

Electronic versus Traditional Data Collection Procedures in a Behavioral Program for Children with Autism

**Maureen Childs, Kristen McClintock, and Gerald E. Harris, Ph.D., BCBA.
Texas Young Autism Project**

Abstract

Collecting and recording data in ABA interventions for children with autism is traditionally accomplished via binders, forms and pencils. Significant amounts of behavior therapist time are required to collect and analyze data, thus reducing time available for therapy. New technology, such as the mTrial software, allows data collection using personal digital assistants (PDAs) , and data analysis reports through personal computers. The present study examined actual time required for each method, PDA vs. pen and paper, for children with autism enrolled in a center-based discrete trial behavioral intervention program. Data collected included training time for each method, daily data collection time and biweekly progress report preparation time. Interobserver agreement was 85%. Results show initial required training time is much less for the traditional method, while average daily use, and progress report preparation time is less for the electronic method. Overall, there is a significant time savings for the electronic method, although the learning curve for daily use is steeper.

Introduction

- Behavioral interventions for children with autism rely on a continuous flow of data to make ongoing refinements and evaluate effectiveness.
- Traditional methods of managing data in ABA have used pen and paper. However, recent technologies have created opportunities for more efficiency.
- Research has indicated that PDAs can be as accurate and faster than pen and paper (Fletcher et al, 2003). Yet research on staff training and overall efficiency is lacking.
- The current study compares the efficiency of PDAs with that of pen and paper in a center-based discrete trial behavioral intervention program for children with autism.
- It was hypothesized that although training time would be longer, overall data management would be more efficient.

Methods

Participants

- Participants were nine behavior therapists (6 female, 3 male), aged 21-24 years old, employed in a center-based ABA program at the Texas Young Autism Project.

Procedure

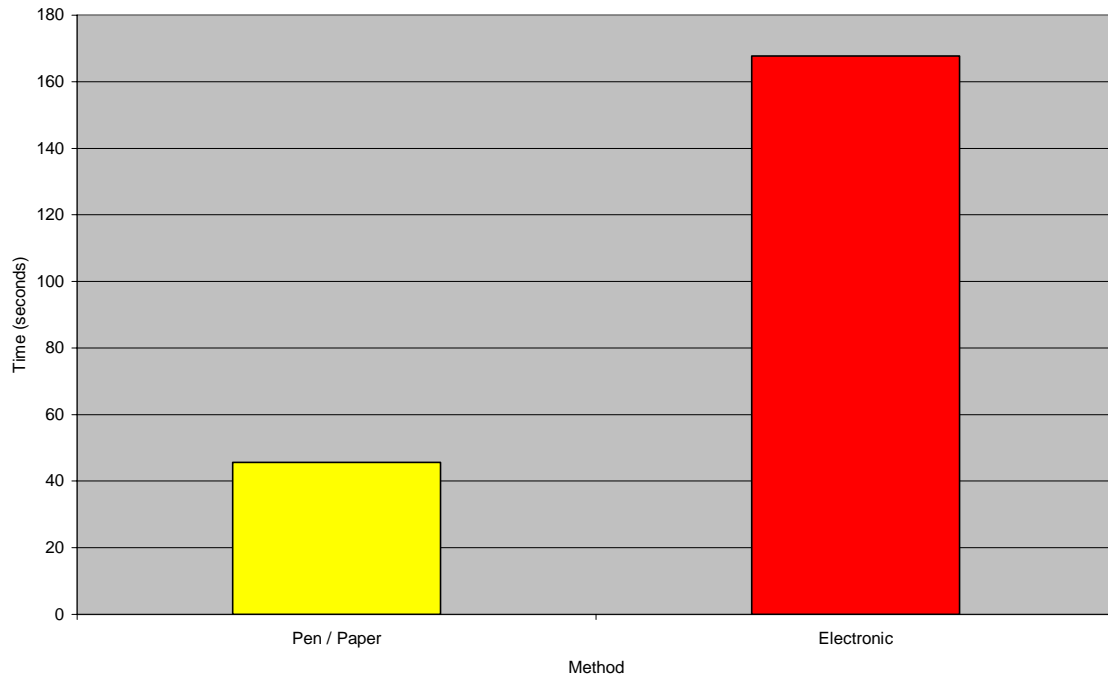
- Two data collection methods were compared, traditional pen and paper versus PDA.

- Training therapists (less than two weeks experience) were placed in the pen and paper condition. Therapists with at least 6 months experience with pen and paper data collection were placed in the PDA condition.
- In each condition, subjects were given written instructions for data collection.
- Five clips of discrete trial therapy with young children with autism were used as samples for data collection.
- Data was collected on accuracy as well as time required to record data and create progress reports.

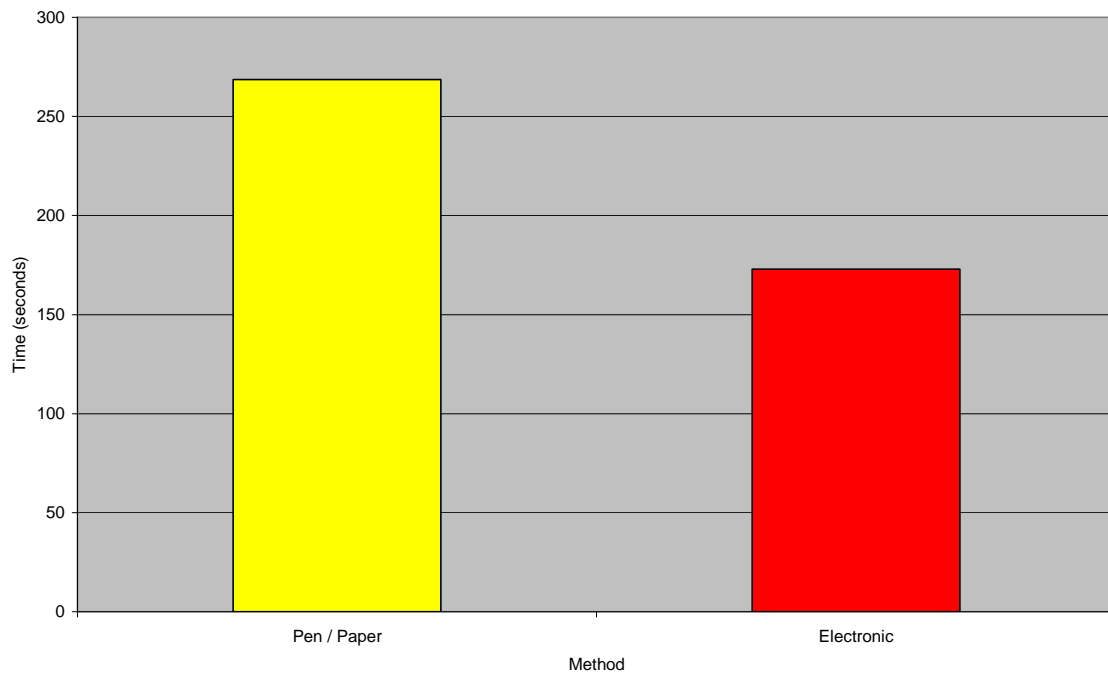
Discussion

- Results confirm the hypothesis that the learning curve for PDA data collection was steeper, however, over time therapists become very efficient in data collection.
- Training therapists in the pen and paper condition on average required 46 seconds, while training in the PDA condition required 168 seconds.
- Experienced therapists collected data on average 36% faster using a PDA than with pen and paper methods.
- This suggests that although individuals using PDAs to collect data require more time during the initial training process, they will become faster and more efficient in collecting data in the field.
- Creating progress reports was also found to require less time using PDA data than pen and paper recording.
- Implications for this research are that behavioral therapists would be able to spend less time recording data, and more time engaging with their client.
- Limitations to this study include limited subjects and analogue experimental conditions. During an actual therapy session, therapist prior knowledge of target selection and attention to data collection could vary.

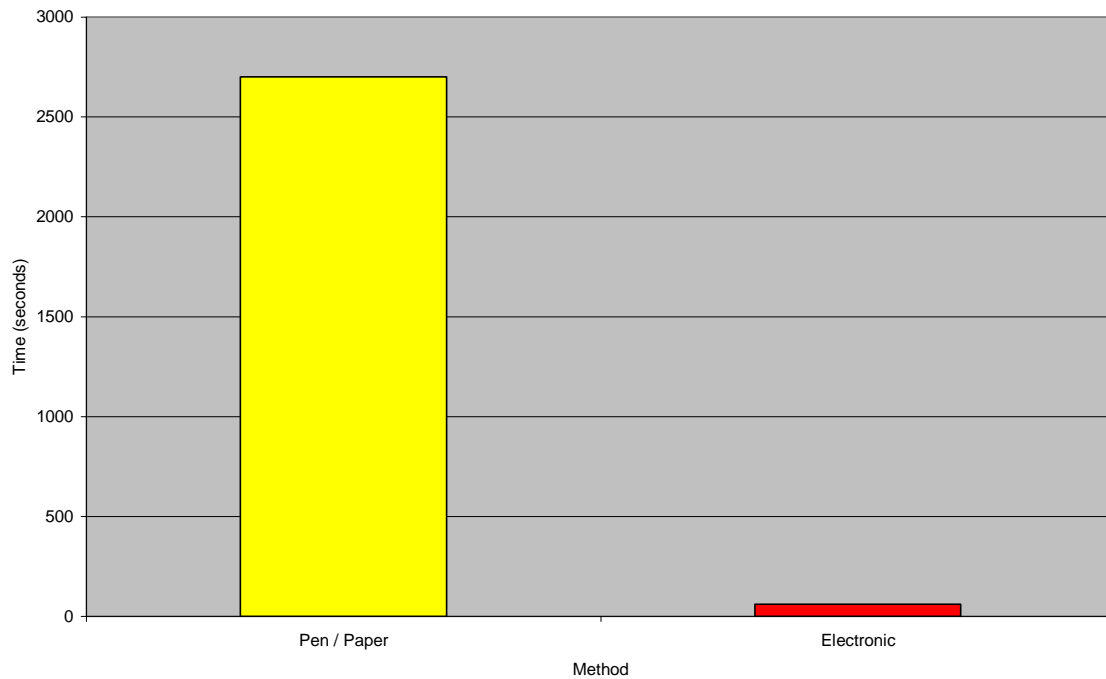
Average Time Recording Data While Training



Average Time Recording Data Within Session



Average Time Creating Progress Report



References

Fletcher, L.A, Darin, Erickson, D.j, Toomey, T.L, and Wagenaar, A. C. 2003. Handheld Computers: A Feasible Alternative to Paper Forms for Field Data Collection. *Evaluation Review, University of Minnesota* 27 (2); 165-178.

Greene, P.D. 2001. Handheld Computers as Tools for Writing and Managing Field Data. *Field Methods* 13 (2); 181 – 197.

Kvien et al. 2005. Performance of Health Status Measure with a Pen based Personal Digital Assistant. *Annals of Rheumatic Diseases* 2005; 64; 1480-1484.

Van Houten, R. (1994). The right to effective behavioral treatment. In Hayes, L.J, Hayes, G.J, Moore, S.C. & Ghezzi, P.M. (Eds.), *Ethical issues in developmental disabilities*. (pp 103-118). Reno, NV: Context Press.

