Article

One-to-One Assistant Engagement in Autism Support Classrooms

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Abstract

Classroom assistants and one-to-one assistants are an important part of the staffing structure of many autism support classrooms. Limited studies, however, have examined how one-to-one assistants spend their time in the classroom. The purpose of this article was to examine the percentage of time one-to-one assistants were engaged in instruction or support of students with autism and to determine the factors associated with their engagement. Direct observations were conducted in 46 autism support classrooms. Teachers and classroom assistants were engaged in instruction or support 98% and 91% of the time, respectively. One-to-one assistants were engaged in instruction or support 57% of the time. Classroom assistants' and one-to-one assistants' engagement was significantly correlated. The low rate of one-to-one assistants' engagement suggests an inefficient use of an important resource.

Keywords

autism spectrum disorder, autism, classroom staff engagement, one-to-one assistants, paraprofessionals

The increasing number of students with autism (Boyle et al., 2011; Rispoli, Neely, Lang, & Ganz, 2011) coupled with the shortage of qualified special education teachers and challenges to schools' budgets (McLeskey, Tyler, & Flippin, 2004; Rispoli et al., 2011) has led to a national trend—a majority of students with autism receive at least some of their school-based services from one-to-one assistants (Downing, Ryndak, & Clark, 2000; Fisher & Pleasants, 2012; Koegel, Kim, & Koegel, 2014; Quilty, 2007). One-to-one assistants have been the subject of research in health disciplines, such as home- and hospital-based care. In education, one-to-one assistants can be defined as paraprofessionals who work under the supervision of licensed professionals (through the school district or an outside behavioral health agency) to deliver direct services to students with special health care needs (Fisher & Pleasants, 2012; Martin & Alborz, 2014; Werts, Harris, Tillery, & Roark, 2004). In contrast, classroom assistants can be defined as staff who provide support to lead teachers by assisting with lessons, preparing materials, and providing overall classroom maintenance. In the urban school district where the present study was conducted, there are often multiple one-to-one assistants assigned to work with individual students, but there is usually one classroom assistant assigned to work with all of the students. There is great variability, however, in

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the arrangement of one-to-one and classroom assistants. For example, it is possible to have several one-to-one assistants who are working on a rotating basis with several students.

One-to-one assistants represent the fastest growing personnel segment in special education (Boomer, 1994; Fisher & Pleasants, 2012; French, 2003; Giangreco & Broer, 2005; Pickett & Gerlach, 2003; Young, Simpson, Myles, & Kamps, 1997). A number of reasons have been provided for the proliferation of one-to-one assistants including (a) pressure from parents (Forster & Holbrook, 2005; French & Chopra, 1999), (b) demands from general education teachers (Giangreco & Broer, 2007; Wolery, Werts, Caldwell, Snyder, & Lisowski, 1995), (c) special education teachers' increasing caseloads (Forster & Holbrook, 2005; Giangreco, Edelman, Broer, & Doyle, 2001; Wolery et al., 1995), and (d) the perception that the use of one-to-one assistants is cost effective (Boomer, 1994; Ghere & York-Barr, 2007).

The No Child Left Behind Act of 2002 and the Individuals With Disabilities Education Improvement Act of 2004 compelled states to create personnel training and supervision systems to support the growing number of one-to-one assistants (Forster & Holbrook, 2005; Ghere & York-Barr, 2007). As a result, school districts have invested considerable resources in developing this workforce. Ghere and York-Barr (2007) reported that as many as 38.5 hours is invested in each new one-to-one assistant from recruitment through special education orientation.

Despite this training, role ambiguity is common among one-to-one assistants (Ghere & York-Barr, 2007; Giangreco, Suter, & Doyle, 2010; Riggs & Mueller, 2001). Giangreco and Broer (2007) surveyed 27 schools and found that almost all of them were concerned about how one-to-one assistants were being used. Studies on the roles and responsibilities of one-to-one assistants suggest that their work has become more instructional than supportive (French, 2001; Giangreco & Broer, 2005; Webster & Blatchford, 2015; Werts, Zigmond, & Leeper, 2001). For example, some studies have shown that one-to-one assistants reported creating their own lesson plans, determining behavioral approaches, and consulting with other professionals about students' needs (Fisher & Pleasants, 2012; Giangreco & Broer, 2005).

Many one-to-one assistants are assigned to support individual students in self-contained classrooms, including autism support classrooms (Fisher & Pleasants, 2012). Ideally in these settings, the special education teacher plans instruction, which is then carried out by one-to-one assistants. Unfortunately in reality, these plans often are not implemented as designed (Locke, Kratz, Reisinger, & Mandell, 2014). For example, in their single-subject design study, Young and colleagues (1997) reported that one-to-one assistants initiated few interactions with students.

To our knowledge, there is limited research that directly examines one-to-one assistants' engagement in the classroom. Knowing how one-to-one assistants spend their time can facilitate resource allocation and decisions about the best roles for different special education personnel (Giangreco & Broer, 2005). There also are no studies that examine what factors are associated with one-to-one assistants' engagement (Giangreco et al., 2010; Werts et al., 2001). We hypothesize that classroom dynamics may affect one-to-one assistants' engagement. For example, there is a positive correlation between a sense of team cohesion and group performance (Beal, Cohen, Burke, & McLendon, 2003). Our observations also suggest that classroom assistants are more likely than the lead teacher to spend time with one-to-one assistants. One-to-one assistants may identify more with classroom assistants than with teachers, perhaps due to role similarity. Therefore, there may be a stronger association between classroom assistants' and one-to-one assistants' behavior. We also were interested in whether teacher characteristics were related to one-to-one assistants' engagement. One possibility is that teachers who implement evidence-based interventions with fidelity have more teaching experience and less stress and also have one-to-one assistants who are more engaged in the classroom. The present study examined these

associations by exploring two questions: (a) What percentage of time are one-to-one assistants engaged in autism support classrooms, and (b) what factors are associated with one-to-one assistants' engagement?

Method

Participants

Data were taken from a larger randomized-controlled trial of an autism support intervention in a large, urban district (Mandell et al., 2013). Participants in the present study included staff from 46 kindergarten-through-second-grade (K-2) autism support classrooms (46 teachers, 46 classroom assistants, and 46 one-to-one assistants). There was one K-2 autism support classroom in each school, consisting of 8 to 10 students per classroom. Each classroom contained a lead teacher and a classroom assistant. The number of one-to-one assistants in the classroom was contingent on the needs of the students; therefore, some classrooms had 0 one-to-one assistants, whereas others had upward of 16. There was considerable variability in their training. Some one-to-one assistants were trained through the school district while others were trained through behavioral health agencies. No further demographic information was collected on classroom staff.

Procedure

All procedures were approved by the appropriate institutional review boards from the university and school district. Researchers visited the classrooms as part of a comprehensive intervention program, called Strategies for Teaching Based on Autism Research (STAR; Arick et al., 2004; Arick et al., 2003). The STAR program combines three instructional approaches, discrete trial training (DTT), pivotal response training (PRT), and functional routines (FRs), into a comprehensive curriculum. Throughout the day, classroom staff were encouraged to facilitate DTT and PRT sessions, as well as FRs with their students to enhance academic, behavioral, language, and social outcomes.

Measures

Observation protocol for engagement/disengagement. During each live classroom observation, one research assistant per classroom coded aspects of the classroom environment (e.g., physical structure of the classroom, use of visual aids and transition materials, etc.) as well as recorded teachers', classroom assistants', and one-to-one assistants' engagement. (When not immediately apparent, researchers conferred with the teacher to identify the roles of adults present.) Engagement was defined as engaged with students or engaged with the environment. Engagement with students included active involvement in a teaching activity with a student or group (e.g., helping students use a visual schedule) or helping a child with activities that were not specifically teaching (e.g., passing out snack). Engagement with the environment involved instructional preparation, data collection, or work-related talk/phone/computer/reading. Disengagement was defined by activities such as personal talk/phone/computer/reading, sitting without students or material involvement, and completing personal paperwork. These behavior states were taken directly from the STAR curriculum (Arick et al., 2004; Arick et al., 2003). Engagement and disengagement were coded at 10-minute intervals for 30 minutes total. Observations were completed once a month throughout the school year. During reliability visits, two research assistants visited the classrooms. Inter-rater reliability, as measured by percent agreement, was calculated for one third of the classroom observations. Raters were blind to initial codes to assess reliability of behavior states. The average overall agreement was 77% (range = 73%-83%).

Classroom Cohesion Survey (teacher and classroom assistant forms). Teachers and classroom assistants completed their respective versions of the Classroom Cohesion Survey (Kratz et al., 2015), an 18-item self-report measure on the working relationship between the teacher and classroom assistant. Responses from both versions are structured on a 5-point scale ranging from 1 (*not true at all*) to 5 (*always true*). Sample questions

from the teacher version included "In general, I can rely on my classroom assistant when I need help" and "My classroom assistant and I agree on the best ways to work with our students." Items on the classroom assistant version paralleled the teacher version. Internal consistency was .97 and .95 for the teacher and classroom assistant scales, respectively. Teacher and classroom assistant cohesion were first calculated separately and then combined to create a classroom cohesion total score.

Maslach Burnout Inventory (MBI)—Education Form. The MBI (Maslach, Jackson, & Leiter, 1996) is a 22-item self-report inventory designed specifically for diagnosing burnout and job stress in teachers. It is composed of three subscales: emotional exhaustion (EE), depersonalization (DP), and personal accomplishment (PA). Responses are structured on a 7-point scale ranging from 0 (*feeling has never been experienced*) to 6 (*feeling is experienced daily*).

Program fidelity. Video observations were coded to assess the teachers' fidelity of implementation of each component of STAR. Each teacher was filmed for 30 minutes (10 minutes each for the three core intervention strategies) once per month. One research assistant per classroom, who was blind to the research hypotheses, was trained to code the video samples using a set of behavioral definitions for each component of STAR. Coders rated the use of each component of STAR on a 1 to 5 scale after viewing the entire video clip. A score of "1" indicated the teacher did not use the strategy during the session or never implemented it correctly, whereas a score of "5" indicated the teacher implemented the component competently throughout the segment. All scores for each program component were averaged across all months of the academic year to create a cumulative measure of STAR program fidelity.

Data analysis. We computed means and standard deviations to examine the percentage of time that classroom staff were engaged. Linear regression models were used to examine the association between independent variables and the engagement of one-to-one assistants. Variables of interest included teachers' engagement, classroom assistants' engagement, teachers' experience (i.e., in number of years), teachers' fidelity score, teacher and classroom assistant cohesion, and teachers' EE. In the unadjusted models, separate linear regressions were used to test for associations between each variable and one-to-one assistant engagement. In the adjusted model, we entered all of the variables of interest as independent variables and one-to-one assistant engagement as the dependent variable. Variables with a bivariate association significant at $p < .2$ were included in the adjusted regression analyses.

Results

Teachers averaged almost 6 years of teaching experience. Teachers had high overall fidelity to DTT and general classroom behavior management strategies. There was a moderately cohesive relationship between teachers and classroom assistants. Teachers generally reported low-to-average levels of burnout on the MBI. (See Table 1.) Teachers spent almost all of their time engaged (98%, $SD = 5.9$), especially with students (85%, $SD = 14.2$). Similarly, classroom assistants spent a majority of their time engaged (90%, $SD = 9.1$), also with students (74%, $SD = 16.5$). In contrast, one-to-one assistants spent slightly over half of their time engaged (58%, $SD = 19.8$). When disengaged, almost a third of one-to-one assistants (30%, $SD = 14.1$) spent their time sitting without students or material involvement. Figure 1 presents the distribution of engagement for one-to-one assistants.

Table 2 presents the results from the regression models. In unadjusted analysis, teachers' engagement accounted for 8% of the variation (data not shown) and was statistically significantly associated with one-to-one assistants' engagement. Classroom assistants' engagement accounted for 21% of the variation (data not shown) and was significantly associated with one-to-one assistants' engagement. None of the other variables were significantly asso-

Table 1. Descriptive Characteristics.

Variable	*M*	*SD*
Teacher years of experience	5.7	6.5
Teacher fidelity score	4.0	0.6
Classroom cohesion	8.6	1.2
Teacher cohesion	4.2	0.79
Classroom assistant cohesion	4.4	0.67
Teachers' emotional exhaustion	18.1	9.6

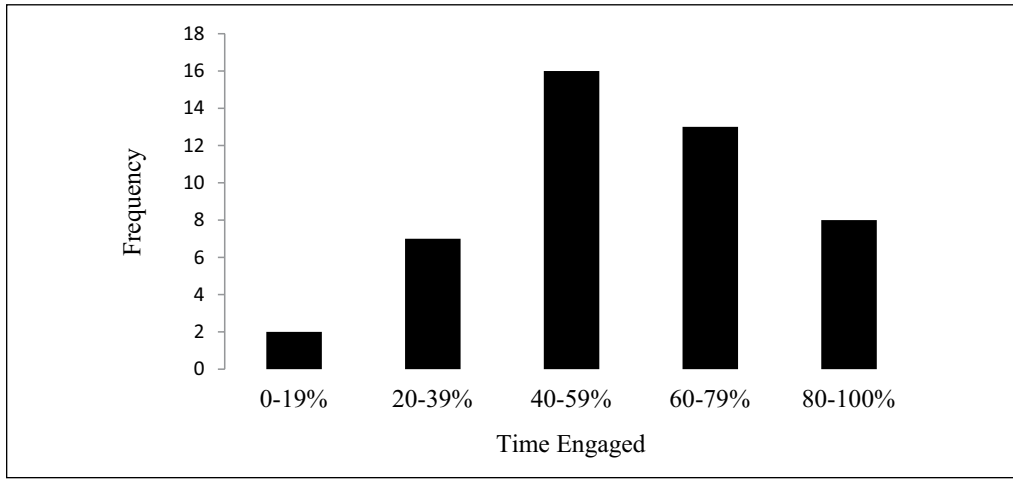

Figure 1. Percentage of time engaged by one-to-one assistants.

ciated with one-to-one assistants' engagement. In the adjusted model, teacher and classroom assistant engagement accounted for 23% of the variation (data not shown) in one-to-one assistants' engagement. Only classroom assistants' engagement was significantly associated with one-to-one assistants' engagement ($\gamma = .88$, $p = .006$). Specifically, a one unit increase in classroom assistants' engagement was associated with an average increase of .88 units in one-to-one assistants' engagement.

Discussion

One-to-one assistants have an important role in the special education of students with autism (Brock & Carter, 2015; Downing et al., 2000; Fisher & Pleasants, 2012; Koegel et al., 2014; Quilty, 2007). To our knowledge, this study provides the first data of how school staff are engaged in the classroom. Our findings indicated that one-to-one assistants were engaged slightly over half of their time in the classroom and that classroom assistants' engagement was significantly associated with one-to-one assistants' engagement.

There are at least three reasons why one-to-one assistants' engagement may be so low. First, one-to-one assistants may receive poor training and supervision in appropriate strategies to engage children with autism (Radford, Bosanquet, Webster, & Blatchford, 2015). Giangreco and Broer (2005) found that special education teachers devote less than 2% of their time to individual supervision of one-to-one assistants. If that is the case in these classrooms as well, it is unlikely that these one-to-one assistants were getting the training and supervision necessary to remain actively engaged in the classroom (Fisher & Pleasants, 2012; Forster & Holbrook, 2005; French, 1999; Russotti & Shaw, 2001). A related reason for the lack of

Table 2. Classroom Variables Associated With One-to-One Assistants' Engagement.

	Unadjusted models		Adjusted model	
	Estimate	*p* value	Estimate	*p* value
Teachers' engagement	0.96	.05†	0.55	.25
Classroom assistants' engagement	0.98	.00**	0.88	.01*
Teacher years of experience	−0.27	.56	—	—
Teacher fidelity score	−0.80	.88	—	—
Classroom cohesion	1.51	.54	—	—
Teachers' emotional exhaustion	0.38	.22	—	—

†$p < .10$. *$p < .05$. **$p < .01$.

engagement is that special education teachers often receive little or no training on how to supervise classroom staff (Giangreco et al., 2010; Wallace, Shin, Bartholomay, & Stahl, 2001). It is likely that the lack of training for one-to-one assistants (Davis, Kotecki, Harvey, & Oliver, 2007; Giangreco et al., 2010), coupled with teachers' insufficient supervision experience (French, 2001), contributes to limited engagement in autism support classrooms.

Third, the lack of one-to-one assistants' engagement may be due to a fragmented service system. In the urban school district where we conducted our research, one-to-one assistants assigned to students with autism were employed either through the school district or behavioral health system (Brookman-Frazee, Baker-Ericzen, Stadnick, & Taylor, 2012), meaning that they may have different employers, accountability, and perhaps sense of mission than professionals hired through the education system. It may be unclear who is responsible for training, supervising, and evaluating these one-to-one assistants (Locke et al., 2014). The lack of coordination between service providers may contribute to ambiguity in one-to-one assistants' roles and responsibilities, which in turn can impede engagement in the classroom (Lubetsky, Handen, Lubetsky, & McGonigle, 2014).

Our second finding was that classroom assistants' engagement was significantly associated with one-to-one assistants' engagement. It is possible that classroom assistants modeled appropriate engagement behaviors for one-to-one assistants. Prior investigations have demonstrated that teachers were more likely to provide supervision and training to classroom assistants than to one-to-one assistants (Giangreco, Broer, & Edelman, 2001; Giangreco et al., 2010). Better trained classroom assistants may in turn serve as role models for one-to-one assistants. This modeling is likely to be effective as one-to-one assistants are more similar to classroom assistants in terms of their role in the classroom and perhaps are more relatable as compared with teachers. Another interpretation is that when teachers are effective supervisors, it may manifest in more active classroom and one-to-one assistants' engagement. It is important to note that there were no other significant relationships between the classroom dynamic variables and one-to-one assistant's engagement. Unfortunately, as this is a new area of study, there is very limited research to our knowledge that examines why this may be the case. One study conducted by Kratz and colleagues (2015) suggested that the objective and subjective dimensions of classroom cohesion may predict different outcomes.

Several study limitations should be noted. First, to minimize the effect of observation on behavior (i.e., Hawthorne effect; Fernald, Coombs, DeAlleaume, West, & Parnes, 2012) and reduce the risk of a confidentiality breach regarding sensitive workplace topics (i.e., professional performance), we did not solicit demographic data from the classroom assistants or one-to-one assistants. We did not obtain this information because of our concern about collecting valid data.

Therefore, we could not examine associations between staff characteristics and engage-

ment. Second, we did not collect information on student characteristics. Studies have found that one-to-one assistants may have unintended negative consequences, such as interfering with peer interactions and developing unnecessary dependence (Giangreco & Broer, 2007; Kasari, Locke, Gulsrud, & Rotheram-Fuller, 2011). In some cases, one-to-one assistants' withdrawal from interactions with their students may be intentional and result in more positive outcomes. Our study could not determine whether one-to-one assistants' engagement was appropriate for the needs of their students. Third, our study was conducted within the context of the STAR curriculum. Therefore, it provides one example of what may be happening in classrooms with district mandated curriculums and may not be generalizable to other settings or populations.

Despite these limitations, the findings from this study have important implications for teacher education and special education. Specifically, our results suggest that special education teachers should receive specific preparation on how to effectively train and supervise their staff. Increasing the engagement of one-to-one assistants may require direct training from teachers. Alternatively, teachers may train classroom assistants to model appropriate engagement behaviors for one-to-one assistants. Brock and Carter (2015) suggested that training may be provided through coaching and video modeling. Increased engagement with students may also occur if one-to-one assistants are trained to use effective scaffolding (Radford et al., 2015).

The low rate of one-to-one assistants' engagement suggests an inefficient use of an important resource in special education. Using one-to-one assistants to implement co-teaching models, strengthening school wide supports, and/or offering peer supports have been suggested as effective alternatives to the over-reliance on this workforce (Carter, Cushing, Clark, & Kennedy, 2005; Giangreco & Broer, 2005; Giangreco, Halvorsen, Doyle, & Broer, 2004; Giangreco et al., 2010). Given the large expense associated with one-to-one assistant employment, considering a floating assistant system may be more economical than a one-to-one system of support. In an era of increasing utilization of one-to-one assistants (French, 2003; Giangreco & Broer, 2005; Pickett & Gerlach 2003), there is an underlying assumption that expanding their use is necessary and desirable (Giangreco & Broer, 2007). The lack of engagement observed in our study raises concerns about the effectiveness of current models and may be symptomatic of broader challenges related to the delivery of special education services (Fisher & Pleasants, 2012; Giangreco et al., 2010).

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