trembath, Balandin, Togher, and Stancliffe (2009) compared the effectiveness of peer-mediated naturalistic teaching both with and without the use of an SGD (the Talara 32) on increasing the frequency of communicative behaviours for three children with ASD (age 3-5 years). Six peer mediators (age 3-5 years) were educated on modeling SGD use during 10-minute classroom play activities during baseline. Frequency of communicative behaviours was recorded for each child with ASD during intervention. In addition, generalization probes were conducted during mealtime in both baseline and intervention phases. Results indicated that communicative behaviours when using an SGD and naturalistic teaching demonstrated a greater increase than naturalistic teaching without an SGD; however, the extent to which these increases were maintained varied between participants.

Trembath et al. (2009) demonstrated strengths by controlling for setting, and developing a method for consistent peer training. Additionally, the study performed statistical analysis for significance and effect size using the Percentage of All Non-Overlapping Data (PAND) and the Pearson Φ. These measures allowed for all intervention data to be compared to all baseline data, in order to support the intervention effect demonstrated by visual inspection. Generalization probes also allowed for the demonstration of the carryover of treatment effects. A weakness of this study is that it did not state the severity of the disorder for each child with ASD, which affected comparison across subjects. Additionally, despite the fact that the authors had a well-established method, unexpected prompting and interference by the classroom teacher was reported to occur during both baseline and intervention. Prompting creates potential bias in the frequency of communicative behaviours by the children with ASD. The level II evidence (Logan et al., 2008) presented in this study is suggestive based on the limitations outlined.

Trottier, Kamp and Mirenda (2011) investigated whether peers could be taught to support SGD use in social game routines, and if peer support demonstrated an increase in spontaneous appropriate communicative behaviours using an SGD in two children (age 11 years) with ASD. For the purpose of this review, only the findings regarding SGD effects on the communicative behaviours of the participants with ASD were examined. Experimental objectives were examined in two consecutive intervention phases. Peer mediators (age 11-12 years) were trained on modeling and facilitating the use of an

from prelingusitic skills to more advanced communication skills (i.e. commenting, questioning