

Helping Answer Needs by Developing Specialists (HANDS) in Autism:



Year Three Training Outcomes

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Abstract

One mission of HANDS in Autism (Helping Answer Needs by Developing Specialists in Autism) is to provide practical and applicable information to a variety of caregivers from an ABA-based framework and to provide an option for training that promotes practical learning opportunities through an innovative and intensive hands-on and coaching experience. Participants were rated on their knowledge and application of several aspects of the HANDS curriculum both before and after the training session. Curriculum that was assessed included: identification of proper strategies for teaching individuals with autism, use of effective prompting strategies, and development of teaching tasks. These assessments were done as a part of a larger set of rating scales used to assess various aspects of the training curriculum.

Introduction

The HANDS in Autism model of training was developed in 2004 as a result of foundational funding from the Centers for Disease Control (CDC) and primarily supported ongoing by the Indiana Department of Education (INDOE). It had been noted that caregivers educated at traditional conferences and with excitement to implement what they had learned were not appropriately trained to apply this knowledge. They became promptly discouraged with the strategies and methods as they struggled to effectively apply and individualize them in their naturalistic setting. It was hypothesized that caregivers would benefit most from a more active learning process that would allow them to better comprehend, envision the application, maintain, and generalize information. The framework for this intensive training model have been developed over the past several years, with primary consideration provided to an intensive, hands-on training rooted in ABA principles and best practices methodology and guidelines outlined in several documents (e.g., National Research Council, 2001; New York State Program Quality Indicators, 2001; Iovanne, Dunlap, Huber, & Kincaid, 2003). The program seeks to bridge the gap between information learned in more traditional didactic/lecture training modalities and hands-on practical experience. Participants learn in an active environment through didactic, intensive hands-on practice, and feedback sessions. Ultimately, participants are asked to apply the principles learned through the didactic and observation opportunities presented during the training to diverse real life situations as they interact with a variety of child participants differing in age and behavioral and developmental profiles.

To determine the effectiveness of the HANDS in Autism model, participants were assessed both through observation and skill demonstration regarding their ability to retain, understand, and apply material taught during the training session. Specifically, participants were asked to complete a knowledge test (Assessment of Knowledge [AoK]) before the training, immediately after the training, and 4 months following the training. During training weeks, participants were observed making and implementing academic tasks. They were then given feedback and asked to revise their task accordingly. The task and utilization of the task was then rated again to determine participants' immediate incorporation of feedback into products. Through this assessment procedure, we were able to demonstrate that the HANDS in Autism model is an effective program for educating professionals in working with children with autism.

Hypotheses

The training program would demonstrate efficacy as noted by the increased knowledge and understanding demonstrated by participants across all ratings. Specifically, participants' scores on the AoK would be better immediately following training and maintain at the 4-month follow-up compared to scores at baseline before training. Also, participants' ratings of their teaching tasks following immediate feedback would be better compared to their originally developed task.

Methods and Participants

Thirty-nine individuals working in an educational environment with children across the autism spectrum attended eight hours of training per day for a five-day period in one of three training sessions. Prior to attending the training, participants completed the AoK as part of an initial assessment packet. The measure was then repeated on the last day of training at the end of the day and again 4 months after training was completed. In addition, participants developed teaching materials during the course of the training that were assessed.

There were 39 participants, 14 in session 1; 14 in session 2; and 11 in session 3. Across all sessions, 4 school psychologists, 11 special educators, 12 paraprofessionals, 5 speech therapists, 3 behavior specialists, 2 resource teachers, 1 occupational therapist, and 1 administrator participated. Due to low and non-comparable samples, participants are not reported by position. Furthermore, analyses revealed there were no differences in scores across positions (all $p > 0.05$). Thirty-six participants completed both the baseline and immediate assessment. Only 25 completed the delayed assessment despite several attempts to contact.

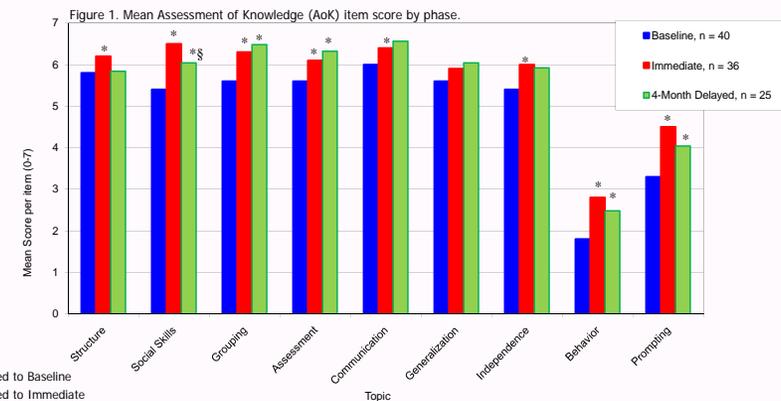
Measures & Procedures

Assessment of Knowledge (AoK)

This measure was adapted from a measure used in previous training sessions. The goal of the AoK is to demonstrate 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. The areas assessed include physical and visual structure of the classroom, facilitating social skills, incorporating students with autism into group settings, assessment strategies, promoting communication, generalization of skills, developing independence, determining functions of behavior, and prompting strategies. There are nine items, each worth seven points (except 1 item worth 5 points) for a total of 61 points. For each question, 10 responses are provided. For each item, seven responses are correct and three are incorrect (except one item where five responses are correct and 5 responses are incorrect). Participants are asked to select which responses best answer the question. Participants receive 1 point for identifying a correct response, and -1 point for selecting an incorrect response. Failure to select a correct response does not earn any points. Participants' scores are added across items and divided by 61 to get a percentage score. Higher scores indicate better performance on the AoK. Ideally, through this assessment, we are able to demonstrate both an increase in the selection of correct responses as well as a decrease in the selection of incorrect responses. Participants completed this rating prior to training (baseline), at the end of the last day of training (immediate), and again four months following the training (delayed).

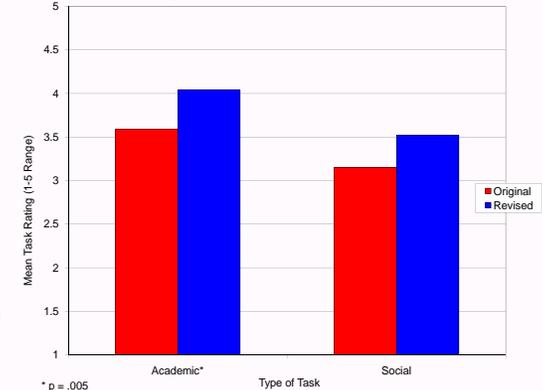
Teaching Tasks Rating Scale

As part of the hands-on nature of the HANDS in Autism model, participants were asked to develop an educational task and implement it with one of the children with autism. Participants were rated on the following criteria (scored 1 = not very true, to 5 = very true with higher scores indicating better performance): clarity of the task, appropriateness of the task for the child assigned, use of visual structure, organization of sequence and steps within the task, completeness and utility of the task, and incorporation of the child's interests into the task. Trained research staff rated the tasks during implementation. Scores were averaged across the 10 items to obtain a mean task rating. Following implementation of the task, participants were given feedback from the HANDS lead trainers and encouraged to incorporate the feedback into a revision of the task. Participants were then rated again on the implementation of the revised task. Any increase in ratings of the revised tasks compared to the original tasks were attributed to the participant's incorporation of feedback. Tasks were rated on 2 different days, one examining academic tasks and the other examining social skills tasks.



* $p < .05$ compared to Baseline
 § $p < .05$ compared to Immediate

Figure 2. Mean rating of tasks both prior to and following feedback.



* $p = .005$

Results

On the AoK, participants overwhelmingly performed better at the immediate rating compared to baseline across all areas except generalization of skills ($p = .172$), which was already high prior to training. Participants scored an average of 10.7 percentage points higher on the immediate test ($M = 83.75\%$, $SD = 6.66\%$) compared to the baseline test ($M = 72.97\%$, $SD = 9.60\%$). What's more, the improvements maintained across several areas including social skills, grouping, assessment, independence, and functions of behavior (all $p < .05$). In fact, there was only an average decrease in scores of 2.73% between the immediate and delayed tests. The delayed test ($M = 81.51\%$, $SD = 8.34\%$) was also significantly better than the baseline test ($p < .001$). Only one area (social skills) showed a significant regression (although not a return to baseline and still significantly improved compared to baseline) from the immediate to the delayed test ($p = .031$). There were no other significant differences between the immediate and delayed test (all $p > .05$).

On the task ratings, participants did better on the academics tasks compared to the social skills tasks. While not statistically significant, participants were rated higher (i.e., developed better tasks) focusing on academic skills (M original = 3.59, M revised = 4.04) compared to social skills (M original = 3.15, M revised = 3.52) on both the original and revised tasks. Only the academic tasks significantly improved following revision and incorporation of feedback ($p = .005$). Important to note is that social skills tasks were completed in a much shorter period of time compared to academic tasks, so the poorer ratings may be unintentionally attributed to time constraints. Furthermore, social skills teaching is much less concrete and much more difficult to conceptualize and teach in an educational setting whereas academic skills are more easily conceptualized. This may have contributed to the lower scores on the social skills tasks.

Conclusions & Future Directions

Based on results presented above, the HANDS in Autism model demonstrates both short- and long-term improvements in knowledge and skill regarding strategies for working with children with autism in an educational setting. Participants were able to incorporate immediate feedback to improve skills and demonstrated the ability to retain information as far removed as four months following the training. The HANDS in Autism team is currently modifying the AoK to incorporate other areas important in working with children with autism. It is hoped that the measure will be used by others in the field to begin to collect psychometric and normative information.



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