



# "Assessment of Knowledge-Expanded" as a Measure of Knowledge of Educators



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## HANDS in Autism Training:

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### Abstract

Knowledge and use of evidence-based interventions, like ABA, by school personnel who work with individuals with an autism spectrum disorder are primary components in the intervention (National Research Council, 2001). Based on the importance and need for a training that would assist with such knowledge and skill acquisition, Helping Answer Needs by Developing Specialists (HANDS) in Autism developed a 5-day long program for teachers (both special and general education), paraprofessionals, SLPs, OTs, and other school personnel. This training focuses on teaching practical application of ABA-based interventions in educational settings through hands-on coaching and mentoring in addition to traditional didactics. To measure the level of applied knowledge of participants with a varying background prior to the training, as well as their acquisition and retention of theoretical and practical knowledge immediately following the training and several months later, the Assessment of Knowledge-Expanded (AOK-E), a 37-item scale, was designed to cover such areas as assessment and programming, goal development, teaching and behavior interventions, data collection and analysis, socialization, and generalization, among other topics. Analyses of the AOK-E results of 72 participants across two years and their implications, as well as demonstration of the efficacy of training based on these results will be discussed.

### Introduction

To meet the ever-growing need of school personnel to be well-prepared to work with individuals with an autism spectrum disorder (ASD), the HANDS (Helping Answer Needs by Developing Specialists) in Autism training model was created in 2004. Since then, the training has evolved to enable school personnel to gain more profound knowledge of ABA principles and best practices and to improve their application of this information to special education and inclusive classroom settings. The HANDS in Autism model curriculum allows training participants to learn in an active environment through didactic, intensive hands-on practice, coaching, and feedback sessions with further utilization of these principles in real-life situations presented in the structured HANDS classroom with student participants of different ages and developmental profiles.

To determine the effectiveness of the HANDS model, participants were assessed through a variety of means. In particular, to enable school personnel to demonstrate whether their knowledge of particular areas relevant to working with children covered in the HANDS curriculum increased as a result of the training, they were asked to complete a knowledge application questionnaire (Assessment of Knowledge – Expanded [AOK-E], 2008©) before the training, immediately after the training, and approximately three months after the training. To ensure the sustainability of the training, results of 6 sessions across two years of the use of AOK-E were analyzed. The obtained outcomes showed that the HANDS in Autism model was effective in terms of increasing knowledge relevant to working with children with an ASD in classrooms.

### Hypotheses

The training model will show effectiveness via the improvement in knowledge application of the training participants as shown by the assessment of their knowledge prior to and immediately after the training (pre- and post-tests).

The knowledge and application components will be maintained over time as measured by the follow-up test.

### Methods and Participants

Seventy-two (N=72) participants attended one of the 6 weeklong summer training sessions across two years (2008 and 2009), of which 62 participants completed the follow-up assessment. Of the 72 participants, 65.28% (N=47) were teachers, 19.44% (n=14) were therapists (e.g., school psychologist, SLP, or OT), 12.5% (N=9) were instructional aides/paraprofessionals, and 2.78 (n=2) were school administrators.

Prior to attending the training, participants completed the Assessment of Knowledge – Expanded (AOK-E) as part of an initial assessment packet. The measure was then repeated at the end of the last day of training and again approximately three months after the training was completed.

### Measure

Assessment of Knowledge – Expanded (AOK-E, 2008©) is an outcome measure adapted from a scale used in previous training sessions. The goal of the AOK-E is to assess theoretical and practical knowledge about particular areas relevant to working with children with autism in an educational setting that are also addressed in the HANDS in Autism curriculum. Particular areas assessed include physical and visual structure of the classroom, facilitating social skills, incorporating students with autism into group settings, assessment strategies, behavior intervention, program design, generalization of skills, developing independence, and prompting strategies. The measure contains 37 questions (25 that assess knowledge and 12 that assess application). Each multiple-choice question contains 10 possible responses, out of which from 1 to 7 choices are correct (except for questions 26-35, where 1 out of 4 possible choices is correct) for a total of 145 points. Participants are asked to select between correct and incorrect statements to find the best answer for the question. Participants receive 1 point for identifying a correct response, and -1 point for selecting an incorrect response (except for questions 26-35, where selecting an incorrect response does not result in point deduction). Failure to select a correct response does not earn any points. Participants' scores are added across items and divided by 145 to get a percentage score. Higher scores indicate better performance on the AOK-E. Participants complete this rating prior to training (baseline or pre-test), at the end of the last day of training (immediate or post-test), and again three months following the training (delayed or follow-up test).

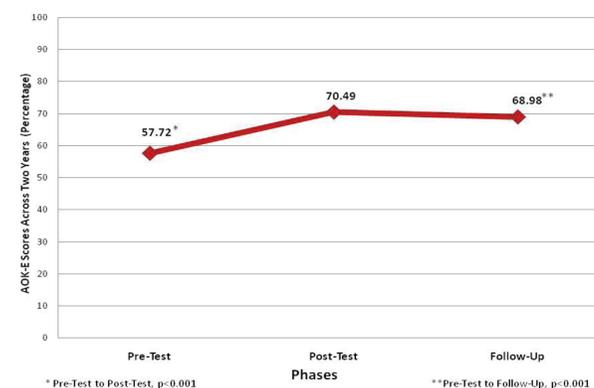


Fig. 1. Assessment of Knowledge-Expanded (AOK-E): Mean Scores and Significance

Table 1. Average AOK-E Scores by Professional Group

Professional Group	Pre-Test	Post-Test	Follow-Up Test
Teacher	57.53	69.99	68.63
Therapist	60.81	75.07	75.40
Instructional Aide/Paraprofessional	48.96	65.82	62.30
School Administrator	58.97	71.04	67.59

### Results

Data for one participant (pre-, post-, and follow-up tests) from the 2009 group were not used due to the failure of the participant to complete 2 pages of the assessment. Eleven participants failed to complete a follow-up test. The final analyses were based on the results of 71 participants for the pre- and post- tests and 61 participants for the follow-up test.

As can be seen on Fig.1, participants showed statistically significant improvement (p<0.001) between pre- and post-tests (M=57.72, SD=8.99 and M=70.49, SD=7.44 respectively) and maintained knowledge three months after the training completion at the level above the pre-test (follow-up test, M=68.98, SD=7.69, p<0.001).

As Table 1 shows, participants in all four professional groups (i.e., teachers, therapists, instructional aides/paraprofessionals, and school administrators) gained and maintained obtained knowledge above the pre-test level.

### Conclusions and Future Directions

The HANDS in Autism model that combines didactic, intensive hands-on practice, coaching, and feedback sessions with further utilization of these principles in real-life situations presented in the structured HANDS classroom proved to be successful in increasing the knowledge of participants not only immediately after the training, which can be attributed to the recency of training, but also three months after it. Even though there was a small decrease between the results of the AOK-E on the last day of training and three months later (with the exception of the therapist group), it might be explained by the fact that the knowledge received was not always applicable to the professional settings of participants (e.g., goal writing for individualized educational and/or behavioral plans is not traditionally done by paraprofessionals).

Future plans include wider psychometric analyses and standardization of the AOK-E as an effective tool for assessment of knowledge of school personnel who work with individuals with an autism spectrum disorder in school settings.

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