

Randomized Study of Web-based Teacher Coaching



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Introduction

Children with autism are underserved and the number of professionals prepared to meet their needs are limited. One strategy well suited to address the shortage of specialists in autism is consultation. The costs associated with consultation, however, may exceed available resources.

Given limited financial resources and time for training, research that provides scientific decision making in the selection and use of various types of professional development activities such as consultation has the potential for major impact in both urban and rural area schools of the U.S.

Web based coaching may provide an exciting opportunity for experts to provide consultation services to teachers and students in remote geographical areas.

Although limited in number, a few studies suggest effectiveness of using videoconferencing technology for conducting functional behavioral analysis and functional communication training for staff of students with autism. However, these studies have not included experimental design.

The purpose of this research is to examine child educational outcomes of three types of teacher training approaches: (a) online training; (b) conjoint consultation and face-to-face teacher coaching; and (c) conjoint consultation and web-based teacher coaching. Results are preliminary.

Methods

Participants

- Seventeen special education teachers were recruited from South Central and Eastern Kentucky in Year 1 of the study.
- All teachers were female. Students were 82% male (n=14) and 18% female (n=3).
- Students were all diagnosed with autism (ADOS confirmed); the mean age of the students was 5.5 years.

Procedures

- Prior to randomization, children, parents, and teachers completed a baseline evaluation.
- The participants were randomized into one of three groups (see Figure 1).
- The conjoint consultations groups received a manualized consultation intervention using a problem solving approach called COMPASS (Ruble & Dalrymple, 2002) that included the child's parent/caregiver and teacher.
- The consultations concluded with identification of three IEP objectives that were the focus of the coaching sessions throughout the year. Each objective represented a social, communication, and learning skill goal.
- Teaching plans were developed for each objective and were based on personalized strategies for the specific child.
- Following the consultation phase that occurred at the beginning of the school year, teachers received four coaching sessions, about every 4 weeks.

Methods cont.

- During the coaching phase, teachers recorded video of student instruction using the teaching plan developed as a result of the consultation. Observations using goal attainment scaling (GAS) was applied to monitor and conduct the curriculum based assessment of child progress (using a scale from 1 to 5).
- Outcomes based on face-to-face coaching was compared to web-based coaching which occurred via Adobe® Connect™ videoconferencing technology and the placebo condition (online training). Data on teacher's attitudes toward technology was collected.
- Teachers in the placebo condition completed online autism training modules only.
- Child outcomes were measured at the end of the school year using GAS by an independent evaluator who was blind to group assignment.

Figure 1: Group Assignment



Results

- Preliminary results are presented.
- The children were equivalent across groups in performance on standardized scores of adaptive behavior, cognitive and language levels (see Table 1).
- For web-based teachers, 75% expressed high confidence and low anxiety with technology (see Table 2).
- Preliminary data from 12 participants indicate that the mean GAS scores were similar at Time 1 and steadily, but differentially, increased for all groups. Time 2 GAS scores were highest for the face-to-face condition (see Figure 2).

Table 1: Baseline Adaptive Behavior, Cognitive and Language Student Scores

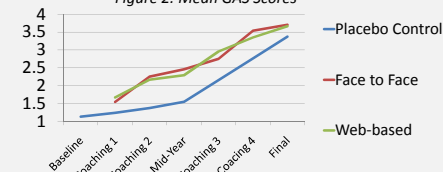
	Placebo Control (n=4)		Face to Face (n=4)		Web-based (n=4)		ANOVA		
	Mean	SD	Mean	SD	Mean	SD	df	F	Sig
ADOS	18.25	5.00	16.75	4.57	19.25	2.21	2	.374	.698
DAS	54.75	9.57	57.75	12.61	58.00	20.93	2	.057	.945
OWLS	49.00	7.55	51.00	6.78	46.50	6.25	2	.441	.658
Vineland	55.00	9.85	60.00	16.09	63.00	2.65	2	.405	.684
Age	5.62	1.49	5.75	.96	6.25	1.32	2	.268	.771

Table 2: Teacher Attitudes Toward Technology

	Confidence	Liking	Anxiety	Usefulness	Total
L.I.	10	10	0	6	36
A.G.	10	9	0	9	38
S.C.	10	10	0	10	40
K.T.	5	8	2	9	30

Results cont.

Figure 2: Mean GAS Scores



Discussion

- Preliminary findings confirm previous findings of the efficacy of consultation as a means to improve educational outcomes of children with autism.
- Children whose teachers received web-based coaching also demonstrated improved outcomes compared to the placebo control condition.
- No clear indication of any relationship between teachers' attitudes toward technology and child outcomes following web-based teacher coaching was observed.
- Findings provide preliminary evidence of the relative effectiveness of face-to-face vs. web-based intervention in autism and the need for early and sustained professional development.
- While one might expect the student to progress towards his or her IEP objectives throughout the course of the school year due to regular practice, the data provides early support that the COMPASS intervention lead to students' having greater outcomes on IEP objectives during multiple points in the year. COMPASS intervention may lead to better outcomes with more sustained change.
- The findings are preliminary and will be confirmed after Year 2 of the study.

References

Barretto, A., Wacker, D. P., Harding, J., Lee, J., & Berg, W. K. (2006). Using telemedicine to conduct behavioral assessments. *Journal of Applied Behavior Analysis*, 39, 333-340.

Gibson, J. L., Pennington, R. C., Stenhoff, D. M., Hopper, J. S. (2010). Using desktop videoconferencing to deliver interventions to a preschool student with autism. *Topics in Early Childhood Special Education*, 29, 214-225.

Harmon, H., Gordanier, J., Henry, L., & George, A. (2007). Changing teaching practices in rural schools. *Rural Educator*, 28, 8-12.

Kogan, M. D., Strickland, B. B., Blumberg, S. J., Singh, G. K., Perrin, J. M., & van Dyck, P. C. (2008). A national profile of the health care experiences and family impact of autism spectrum disorder among children in the United States, 2005-2006. *Pediatrics*, 122, e1149-1158.

Liptack, G. S., Benzoni, L. B., Mruzek, D. W., Nolan, K. W., Thingwall, M. A., Wade, C. M., et al. (2008) Disparities in diagnosis and access to health services for children with autism: data from the National Survey of Children's Health. *Journal of Developmental Behaviors and Pediatrics*, 29, 152-160.

Pianta, R. (2006). Standardized observation and professional development: A focus on individualized implementation and practices. In Zaslav & Martinez-Beck (Eds.), *Critical Issues in Early Childhood Professional Development* (pp. 231-254). Baltimore: Brookes.

Ruble, L. A., Heflinger, C. A., Renfrew, W., & Saunders, R. (2005). Access & service use by children with autism spectrum disorder in Medicaid managed care. *Journal of Autism and Developmental Disorders*, 25, 3-13.

Rule, S., DeWulf, M., & Stowitschek, J. J. (1998). An economic analysis of inservice teacher training alternatives: Telecommunications versus on site delivery. *American Journal of Distance Education*, 2, 12-22.

Rule, S., Salberg, C., Hogue, T., Menlove, R., & Smith, J. (2006). Technology-mediated consultation to assist rural students: A case study. *Rural Special Education Quarterly*, 25, 3-7.

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