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Videotape self-modeling in the treatment of attention-deficit hyperactivity disorder

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Videotape Self-modeling in the Treatment of Attention-deficit Hyperactivity Disorder

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by
Mitchel A. Woltersdorf
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This book is dedicated to Elise,

Rebecah, Jacob, and Matthew

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Videotape Self-Modeling in the Treatment of Attention-Deficit Hyperactivity Disorder

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Running Head: VIDEOTAPE SELF-MODELING

Abstract

Four 9- to 10-year-old male subjects with the diagnosis of Attention-deficit Hyperactivity Disorder (ADHD) were videotaped during their regular classroom Math class doing the seatwork normally expected in an Elementary School. These videotapes were edited to exclude the behaviors targeted in this study: distracted, vocalizations, and fidgeting. In addition, Math productivity was targeted. After baselines were obtained, the videotapes were made. A multiple baseline design across children allowed the edited, three-minute, videotapes to be administered to each child on a daily basis for two weeks. Following this intervention phase, a maintenance and follow-up phase were administered to determine the generalization of the treatment effects. Results of the data analyses suggest that videotape self-modeling is an effective behavioral treatment modality for reducing ADHD-type symptoms and for increasing academic productivity in Mathematics in grade school-age male children with ADHD.

Videotape Self-Modeling in the Treatment of Attention-Deficit Hyperactivity Disorder Children

With the advent of the Video Cassette Recorder (VCR) each clinic and school has the potential for advancing treatment availability more effectively. The ability to have at one's behest an instant copy of a behavior sample means there is greater versatility and cost-effectiveness for clinicians addressing the needs of a behavior disordered child. Likewise, greater therapeutic effectiveness, through unique interventions and homework-like applications, has been clarioned (Cummings, 1986).

The relatively poor treatment success for ADHD demands exploration for a more successful, more generalizable, and more sensitive intervention (Abikoff, 1985; Gadow, 1985; Walker & Woltersdorf, 1988; Whalen & Henker, 1985). In a review of clinical interventions used with ADHD (Walker & Woltersdorf, 1988), there were significant gaps where treatment possibilities have gone unexplored. In those studies that have been done, results in many of the areas of treatment intervention strategies have not been gratifying. Videotape self-modeling attempts to fill some of these gaps in the ADHD literature.

There were four studies that appear to introduce videotape self-modeling as an intervention with ADHD. There were limitations with each that prevent firm conclusions from being

drawn about the viability of this intervention with ADHD children. The first study in which video self-modeling was used involved helping a retarded "hyperactive" four year old engage in independent play (Dowrick & Raeburn, 1977). Unfortunately, the child was on the medication Haloperidol (Haldol), not a typical ADHD drug, and the only criteria for being labeled "hyperactive" was his penchant for poor concentration and incessant demands. There were no selection criteria nor assessment measures to ascertain the viability of this diagnosis (Loney & Milich, 1982).

In the second self-modeling and ADHD study, Kehle, Clark, Jenson, and Wampold (1986) employed an ABA design with one control subject to evaluate the effects of "self-observation" in reducing disruptive classroom behaviors. The investigators stated that three of the children happened to "display hyperactive behaviors" according to the Revised Conners' Questionnaire, Teacher Form. The 1973 edition of this measure, used by the investigators, excluded the recent findings of Loney and Milich (1982) or Loney (1987) incorporated into it. Consequently, the children used in this study were not classifiable as either ADHD, Conduct Disorder, or Mixed. Lastly, during the videotaping of raw data the children were given instructions as to how to act during the taping. Therefore, the children were able to detect the target behaviors and the investigators were further unable to

differentiate the treatment effects of self-modeling from the effects of the experimenter's demands.

The third self-modeling and ADHD study was completed by the present author (Woltersdorf, 1988b). It incorporated a simple AB multiple baseline design, across behaviors, with a six year old male diagnosed as ADHD-Aggressive. Scores on the IOWA-Conners and Mother's Measure classified the child as both aggressive and hyperactive. At-home compliance as well as classroom disruptions were targeted. Treatment effect sizes ranged from 1.86 to 3.66, and formed the basis for this present study. However, time generalization assessment was confounded by the addition of parent-training.

The fourth ADHD and self-modeling study (Furman & Feighner, 1973) is different from the rest in that parent-child interactions were filmed but not edited; both negatives and positives were presented. These tapes were shown to the parents without their ADHD children present. The parents were in concurrent parent-training classes; the children were on concurrent chemotherapy management. The authors report significant improvement, unfortunately, results are anedotal only.

From these four studies it is ambiguous whether video self-modeling would be a treatment of choice for ADHD. The remaining self-modeling studies targeted other diverse, non-ADHD

populations in a variety of settings. As an aside, the majority of studies utilizing video modeling in the behavioral treatment of non-ADHD children have utilized symbolic videotape modeling (Thelen, Fry, Fehrenbach, & Frautschi, 1979; Thomas, 1974). The extant, non-ADHD videotape self-modeling studies have been conducted in four types of settings: (a) schools, (b) outpatient clinics, (c) institutional settings, and, (d) home.

In school settings, behaviors addressed in self-modeling studies include fighting with peers and rebellious responses toward authority (Davis, 1979), disruptive classroom behavior (Gonzales & Pigott, 1986), tantrumming (Greelis & Kazaoka, 1979), and elective mutism (Pigott & Gonzales, 1987).

In the outpatient clinic setting, Dowrick (1979) treated a five-year-old boy who exhibited poor social skills. Again, in 1980, Dowrick and Dove treated three spina bifida children who had plateaued in their swimming skills. And, in 1983, Dowrick treated a four-year-old boy with "girl stereotyped" behavior so as to allow an increase in the child's venue of alternative behaviors. Finally, in 1986, Dowrick combined self-modeling with systematic desensitization to treat successfully a five-year-old boy with phobic responses to doctors.

Experiments in institutional settings were carried out with children at an asthma clinic (Creer & Miklich, 1970). These

studies targeted and reported successful treatment for deficient social skills and thumb sucking. Other studies (Miklich, Chida, & Danker-Brown, 1977; Miklich & Creer, 1974) successfully targeted bed-making behaviors. Along similar lines, an institutional study was conducted by Gonzales (1988) and Gonzales and Koverola (1987) who used videotape self-modeling with conduct disorder children in an in-patient psychiatric setting to increase bed-making behaviors, saying "thank-you," and appropriate dining room behaviors. Highly substantial treatment effects were elicited across all behaviors and children. The one home study targeting compliance is by the present author (Woltersdorf, 1988b) and was reviewed earlier.

In this present study, self-modeled videotapes were made of ADHD children. The setting was the regular classroom. The content of these tapes displayed functional behavior without the typical ADHD disordered behavior. The targeted behaviors were the dependent variables. There were four behaviors targeted: fidgeting, distracted, vocalizations, and math performance. The independent variable was the self-modeling intervention. This has not been done with a known, homogeneous ADHD population. The rationale for doing so was to ascertain the viability of such an intervention with ADHD children.

Therefore, the first hypothesis of this study assumes self-

modeling to be a viable and effective intervention strategy for the typical symptoms of ADHD children. The second hypothesis was that videotape self-modeling is a viable and effective strategy for improving academic under-performance in children with ADHD. The third hypothesis was that videotape self-modeling facilitates generalization of treatment effects after treatment has ceased (time generalization).

Method

Subjects

Four male children with ADHD between the ages of nine and ten years of age were the subjects of this study. The children were matched for diagnosis (ADHD without aggressive component), lack of medications, and academic underachievement by no more than one year in Mathematics.

Subject selection. An elementary school was approached for four children within the age range targeted who tended to be behaviorally disturbed and academic underachievers. The IOWA-Conners (Loney & Milich, 1982) was administered to classroom teachers who believed they had children in their classroom who could be categorized as ADHD because of their disruptive influence. The IOWA-Conners is a teacher rating scale consisting of 10 items upon which the teacher rated the target child according to a Likert-type scale (not at all, just a little, pretty

much, very much). It assesses two components within the ADHD complex: aggressive behavior (A) and inattention-overactivity (IO). Children had to obtain a cut-off score of 11 on the IO subscale of the IOWA-Conners to be included in the study. Aggression scores on the IOWA had to be below a cut-off score of 4. The IOWA-Conners was chosen as the teacher's instrument because of its ability to separate hyperactivity and aggression as components of the ADHD syndrome. Psychometrically, the IOWA-Conners has an alpha reliability of 0.87, a test-retest reliability of 0.90, and is one of two published rating scales for ADHD that has a stability coefficient; its coefficient is 0.89 (Loney & Milich, 1982; Woltersdorf, 1988a). The other rating scale with a stability coefficient is also being used: Mother's Measure for Subgrouping (MOM's) (Loney, 1984).

Once targeted by their respective teachers and measured by the IOWA-Conners, parents were contacted for permission for their child's inclusion, without the child's awareness. The Mother's Measure for Subgrouping (MOM's) was administered to the mothers of the targeted children. The MOM's is a mother-interview scale consisting of 32 items upon which the mother rates her child. Of the 32 items only 10 are scored and in a dichotomous manner (yes-no). It assesses two ADHD components: aggression (A) and hyperactivity (H). Children had to obtain a

cut-off score of 3 on the Hyperactivity Scale to be included in the study. Aggressive scores have to be below the cut-off of 3 on the MOM's. The MOM's was chosen because it also separates the aggressive and hyperactive components of the ADHD syndrome (Loney, 1984, 1987). Psychometrically, the MOM's has an alpha reliability of 0.78, construct validity of 0.90, and a stability coefficient of 0.58 (Loney, 1984; Woltersdorf, 1988a). The MOM's and IOWA-Conner's were used to select the child and to ferret out an Aggressive-ADHD diagnosis. This was to insure homogenity of the sample used (Fantuzzo, Rohrbeck, & Azar, 1987).

The Wide Range Achievement Test-Revised (WRAT-R) (Thorndike, 1978), Math Subtest, was used to assess academic achievement. The WRAT-R is a pencil and paper test of academic achievement consisting of three sections: reading, spelling, and mathematics. The WRAT-R has a test-retest reliability of 0.80 and gender specific-norms for children ages 3 to 12 years (Woltersdorf, 1988a). The WRAT-R, Math subtest, was used to assess the child's math achievement status. Children were selected who were no more than one grade below their expected grade level given their chronological age. This gross screen assured that learning disabilities were not a probable factor in academic performance (Goldman, L'Engle-Stein, & Guerry, 1983). It was administered as

a timed classroom assignment. Following parental consent and WRAT-R administration, baseline data were gathered for each child on the four targeted behaviors. Once baseline was maintained for a minimum of 7 data days, with a level or descending trend, the children were approached.

Subject assignment. Each child received the entire treatment package which was viewing self-modeled videotapes. Direct replication was thereby achieved.

Subject rights. The rights of the participants were protected given the nature of this study. Each child was approached to be employed as a research assistant so the final decision to participate remained with the child and guardian. Each child's parent(s) were contacted with a full explanation of the study and their permission was obtained. Confidentiality of the case records was maintained per the standards and practices of the Amercian Psychological Association (1985). Since deception was employed to prevent the children from identifying the target behaviors and treatment expectations, each child was debriefed following the completion of the study. This debriefing consisted of an explanation of what was actually examined, what was achieved, and why the method used was chosen.

Apparatus

Data collection. Behavioral observations were made in the

classroom. Behavioral observations were used to measure the frequency of target behaviors and the effectiveness of the intervention. Observation times were a 15-minute block of Math period time, broken into 30-second intervals. The occurrence of any of the target behaviors during that interval necessitated its being recorded for that period of time (interval recording).

Non-reactive measures used involved the amount of work accomplished in the targeted subject period (math) as measured by class work sheets used during that time. This non-reactive measure was used to have an unobtrusive indicator of academic performance changes (Patterson & Sechrest, 1983). The daily recording of math problems completed and completed correctly was compared to each child's baseline level of performance and expressed as a percentage, i.e., work completed divided by expected work on any given day.

Equipment. General Electric Videocamera (Model 9-9806), VHS format with 7 lux-f1.2 auto-zoom/auto-focus lens, was used to record all raw data.

Velbon Videocamera Tripod (Model PX 781-K) was used during the recording of raw data.

Mitsushida VHS 2-Head Videocassette Recorder (Model AH 1200) was used as the dummy recorder during editing of the raw data.

Portable VCR/Color TV monitor (Symphonic, model #13-TR) was used as the master recorder/playback machine for all raw data and edited tapes used on the school site.

Sony Portable Cassette-Corder (Model TCM-2) was used for recording of classroom noise later dubbed onto edited videotapes to naturalize their final state, and as an audio source for the interval timing during behavioral observations. High quality Chromium-Oxide tapes were used for all audio recording and playback.

High quality VHS format videocassette 120 minute tape was used for all video recording, editing, and playback.

Procedure

After Baseline, each child was approached and asked if he wanted to be a paid research assistant to help the primary investigator make instructional videotapes and be movie critics. They were informed that the study involved them appearing in videotapes. Their job was to be the models and watch the edited tapes on a daily basis. They were paid for each day they watched the videotapes and received a bonus for the amount of time they actually gazed at the videotape as it was played. This was determined by the use of a lap watch and an observer. This was to encourage compliance and to assess its effects, if any, on the intervention.

Target children were blind as to the outcome expectations of the study by virtue of their employee status and lack of information as to the desired and expected type of change.

Dependent variables. All observations were of the targeted dependent variables and were the variables eventually edited from the self-modeling tapes:

1. Fidgeting: the touching of hair, ears, and lips; either one or both feet leaving the floor; playing with pencil, pen, or paraphenalia on the desk.

2. Distracted: not looking at paper, pencil not touching paper, not looking at teacher when s/he is talking.

3. Vocalizations: talking when not spoken to by teacher; making noises/sounds of any type, sort, or intensity.

4. Math Performance: number of math problems completed and number of math problems correct during the math period. This latter item was targeted because of the objective manner in which it is taught and for the difficulty it often poses for ADHD children who have disturbed levels of attention and concentration (Barkley, 1984; Carlson, 1986; Ross & Ross, 1982).

With completion of the initial teacher selection, IOWA-Conners screen, MOM's screen, parental permission, WRAT-R screen, baseline observations, and employment contract, each child was ready for taping. Taping occurred on the fifth day of

baseline with subsequent children recruited that same day. Mid-range shots of the children in their desks were made on an individual basis at the end of the school day. A confederate child was used as a distractor in the scenes. The target behaviors that did occur were completely edited out of the final tape. The goal was for a final edited product three minutes in length. This length was chosen to prevent significant out-of-classroom time.

This final, edited tape was watched by the target children on a daily basis, immediately before the targeted math period. Immediately after viewing the three minute tape they returned to the classroom and were monitored during the targeted math class.

This routine occurred during the intervention phase on a daily basis until a minimum of seven data points had been collected. Once intervention phase was completed the maintenance phase began.

The maintenance phase consisted of the children watching their edited self-modeling tapes on a weekly basis for two weeks. Classroom observation continued so that a minimum of seven data points was collected. Once the maintenance phase was completed, the follow-up phase began.

The follow-up phase consisted of the children being monitored for the dependent variables for a period of four months but no intervention occurred. Classroom observations continued

on a once weekly basis for the first month and then once per month for the next three months until a minimum of seven data points were collected.

Experimental design. A multiple baseline across children was used. After baseline, where each subsequent child was recruited on the fifth day of the preceding child, there were three phases: intervention, maintenance, and follow-up.

Place Figure 1 about here

Independent variable. The only independent variable was the self-modeling intervention. It was used with each child across all behaviors.

Daily intervention with the student was done by the primary researcher or an assistant setting up the video session on the portable VCR/TV monitor.

Inter-rater reliability. Accuracy in behavioral assessment was insured by the training of the observers. This was done by having them observe a videotape similar in content to the in vivo observing they were doing in the classroom. The observers watched this training tape until 90% inter-rater reliability was achieved. This reliability was computed according to the formula

recommended by Clement (1976). This training took place before any baseline measures were taken (Fantuzzo et al., 1987).

There was one inter-rater reliability check per phase. The formula for reliability checks was that of Clement (1976), which takes into account agreements for both occurrences and non-occurrences of the behavior while making an adjustment for the frequency of each. Inter-rater agreement = [A x B] + [C x D] where, A is the number of agreements for occurrences divided by the number of occurrences, B is 1.00 minus the number of occurrences marked by the standard observer divided by the number of time intervals, C is the number of agreements for non-occurrences divided by the number of non-occurrences indicated by the standard observer, and D is 1.00 minus the number of non-occurrences indicated by the standard observer divided by the number of time intervals.

The inter-rater reliability of the frequency count for academic work was also checked once per phase. The same formula for computing inter-rater reliability was used.

Data analysis. All data were graphed, and visual analysis of graphed data was used with all children and behaviors.

The split-middle technique was used to determine the rate of change in behavior as compared to median baseline levels over the course of the phases for each subject. Analysis for statistical

significance used one-tailed binomial tests (Clement, 1986; Kazdin, 1982) since there were unidirectional hypotheses.

Effect size was determined for each phase by subtracting the mean of the baseline from the mean of the specific phase and dividing the difference by the standard deviation of the baseline phase (Clement, 1986; Smith, Glass, & Miller, 1980). Effect sizes were summed across children and behaviors.

Correlation analysis using Pearson Product-Moment was computed between the treatment effects of the individual child and their compliance, as indicated by total viewing time, for the same child.

Results

Inter-rater Reliability

Sixteen checks of inter-rater agreement were made, with one check being made for all subjects across all behaviors per phase. The inter-rater reliability ranged between 0.78 and 0.99 with a mean of 0.92.

Subject Compliance

Each of the target children complied 100% with the intervention. This represents uninterrupted eye-contact with the screen during their tape playback as measured by a lap watch.

Analyses of Treatment Effects

Table 1 presents a summary of these visual data in the form

of across-subject data for each of the four behaviors in all phases. Included are effect sizes, hit/miss ratios, and probabilities for these treatment effects. Effect sizes for each of the behaviors ranged from 0.87 to 5.63 for the intervention phase; from 0.77 to 3.87 for the maintenance phase; and from 0.43 to 4.02 for the follow-up phase. The combined treatment effect of this intervention across the phases and all targeted behaviors were as follows: 2.82 in intervention, 2.08 in maintenance, and 1.74 in follow-up.

Insert Table 1 about here

Table 2 presents a summary of these data for individual subjects.

Insert Table 2 about here

Discussion

This study addressed three hypotheses. Results obtained not only affirmed the hypotheses but also advanced scientific inquiry. Previous studies did not provide a homogeneous population selected with psychometrically-sound instruments. With the possible

exception of the Kehle et al. (1986) study, this is the first attempt to use self-modeling with ADHD children. And, the five-month follow-up data provides what many studies lack: substantiation of an intervention's durability.

First Hypothesis

The first hypothesis involved the efficacy of self-modeling as a viable and effective intervention for use with children with ADHD. Table 1 addresses this hypothesis. From it can be surmised that videotape self-modeling is unequivocally effective in reducing the symptomotology typically confronted when treating children with ADHD. Across the four targeted behaviors intervention treatment effects ranged from 0.87 to 5.63. Vocalization improved the least as is expected with low frequency behaviors. The combined treatment effect, expressing the overall impact of change across all children and behaviors, was 2.82. A treatment effect of this magnitude indicates significant improvement. Within behaviors, Math Performance and Fidgeting were changed the most. Treatment effects ranged from 1.66 to 10.14 for Math across children; fidgeting ranged from 0.74 to 6.24 across children. The variability of effect in individuals indicated by Table 2 is that which can be expected in such an in vivo study. The group results indicate that the degree of improvement is not random.

The children were not aware of the reason for their being chosen; the target behaviors were not revealed; the presence of observers in the room was explained away; the watching of the tape was smoke-screened behind their being hired as critics; and rewards were attached to the making and watching of the videotapes and not to any changes that occurred in the classroom or in the presence of the teacher or observers. While much could have been done to present a more powerful treatment package for use with ADHD, the obviousness of this present one might have been overlooked: videotape self-modeling in and of itself is a potent behavior change agent with ADHD.

Future research. Many variables need further manipulation. The aforementioned individual variance may reside in the teacher involved, the type of classroom setting, the academic subject chosen, the time of day for intervening, the length of videotape, when the tape is viewed, who has the child view it, the meaning attached to the tape, the category of diagnosis, as well as a host of others hidden from the present investigator. This area can be considered a clear frontier in behavioral research.

Second Hypothesis

Hypothesis two investigated whether videotape self-modeling would be a viable strategy for improving academic under-performance, specifically Math, in children with ADHD. Tables 1

and 2 support this hypothesis. In Table 1 Math Performance effect size was 5.63 across all children. Essentially, with the baseline mean at 80% and standard deviation at 4.4, this means that each child performed at a near perfect level following the videotape self-modeling intervention. Such significant improvement can be attributed to improved attention since each child was screened to eliminate a learning disability and the scores themselves represent percent of math problems done correctly. The immediacy of improvement precludes true learning from having yet occurred. The follow-up data will address this domain.

Future research. Whether other academic subjects would also improve merits further study. Does each academic subject need to be represented on the tape or merely the representation of an academic theme itself, regardless of subject content? Do more concrete academic subjects lend themselves to this type of strategy better than abstract or highly visual subjects? The question of whether a "normal" population would also benefit from such an educational tool is still unanswered.

Third Hypothesis

The third hypothesis addressed the time generalization issue of whether videotape self-modeling would generate treatment effects that persist once treatment ceases. Again, Tables 1 and 2 support the hypothesis. Table 1 presents the sustained

improvement within each behavior across all four children; table 2 presents the sustained treatment effects within each child across all four behaviors. Baseline phase lasted approximately two weeks for each child; intervention for two weeks, consisting of daily treatment; maintenance for two weeks, consisting of weekly treatment; and follow-up phase continued for four months and consisted of no treatments.

Table 1, with its "combined" row, illustrates that treatment effects across all children and behaviors obtained during intervention phase were significantly maintained over the 5.5 month period of data collection.

Table 2 looks at the same data within individuals. At this level variability in the data occurs along two avenues. The first avenue is the behavior targeted. As with hypothesis one, math performance and fidgeting maintained their improvement over time better than distraction and vocalization. The second avenue is the child targeted along with the attendant uncontrolled variables that co-exist with in vivo research. The two children who sustained their treatment gains to the greatest level, Joey and Joseph, were from traditional classrooms with all desks in clear rows and classroom activities bounded by clear limitations. Andrew and Trevor who sustained treatment gains to a lesser degree were from less strutured classrooms with children sitting in "learning centers"

where clusters of four children sat facing each other and spontaneous dialog was encouraged and permitted. The level of distraction in this latter type of environment was higher. Of the two, Trevor's class was the most unstructured. He also had the unfortunate circumstance of having as a "cluster-mate" another child with ADHD who did not meet the criteria for inclusion in this study. Given this, the treatment effects that did maintain across time for Trevor suggest greater significance.

No children returned to baseline levels of behavior. Of the four behaviors, vocalization experienced the largest decrease, again, a low frequency behavior is likely the source. And, in some cases, there were indications of continued improvement during follow-up phase, when no treatment was offered. This suggests that learning of a new skill is still in process of assimilation by the child. The only behavior this did not occur in was fidgeting; it being the most subtle and covert of the four behaviors from the child's perspective.

Anecdotal Records

Each of the teachers involved in the study reported that their target child had improved, although none of them could indicate explicitly how. They thought that the child was "more quiet," "seemed more relaxed," and "liked himself more." The teachers were blind to the actual behaviors targeted. Their

responses indicate that functional improvement in classroom applications must not be overlooked by the researcher and clinician. The parents, who were not blind to the target behaviors, reported that their children seemed the same to them at home but that each had a newfound interest in school. This suggests that research in the area of self-efficacy, self-esteem, and motivation would be a worthy path for videotape self-modeling.

Concluding Remarks

With the availability of VCR's in the schools and clinics and the shortage of highly trained professionals capable of benefitting ADHD children in the Elementary Schools, videotape self-modeling provides an effective resource. Since a child with ADHD would never be treated with just one intervention nor would only one domain be targeted the wisdom in using videotape self-modeling becomes all the more apparent. A multi-faceted approach to the treatment of an ADHD child would only be made more effective, more cost-efficient, and more sensitive to the shifting mental health scene by the inclusion of self-modeled videotape interventions. Typically a child with ADHD is treated with psychotropics, behavioral training, and often the parents are included in parent training and the school is included as partners in strategy development. Often the child and parents are seen on

a once weekly basis with homework being the avenue for between-session maintenance. Several visits to the child's school can be in order over the duration of a clinician's involvement with any one child. What this amounts to over a two- or three-month program of intervention is many hours of clinician involvement and parental time and expenditures. What is obvious from the extant literature is that little to date has been shown to effectively reduce ADHD symptomotology and to do so across time (Walker & Woltersdorf, 1988). What does exist seems to work moderately well with little indication that treatment gains are durable. It is here that videotape self-modeling could prove to be most valuable. How valuable will be indicated by other studies presently in process (Meharg, personal communication; Walker, personal communication). Essentially, for an initial expenditure (approximately $1500) and some initial learning, a clinician can produce a behavioral sample from which a child can learn how to behave from the most attractive and similar model available.

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Table 1

Across Subject Data for all Four Behaviors in all Phases.

	Baseline			Intervention		
Behavior	X	SD	Med.	E.S.	H/M	p
Fidget	24.00	3.96	24.13	2.32	25/3	.000
Distract	15.90	5.16	16.13	1.05	24/4	.000
Vocalize	6.93	3.30	7.43	0.87	19/9	.036
Math Perf	80.00	4.42	80.25	5.63	14/0	.000
Combined				2.82	82/16	.001

	Maintenance			Follow-up		
Behavior	E.S.	H/M	p	E.S.	H/M	p
Fidget	1.48	26/2	.000	0.87	20/5	.001
Distract	1.18	25/3	.000	1.21	25/0	.000
Vocalize	0.77	24/4	.000	0.43	16/9	.081
Math Perf	3.87	13/2	.002	4.02	10/2	.010
Combined	2.08	88/11	.000	1.74	71/16	.001

Table 2

Within Subject Data for all Four Behaviors in all Phases

		Baseline			Intervention		
Subject	Behavior	X	S.D.	Med.	E.S.	H/M	p
Andy	Fidget	24.63	3.42	25.00	3.52	7/0	.004
	Distract	17.50	5.42	18.50	2.03	7/0	.004
	Vocalize	5.12	1.81	5.50	-0.01	3/4	n.s.
	Math Perf.	81.50	9.92	82.00	1.66	2/0	----
Joey	Fidget	22.57	3.46	23.00	2.93	7/0	.004
	Distract	16.00	4.93	15.00	1.13	7/0	.004
	Vocalize	10.57	3.46	10.00	2.31	7/0	.004
	Math Perf.	75.00	4.24	74.00	4.95	5/0	.007
Trevor	Fidget	20.57	2.30	20.00	0.74	4/3	n.s.
	Distract	14.43	6.08	16.00	0.05	3/4	n.s.
	Vocalize	5.28	1.89	5.75	-0.83	2/5	n.s.
	Math Perf.	79.00	1.41	79.00	10.14.	4/0	.023
Joseph	Fidget	28.28	2.06	28.50	6.24	7/0	.004
	Distract	15.43	4.99	15.00	1.09	7/0	.004
	Vocalize	7.00	2.94	8.00	1.80	7/0	.004
	Math Perf.	84.50	2.12	85.00	5.75	5/0	.043

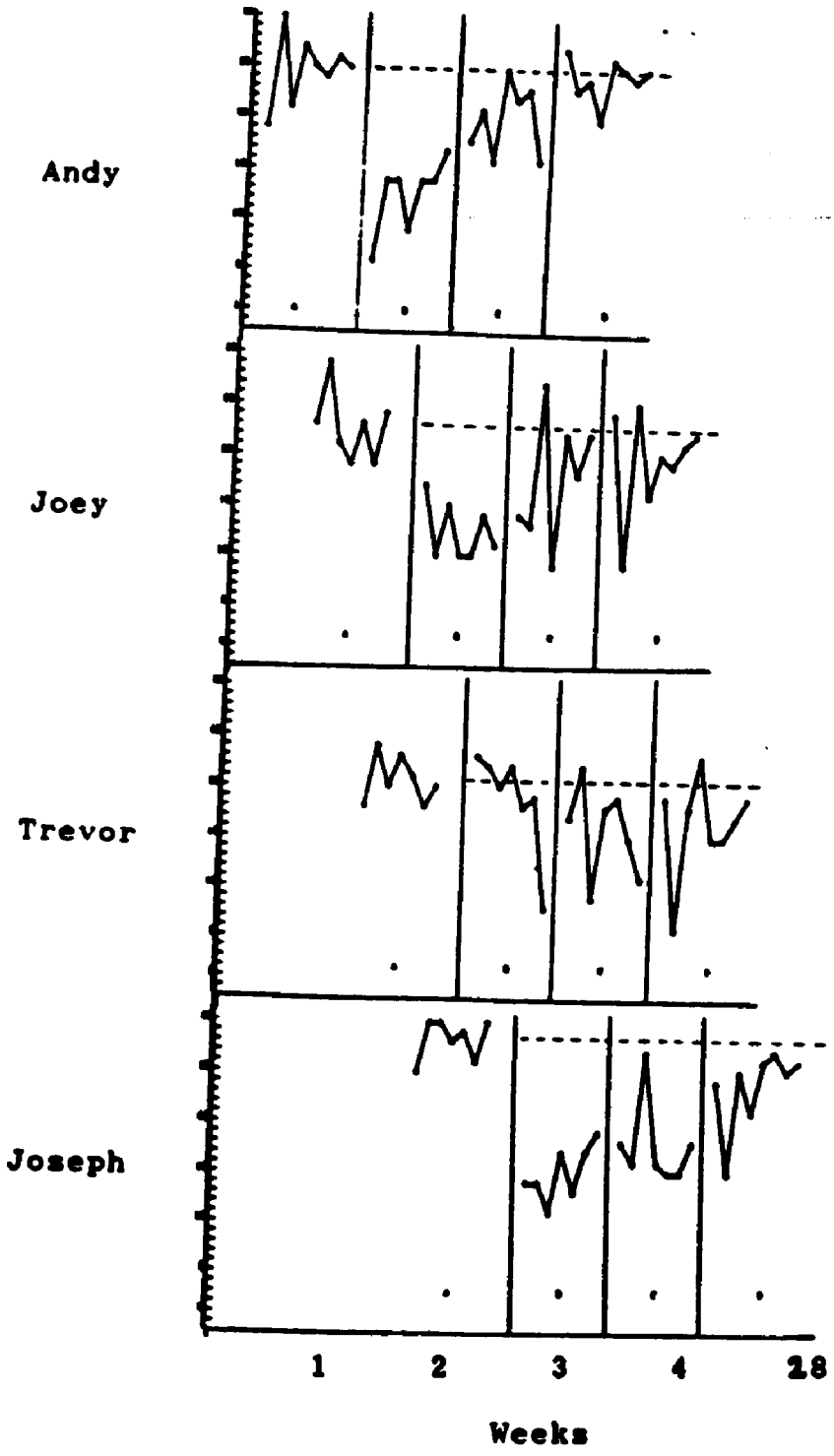
(table continues)

		Maintenance			Follow-up		
Subject	Behavior	E.S.	H/M	p	E.S.	H/M	p
Andy	Fidget	1.31	7/0	.004	0.13	4/2	n.s.
	Distract	1.76	7/0	.004	0.67	6/0	.007
	Vocalize	0.62	5/2	.127	-0.30	4/2	n.s.
	Math Perf.	1.26	2/0	----	1.49	3/0	.043
Joey	Fidget	1.36	6/1	.029	1.08	4/2	n.s.
	Distract	0.84	6/1	.029	1.96	6/0	.007
	Vocalize	1.23	7/0	.004	1.32	5/1	.050
	Math Perf.	5.89	3/0	.043	4.62	3/0	.043
Trevor	Fidget	2.05	6/1	.029	1.99	5/1	.050
	Distract	0.61	6/1	.029	0.54	6/0	.007
	Vocalize	0.83	5/2	.127	-1.00	1/6	n.s.
	Math Perf.	-1.28	3/2	n.s.	7.09	2/1	n.s.
Joseph	Fidget	4.65	7/0	.004	2.40	7/0	.004
	Distract	1.40	6/1	.029	1.66	7/0	.004
	Vocalize	1.17	7/0	.004	1.30	6/0	.007
	Math Perf.	7.03	5/0	.013	2.88	2/1	n.s.

Note: Graphic presentations of the data may be obtained from the first author at 180 N. Oakland, Pasadena, CA 91104.

Figure Caption

Figure 1. Performance of each subject on target behavior labeled "fidgeting" during all phases of the multiple baseline design. (Phases identified as follows: A = baseline, B = intervention, C = maintenance, and D = follow-up phase. Horizontal dotted line across B, C, and D represents median baseline score against which all data points are compared).


Andy
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Summary for Dissertation Abstracts International

Self-modeling is a behavioral intervention in which a person views edited videotapes of him/herself performing target behavior(s) with all undesireable behavior removed. The viewing of this model behaving ideally provides the person with optimal learning opportunity. This intervention was employed in the present dissertation. Four 9 to 10-year-old boys, who were students in a regular classroom, were the subjects in this study. Each was diagnosed as having Attention Deficit-Hyperactivity Disorder (ADHD) according to parental and teacher rating scales. The children were videotaped in the classroom, at their desks, doing math seatwork typical for their school. Edited from the tapes were any distracted responses, inappropriate vocalizations, and fidgeting. In addition, close-ups of their math work were included in the tapes. The final edited tapes were approximately 2.5 minutes in length. A multiple baseline across subjects design was employed. After seven days of baseline observations, the intervention phase began which consisted of daily watching of their own videotapes prior to math class. Daily observations were maintained throughout the study's four phases. Following the intervention phase,

interventions were reduced to once weekly for the maintenance phase, and dropped completely for the follow-up phase which lasted four months. Data were analyzed using a one-tailed binomial test whereby the post-baseline data points were compared to the median of baseline. Effect sizes were also computed to render a standard score representing the amount of change from the mean of baseline in standard deviation units. Results show that all behaviors were significantly affected by the videotape self-modeling. During intervention phase the effect size across children and behaviors ranged from 0.87 to 5.63. During the maintenance phase effect size across children ranged from 0.77 to 3.87 and from 0.43 to 4.02 for the follow-up phase. Combined effect size across all children and behaviors for each phase were as follows: 2.82 in intervention, 2.08 in maintenance, and 1.74 in follow-up. These data support the conclusion that videotape self-modeling is an effective behavioral treatment modality when used with children with ADHD.

Videotape Self-Modeling in the Treatment of Attention-Deficit Hyperactivity Disorder Children

Literature Review

This dissertation studied the efficacy of videotape self-modeling in a regular classroom setting for Attention-Deficit Hyperactivity Disordered (ADHD) children. ADHD is a disorder resistant to most treatments, any long-term effects of many interventions, and significant generalizations across domains (Loney, 1980a; Thorley, 1984). The innovative use of this treatment strategy with ADHD demands a greater breadth of literature review. Available sources illuminating concomitant matters such as diagnostic assessment of ADHD, typical treatment strategies, and treatment stability and compliance are reviewed because these reflect issues of import for this new intervention.

Children with Attention-Deficit Hyperactivity Disorder (ADHD) may be the most frequent diagnostic category encountered by child clinicians (Loney, 1987; Safer & Allen, 1976). Wender (1971) places the distribution of the disorder across the school-age population at about 2 to 20%. Safer and Allen (1976) posit the boy to girl ratio to be between 3:1 to 9:1. ADHD is a disorder resistant to most treatments, those treatments that are effective have little long-term effects, and significant generalization across domains is seldom found (Loney, 1980a; Thorley, 1984).

ADHD children disrupt the home, the school, and the clinic.

They generally suffer in the concomitant psychological, social, and academic areas (Barkley, 1984; Loney, 1980b; Ross & Ross, 1982). The Diagnostic and Statistical Manual of Mental Disorders, 3rd Edition, Revised (1987) lists 14 criteria in descending order of discriminating power that span the domains of home, school, and clinic.

As the clinician considers intervention with any population, diagnostic assessment, treatment effectiveness, treatment stability, and treatment compliance need all be kept in the forefront of intervention design. Each of these will be examined sequentially.

Diagnostic assessment. Assessment methodology for ADHD is still in evolution. Its most recent state was no more clearly highlighted than by Rosenberg and Beck (1986), who, in their survey of 308 psychologists, concluded they were not sure how practitioners arrived at the decision that a child fitted diagnostic criteria for ADHD since more than 75% of those surveyed refrained from using rating scales specifically developed for the assessment of ADHD (e.g., Edelbrock & Rancurello, 1985). Werry, Reeves, and Elkind (1987) reviewed the characteristics of ADHD, conduct, and oppositional disorders. They emphasized, as have Hinshaw (1987) and Loney (1980a, 1980b, 1987) before them, the interdependence, a term used by Shapiro and Garfinkel (1986), of these disorders. These sentiments have been echoed by others (Carlson, 1986; Rosenberg & Beck, 1986). In fact, Loney (1987) argued that previous

studies did not clearly explicate the two primary characteristics subsumed under ADHD, that of aggression and hyperactivity. In this work, Loney produced three new scales, building upon her work with the IOWA-Conners and Mother's Measure for Subgrouping, capable of teasing apart the purely hyperactive and aggressive children from the children with attention problems without hyperactivity. These measures were called the Convergent Interview for Hyperactive Impulse Disorder (CI-HID), Divergent and Convergent Interview for Aggressive Behavior Disorder (DACI-ABD), and Divergent and Convergent Interview for Attention Problem Disorder (DACI-APD). Achenbach, McConaughy, and Howell (1987) recommended the use of multi-axial assessment which employs cross-informant sources for situational-specificity. They recommend the use of a minimum of three informants: parent, teacher, and trained observers. Waechter, Anderson, Juarez, Langsdorf, and Madrigal (1979) built upon this principle in their study on the role ethnicity plays in ADHD diagnosis and intervention, as did Sines (1987) with a study on the role of the home and family. This present study aims to provide improved diagnosis and assessment in keeping with these studies.

Treatment stategies. Intervention strategies for ADHD are numerous and too few have been admirably successful across the clinical community (Loney, 1980b). The scientific community has not yet reached consensus as to what type of intervention strategy is efficacious in bringing about the most change, which strategies

offer the best generalization capabilities, or what treatment applications are optimal given the individual characteristics of the client and setting (Abikoff, 1987; Barth, 1987; Casey & Berman, 1985; Gadow, 1985; Kazdin, 1987). Consequently, the search for the ideal treatment of ADHD is an ongoing one.

Intervention strategies often involve treatments delivered to the child by others and sometimes involve treatments that are self-delivered. Several studies have looked at the treatment effect differences between self-delivered and other-delivered interventions. In the majority of cases, the self-delivered treatments have been the most efficacious (Ajibola & Clement, 1986; Clement, 1973a, 1973b, 1974; Edgar & Clement, 1981). Further development of the self-strategies, in this case videotape self-modeling, is what this study addresses.

Treatment stability. Stokes and Baer (1977) defined generalization as the presence of any relevant behavior under different, non-training conditions without the scheduling of the same events as had been under training conditions. Drabman, Hammer, and Rosenbaum (1979) provided a classification map of the twelve different types of generalizations that flow from a basic four: setting, subject, time, and response. Treatment stability or generalization, and its assessment, has been largely ignored in the behavioral treatment of children according to a review by Drabman et al., (1979). Others, like Richards (1978), have said self-control

treatments do not last. Their conclusions have been reviewed by others (Casey & Berman, 1985; Walker & Buckley, 1972). The major exception to this negligence has been the literature on self-observation and self-reinforcement interventions with children (Arnold & Clement, 1981; Pigott, Fantuzzo, & Gorsuch, 1987; Prater, Wolter, & Clement, 1983; Turkewitz, O'Leary, & Ironsmith, 1975; Walker & Buckley, 1972; Woltersdorf, 1986). This present study attempts to provide detailed generalization analysis per the recommendations of Pigott, Fantuzzo, and Gorsuch (1987).

Treatment compliance. The last clinical concern, treatment compliance, is the one component where, again, behavioral literature has demonstrated neglect. The vast majority of studies, outside of the child self-reinforcement and self-observation literature, have not stated the extent to which the planned treatments were actually carried out (Casey & Berman, 1985). Rosenbaum and Drabman (1979) and O'Leary and Dubey (1979) have stated the case for the few studies in the self-reinforcement arena that have attempted compliance components. This present dissertation attempts to add to the compliance-focused studies.

Treatment applications. Past studies on ADHD have tried to develop effective alternate avenues for treatment provision beyond the direct contact with a clinical psychologist. Teachers have been seen as therapeutic agents (Allen & Furman, 1984; Bowers, Clement, Fantuzzo, & Sorensen, 1985; Hall, Fox, Willard, Goldsmith, Emerson,

Owen, Davis, & Porcia, 1971; Jones, Fremouw, & Carples, 1977; Woltersdorf, 1986). Psychologists have been studied as consultants extended into the classroom (Brown, Montgomery, & Barclay, 1969; Morice, 1968). Children themselves have been studied as their own therapeutic agents (Clement, 1971, 1973a, 1973b; Clement, Roberts, & Lantz, 1974; Neilaus & Israel, 1981; Pigott, Fantuzzo, Heggie, & Clement, 1985; Wolter, Pigott, Clement, & Fantuzzo, 1984). Parents have been used as agents of healing for troubled children (Clement, 1974; Clement, Roberts, & Lantz, 1974; Dubey & Kaufman, 1978). The targeted child's peers have been utilized as a therapeutic avenue (Clement, Roberts, & Lantz, 1970; 1974). Medications have been extensively used as the therapeutic means (Gilderman, 1987) though not always optimally (Chase & Clement, 1985). Even teacher's aides have been targeted (Wetzel, 1970). Additional studies of alternate treatment modes, covering the years since 1969 are offered by Clement, Koverola, Meharg, and Oncley (1986). Through the videocassette recorder (VCR), another mode for extending the psychologist's treatment effectiveness has become available.

Self-modeling. Self-modeling has been defined by Dowrick (1983) as the "behavioral change that results from observation of oneself in videotapes that show only desired behaviors" (p. 105). In this same work, Dowrick referred to the concept of self-modeling as a feed-forward mechanism, as opposed to a feedback function, since the videotape allowed the subject to view him or herself as they

might be in the future rather than how they saw themselves at the moment. Kehle, Clark, Jenson, and Wampold (1986) chose to call videotape self-modeling by another term: "self-observation." They felt that self-observation was more descriptive of the process of observing oneself performing appropriate-only behavior, whereas the consequences of this process was descriptive of modeling. Hosford (Hosford & Brown, 1976) called the mechanism of self-modeling self-as-a-model. In a similar vein, Heilveil (1983) states that "self-modeling tapes are self-descriptive; they are tapes of . . . performing a certain desireable behavior that are shown . . . in order to increase the likelihood that he or she will imitate his or her own behavior" (p. 35).

With the advent of the Video Cassette Recorder (VCR) each home and school has the potential for advancing therapeutic benefit more effectively than ever before. The ability to have at one's behest an instant copy of a behavior sample means there is greater versatility and cost-effectiveness for addressing the needs of a behavior disordered child. Both versatility and cost-effectiveness have been constructs worthy of pursuit in past studies and greater therapeutic effectiveness through unique interventions and homework-like applications has been clarioned (Cummings, 1986). The cost of videotaping seems expensive in both domains of time and money only initially. With adeptness of equipment usage and decreased periods of direct contact with the clinical psychologist

comes the sought after cost-effectiveness and treatment versatility. Goldfried (1980) called for versatile therapeutic change principles. He posited two that are intuitive for the videotape self-modeling medium: provide the client with new corrective self-experiences and offer the client immediate feedback.

Conceptual antecedents. Video self-modeling follows the theoretical model of social learning theory (Bandura, 1977b, 1986), which stated that the greater the similarities between model and observer, the greater the power of the model to evoke change (Bandura, 1986; Kagan, 1958; Kazdin, 1974). Psychological literature is rich with studies demonstrating the efficacy of modeling. Bandura exemplified this demonstrated efficacy with a wide variety of investigations (Bandura, 1969; 1971; 1977a; 1977b; 1986).

There are a number of factors serving to contribute to the power of a model. Individuals seen as attractive (Bandura & Huston, 1961), powerful (Bandura, Ross, & Ross, 1963), or enviable (Hosford & Krumboltz, 1969) have been shown to increase imitative learning over models who are seen as otherwise. Additionally, a study of crisis intervention showed that the credibility of the model was an additional factor in increasing a model's potency (Eisler & Hersen, 1973). On this latter point, Kagan (1958) reported that the power of imitative learning was based upon the desire of the observer to become like the model, in other words, similar. Parallel to this, Kazdin (1974) found that covert modeling worked more powerfully

with models who were more similar to the clients affected by snake phobia.

The power of self-modeling comes from there being no more similar model than the observers themselves. In fact, many of the factors mentioned above are combined by using the observer as the model. In support of this, Fuller and Manning (1973) have shown that people experienced greater levels of arousal when they observed their own behavior than when they observed others performing the same type of behaviors. Self-modeling employs this strategy. In self-modeling, all dysfunctional behaviors are excluded from the attention of the subject observing the videotape. This is achieved by recording a behavior on videotape, audiotape, or photographic medium. Editing the sound or visual material is first performed, then playing back or displaying the edited material to the observer so they only view their appropriate behaviors. Rather than utilizing the process of editing, role-playing can also be done with the subjects (Dowrick, McManus, Flarity-White, & Germaine, 1985). Still photographs have also been used for self-modeling although the results were less than auspicious (Petroski, Craighead, & Horan, 1983). In this present study video recordings were used exclusively and the direction of investigation will follow this path.

The efficacy of self-modeling is well established for modeling, in general, in the social learning literature (Bandura, 1986). The power of modeling is based on the similarity of the model and the

appropriateness of that which is modeled, i.e., the behavior modeled has to be capable of being reproduced by the subject and is a behavior the observer finds worthy of imitation. In self-modeling the subject viewing him/herself provides the most similar model. Editing of the videotape provides a performance of appropriate behavior for the ADHD child. This viewing of functional behavior on self-modeled videotape should provide ADHD children with the ideal model upon which to learn appropriate personal and academic-stimulating behaviors.

The basis for assuming the effectiveness of videotape self-modeling is found in studies by Hosford and Brown (1976), Hosford (1980), Gonzales and Dowrick (1982), Gonzales (1988), and Gonzales and Koverola (1987). Hosford, in the above article, called the mechanism of self-modeling "self-as-a-model" and in so doing provided some material to hang upon the structure of self-modeling. First, subjects seeing themselves performing a task properly may provide the evidence that they can indeed perform the target behavior. This corresponds to Bandura's increase in "self-efficacy." Bandura posited that the enhanced proficiency stemming from self-modeling largely flows from strengthened self-beliefs (Bandura, 1986). Secondly, it is also possible that skills are actually being learned through observational learning. Again, Bandura posited that observational learning had an informative component (Bandura, 1986) that serves skill acquisition. These two need not be an either-or

proposition. However, Gonzales and Dowrick (1982) tested the skills acquisition versus self-efficacy hypothesis and found that self-modeling raises an observer's self-belief rather than providing skills training. The increase in the former improved behavior without the latter having occurred.

Along these same lines, another investigator wondered if performance expectations are not increased because of a placebo effect in the making of the videotape (Miklich, Chida, & Danker-Brown, 1977). These investigators found that children deceived into believing the videotapes were for another purpose improved the targeted behaviors without awareness of their having been targeted. This seems to support the hypothesis that self-modeling does not produce a placebo effect as an explanation for its effectiveness.

Self-modeling's effectiveness may also be supported by operant conditioning theory. In operant theory, behaviors that are not reinforced, in this case, given attention, are extinguished (Schwartz, 1984). The procedure of video self-modeling reinforces given response sets and extinguishes all other alternative behaviors. The Hosford and Johnson (1983) study exemplified this conceptualizing. In their study, video "self-modeling" was compared with "non-edited video feedback" and" practice without videofeedback" directed toward extinguishing inappropriate counseling behavior. Only video self-modeling was successful in completely extinguishing several of the identified inappropriate behaviors. The elegance of this study is

that it sought to extinguish negative behaviors rather than reinforce positive ones, the typical direction taken in the preceding literature. This, however, coincides well with Bandura's paradigm in terms of extinction of non-reinforced behaviors.

Experimental antecedents. Self-modeling has been used with adults and adolescents as well as children who do not have ADHD. The studies that pertain to the adult and adolescent population involve the treatment of public speaking skills (Germaine & Dowrick, 1985), counselor interviewing behaviors (Hosford & Johnson, 1983), stuttering (Hosford, Moss, & Morrell, 1976), pool shooting (Gonzales & Dowrick, 1982), work productivity (Dowrick & Hood, 1978), lecture habits (Hosford & Polly, 1976) as cited by Gonzales (1988), college classroom performance (Hosford & Brown, 1976), sexual arousal (Hosford, 1980), weight lifting (Maile & Dowrick, 1985), dieting and smoking (Owusu-Bempah & Howitt, 1983; 1985), contingent praise in counselors (Gladstone & Spencer, 1977), shopping skills (Haring, Kennedy, Adams, & Pitts-Conway, 1987), and golf putting (Stark, 1985).

However, self-modeling technology has been largely employed with children. It has been used as a behavioral intervention in a variety of settings. However, the use of videotape self-modeling has not been used to date in a well defined, controlled study with ADHD. Because of this, the applicability of this intervention for ADHD is unknown and was the prime target for investigation. There

were five studies completed that introduced the concept of videotape modeling as an intervention with ADHD. However, there were limitations with each that prevent firm conclusions from being drawn about the viability of this self-modeling intervention with ADHD.

The first study in which video self-modeling was used to help a "retarded hyperactive" four-year-old engage in independent play was by Dowrick and Raeburn (1977). However, in this study, the child was on the medication Haloperidol (Haldol) and the only criteria for being labeled "hyperactive" was his penchant for poor concentration and incessant demands. There were no selection criteria nor assessment measures used to ascertain the viability of this diagnosis (Loney & Milich, 1982). Thus, it is unknown whether the investigators actually treated an ADHD child.

In the second self-modeling and ADHD study, Kehle, Clark, Jenson, and Wampold (1986) employed an ABA design with one control subject to evaluate the effects of "self-observation" in reducing disruptive classroom behaviors. The four children were chosen because they met the criteria of the Utah State Board of Education's Rules and Regulations for behavior disorders. As an aside, the investigators added that three of the children also happened to "display hyperactive behaviors" according to the Revised Conners' Questionnaire, Teacher Form. The 1973 edition of this measure, which the investigators used, did not have the recent

findings of Loney and Milich (1982) or Loney (1987) incorporated into it. These findings clarified further the symptom complexity of the ADHD child and provided updated assessment measures to combat this complexity. Consequently, the children used in this study are not classifiable as either ADHD, Aggressives, or Mixed. These four children were in a Special Education class which maintained a token economy during the study. From this comes the inability to weigh the actual role videotape self-modeling played in behavior change. Were treatment effects a result of the self-modeling intervention or as a result of the combined effects of self-modeling supplementing a token economy? Lastly, during the videotaping of raw footage the children were given instructions as to how to act during the taping. Therefore, the children were able to detect the target behaviors and the investigators were further unable to differentiate the treatment effects of self-modeling from the effects of the experimenter's demands. In summary, although Kehle's group showed potent treatment effects from their self-modeling intervention, they are unable to clearly show the component from which the effects came, and, perhaps, more importantly, are unable to ascertain the diagnosis of the children treated.

The third self-modeling and ADHD study was completed by the present author (Woltersdorf, 1988b). It incorporated a simple AB multiple baseline design, across behaviors, with a six year old male

diagnosed as an ADHD-Aggressive. The child was a member of a regular classroom which utilized time-out as their primary form of control. At-home compliance as well as classroom disruptions were targeted. The multiple baseline design pre-empted the at-home interventions from unknowingly influencing the school interventions. Treatment effects ranged from 1.86 to 3.66, in the form of standard scores, and formed the basis for this present study. However, experimental control was not maintained because of clinical necessity. Follow-up and generalization assessment was confounded by the addition of parent-training to the target child's treatment package.

The fourth ADHD, self-modeling study (Furman & Feighner, 1973) was different from the rest in that parent-child interactions were filmed but not edited so as to display both the negatives and positives. These tapes were shown to the parents without their ADHD children present. The parents were in parent-training classes; the children were on concurrent chemotherapy management. The authors report that the self-modeling tapes alone were not as effective in enhancing the children's behaviors as when combined with the parent-training. This study seems to miss the principle behind modeling. It might have been instructive to question whether the parents improved as a result of the videotapes. Also, the presence of the negative scenes are not consistent with modeling theory (Bandura, 1986) that is attempting to extinguish negative

behaviors.

The fifth, and last, study (Henry, 1987) that incorporated videotape modeling with ADHD was not a self-modeling study. It was a comparative study of symbolic videotape modeling with parent-training and time-out. It is included here for the very fact that ADHD children were involved. The authors concluded that symbolic modeling was weaker than parent-training, which was weaker than parent-training with time-out, in changing the typical ADHD behaviors of ADHD. So, further work is needed in the area of self-modeling with known ADHD children before the scientific community can state that self-modeling is a viable treatment adjunct or alternative to present options. The remaining extant self-modeling studies targeted other diverse, non-ADHD populations in a variety of settings.

The majority of studies on the subject of video self-modeling in the behavioral treatment of children not diagnosed as ADHD have been conducted in four types of settings: (a) schools, (b) institutional settings, (c) outpatient clinics and, (d) home. Each will be surveyed sequentially.

The earliest self-modeling study set in a school was that of Davis (1979), who used self-modeling to treat an eleven year old student who was fighting with schoolmates and responding inappropriately to teachers. In both domains of behavior, videotape self-modeling was the sole intervention medium that effectively

reduced the dysfunctional behavioral responses. Gonzales and Pigott (1986) used self-modeling with a two year old Down's Syndrome child who was disrupting his Special Education pre-school class. Proper performance of functional behavior rose from a baseline mean of 46% to a post-treatment mean of 96% with twice daily viewing of his three-minute self-modeling tape.

Greelis and Kazaoka (1979) treated a seven-year old female suffering from both mental retardation and childhood schizophrenia. They used self-modeling videotapes along with cartoon reinforcers to increase school performance and decrease behavioral outbursts. Results indicate a decrease in behavioral outbursts from a baseline of 6 per day to a post-intervention level of 0.6 per day. However, there was only a slight improvement in school performance.

The last two studies complete the school-setting investigations. These two treat elective mutism. The first, by Dowrick and Hood (1978), treated two children, one of which was in a peer modeling phase while the other was in a self-modeling phase. This, essentially ABAB, design allowed the investigators to witness improvement when the children were in the self-modeling phase but not in the peer modeling phase.

The second study, by Pigott and Gonzales (1987), was able to show increases in both answering direct questions and volunteering to do so. These improvements, procured through the use of self-modeling videotapes, were shown to have remained for the duration

of a year.

Another location for self-modeling interventions has been the institutional setting. In this setting, the earliest study was by Creer and Miklich (1970). They treated an asthsmatic boy who was isolative, tardy, and tantrumming. The unfortunate aspect of this study is that no empirical data were collected. Rather, the investigators report that upon viewing the self-modeled video the boy's behavior "improved"; when he viewed the non-edited self-modeling tape his behavior remained inappropriate. The contribution of this case study is its suggestive comparison between self-modeling videotape of edited and non-edited variety.

Four other cases were reported from this same insitution (Miklich & Creer, 1974). The first involves a twelve-year-old boy with poor table manners. Following observing self-modeled videotapes his baseline level of poor manners decreased from 1.75 occurrences per minute to a post level of 0.07 occurrences per minute. Adequate follow-up data were lacking in this study. The investigators do offer helpful insights linked to shortcomings in their methodology that are apropos to this present dissertation. First, there was only one person who did the observing and collecting of data. Second, they lacked sufficient follow-up data. Third, they felt there were too many extraneous variables unaccounted for, although, they did not elaborate on these.

The second study concerned the removal of these shortcomings

in the treatment of a twelve-year-old boy who sucked his thumb and had poor peer relationships. Three observers were used for the interval recording of all data. As a result of watching the self-modeling videotapes all targeted behaviors changed in the positive direction and all changes were statistically significant. The one shortcoming not settled in this study, whether extraneous variables were accounting for the therapeutic change, was answered in the next study.

In this third study the same child was required to watch non-edited self-modeled videotapes; tapes which contained inappropriate behaviors still present. The ABAB design, however, did not produce a return to baseline with the addition of the non-edited tapes. The investigators concluded that staff reinforcement of the boy's learned behaviors contaminated the reversal design. This led to the next and final study from this institution.

The fourth study repeated all the components of the third with the exception of excluding the staff reinforcement of the child subject studied. The ABAB reversal design produced a return to baseline with the viewing of the non-edited self-modeling tapes thus establishing the efficacy of self-modeling and the confirmed rejection of extraneous variables. The investigators at this institution were commendable in their pursuit for empirical replication.

Another institutional investigation by Miklich, Chida, and

Danker-Brown (1977), mentioned earlier for its elegance, questioned the existence of a possible placebo effect and its being the source for therapeutic outcome rather than self-modeling per se. The source for the placebo was twofold: (a) the subject's expectation for outcome, and (b) the recording of behaviors itself for the raw data tape. For the first, the children participating were told the purpose of the tape was to help theater art students to see how children acted and how their acting was affected by their watching themselves act. Dummy scenes were interspersed with the target behavior "scenes" to prevent target children from intuiting the actual purpose of the videotapes. The second was checked by monitoring any changes in the target behavior once raw data taping had begun; none occurred. Extensive discreet interviewing was done to establish whether or not the children had discovered the real purpose and intent of the study. The investigators were convinced this had not taken place. As a result of their work, self-modeling was shown to have significantly changed a target behavior without credit being accrued to either a placebo effect or expectancy set.

The last institutional study targeted developmentally disabled adolescents who were inadequately prepared to handle sexual harassment (Dowrick, McManus, Flarity-White, & Germaine, 1985). In this study self-modeling was combined into a treatment package with group discussion and group role playing. This triple-treatment package produced a significant treatment effect in 90% of the

children. The specific role self-modeling played is not clear but empirical purity should not obscure the power of a clinical outcome (Azrin, 1977).

In the third setting, the outpatient clinic, Dowrick (1979) treated a five-year old boy who exhibited poor social skills. The interesting components of this study was the use of a telephoto lens to make it appear as if this asocial boy was approaching other children, and the use of a single dose of diazepam to help this typically nonverbal child talk more freely. These auxiliary components permitted the production of the self-modeling tapes. The self-modeling videotapes were effective in changing all target behaviors according to post-treatment assessment as well as at a one year follow-up assessment.

In 1980, Dowrick and Dove treated three spina bifida children who had plateaued in their swimming skills. Following the use of self-modeled videotapes, which showed the children performing in the water beyond typical levels, all three children progressed beyond the previous skill plateau.

Again, in 1983, Dowrick treated a four-year-old boy with "girl stereotyped" behavior so as to allow an increase in the child's venue of alternative behaviors. Two types of self-modeling tapes were used. One used a trained actor to elicit more masculine behaviors in the boy, the second used a peer to do the same. The second tape was more efficaicious than the first, although both could not

be adequately tested due to early withdrawal of the child by the mother. After the second tape, however, there was still significant gains in alternative behavior even after six months.

Finally, in 1986, Dowrick combined self-modeling with systematic desensitization to help treat a five-year-old boy with phobic responses to doctors. The usual systematic-desensitization hierarchy was constructed but with the additional filming of each step as it was performed by the boy. The edited videotapes were viewed by the boy as he went through his hierarchy of progressively anxiety-provoking stimuli. Dowrick concluded that self-modeling reinforced the coping response of the child and thus increased the therapeutic efficacy of systematic desensitization. The one home study using self-modeling videotapes was by the present author (Woltersdorf, 1988b) and was mentioned above when introducing videotape self-modeling with ADHD children.

Assumptions. However, the use of videotape self-modeling has not been used to date in a controlled study with ADHD. Because of this, the applicability of this intervention for ADHD is unknown and needs to be the prime target for investigation. Beyond the general lack of specific, controlled studies that employed videotape self-modeling with ADHD, then is another conceptual issue that bears addressing before reviewing existing studies: Are children with ADHD capable of benefitting from videotape self-modeling itself? If videotape self-modeling needs to be combined with other treatments

that are already effective, then why use self-modeling? There are a number of studies that could question the veracity and validity of videotape self-modeling as an intervention with ADHD.

Stoner and Glynn (1987) found that children with ADHD may be field dependent and thus benefit less from cognitive therapies that are verbal and covert in nature. They recommended treatments that had more externally defined goals and reinforcements used as treatment options. This finding may exclude self-modeling per se as a viable alternative with ADHD children unless it is combined with another already successful treatment package. Harris and Ferrari (1983) paralleled the findings of this study by stating that cognitive self-informational interventions are less powerful with less developmentally mature children. They wondered whether an ADHD child could benefit from an intervention that falls within this cognitive, self-informational domain. Kendall (1984) is not as bleak but states that past studies of this sort have not been conducted in the natural setting of the ADHD child, such as the child's home or actual classroom. In so doing, he alludes to a transfer of learning or performance issue that bears directly on the matter of generalization.

This line of reasoning is closely mirrored in the arena of speech and language pathology studies. Piacentini (1987) found that ADHD was the most common disorder among his speech-disordered samples. With educational and psychological interventions verbally

based, he surmised that ADHD children may face increased frustrations, poor treatment carryover, and weak long-term results. Beitchman (1985), cited by Piacentini, found that those children with ADHD with a language impairment were unable to generalize from an individual item to a whole class secondary to a lack of an effective internalized map of the environment. In his study, a blue ball and a red ball would not be perceived as members of the same class, balls. This has also been called a lack of rule-governed behavior by others (Barkley, 1984). But regardless of what it is called, the bearing it has on treatment stability is clear. If the choice of treatment mode is inappropriate for the client's diagnosis, treatment effectiveness and stability can be expected to suffer. Love and Thompson (1988) confirm Piacentini's findings and add demographic information to provide prevalence figures. In their group of pre-schoolers (N = 116) 65% had a language disorder and 73% were ADHD, while only 20% were language disordered alone and 25% were ADHD alone; a ratio of 6:1 for those with both. Both investigators recommended simplified verbal instructions combined with nonverbal techniques when working with ADHD children. All studies were not as pessimistic. Thompson, Teare, and Elliot (1983) and O'Brien and Obrzut (1986) found cognitive interventions and modeling to be effective with "impulsive" children who lacked reflective models and the ability to easily grasp instructions.

Common to these studies is the physiological substrate.

Piacentini, citing Luria (1980) and Lou, Henrikson, and Brahm, (1983), states that the frontal lobe is responsible for the type of faulty regulation of speech found in the ADHD children. Zametkin and Rapoport (1986) reviewed the neurological studies with ADHD and gave high responsibility to the frontal lobe complex for its role in ADHD. Lezak (1983) states that the executive function of the frontal lobe is expressed in a four step sequence: (a) goal formulation, (b) planning, (c) carrying out goal-directed plans, and (d) effective performance. A sequence familiar to the clinician working with ADHD (Barkley, 1984). From this brief tangent, there appears to be reason for questioning the applicability of the abstract, cognitive, or verbal-laden interventions, often devoid of concrete imagery, typically used with ADHD. While lending support for the possible viability of self-modeling with ADHD, studies that have combined it with other interventions have not answered whether videotape self-modeling is viable for use with ADHD.

Hypotheses development. This dissertation addressed itself to utilizing video self-modeling as a behavioral intervention to treat dysfunctional behavior and academic under-achievement in four ADHD children enrolled in a regular Public School classroom. In this study, self-modeling videotapes were made of ADHD children. The setting for the production of the videotapes was the regular classroom. The content of these self-modeling tapes displayed functional behavior without the typical ADHD manifestations of

disordered behavior. The targeted behaviors of each child were the dependent variables. For the school there were four behaviors targeted: fidgeting, distracted, vocalizations, and math performance. This latter item was targeted because of the typical objective manner in which it is taught and for the difficulty it often poses for ADHD children who have disturbed levels of attention and concentration (Barkley, 1984; Carlson, 1986; Ross & Ross, 1982).

The independent variable was the self-modeling intervention. The self-modeling tapes were short (3-5 minutes) samples of desirable behaviors (non-fidgeting, non-distracted, quiet) occurring during math period which consisted of pencil and paper work. Each child viewed his tape daily prior to the math period. Observational samples were taken during math class, immediately following the viewing of videotapes and again at another time during the day to determine the ability of the intervention to generalize. The goal was for the self-modeling tape to be proven an effective behavioral tool for the modification of problem behavior in ADHD children. Each child was paid for observing the tape rather than for any expected behavior change. Additionally, compliance will be further strengthened by paying each child a bonus for amount of time their eyes were in contact with the screen as determined by a lap watch in the hands of a trained observer.

Therefore, the first hypothesis of this study posits that self-modeling is a viable and effective intervention strategy for the

typical symptoms of ADHD children.

The second hypothesis posits that videotape self-modeling is a viable and effective strategy for academic under-performance in children with ADHD.

The third hypothesis posits that videotape self-modeling will facilitate generalization of treatment effects after treatment has ceased (time generalization). The affirmative is expected; the treatment will be powerful enough to generalize across time.

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Appendix A

Informed Consent Package for Parents

PARENT'S PACKET

CHILD'S NAME: _____

Informed Consent for Parents

Dear Parent(s), Date:

I am a doctoral student in Clinical Psychology at the Fuller Graduate School of Psychology. I have spent the past four years trying to develop ways to help children have better lives in school, at home, and in the community. Presently I am developing a way to help students get more out of school. To do this videotapes of each child will be made and they will watch their own videotapes for 5 minutes a day at school. The videotapes will show them using good study habits and proper classroom behavior. To be sure that this actually is helping them I will be scoring them on a daily basis on several behaviors (talking, etc.) to see if they are indeed being helped. You can help me by not mentioning to your child what is actually being scored. I will be paying them for helping me make the tapes and for watching them each day but I have not told them what it is I am actually hoping will happen. This will insure that it is the videotapes that make the difference. If this works I am hoping local schools will be able to use their VCR's to help other students with other school difficulties. You may call me at any time to discuss this or to ask questions about how your child is doing. My home number is 818-584-0400. Please sign and return the attached permission and consent slips. Thank you.

Mitchel A. Woltersdorf

RELEASE OF CONFIDENTIAL INFORMATION

FOR PROFESSIONAL AND SCIENTIFIC PURPOSES

Fuller Graduate School of Psychology
180 N. Oakland St.
Pasadena, CA 91104

CHILD'S NAME: _____

ADDRESS: _____

_____

Mitchel A. Woltersdorf has our permission to use data gathered on the above named child in making oral and written presentations to other health professionals. ***The personal identity of the child and all members of the family will be kept confidential. Names and other identifying information will be changed or removed so that no one will be able to identify the child or family.*** This information is to be used solely for helping other health and school professionals to serve children in a more beneficial manner.

_____ _____

Date Signature of Parent(s)

_____ _____

Date Signature of Parent(s)

PARENTAL AUTHORIZATION FOR PARTICIPATION

Regarding _____
Child

The following authorize the services of Mitchel A. Woltersdorf for the child identified at the top of this page.

_____ _____
Date Signature of Parent(s)

_____ _____
Date Signature of Parent(s)

PARENTS VIDEOTAPE PERMISSION

I, _____, the parent of _____ give permission for my child to be videotaped by Mitchel A. Woltersdorf for my child's private use in my child's classroom. I understand the videotaping will take place on school grounds under the authorization of the Pasadena Christian School. I further understand the tapes will become my possession at the completion of the school term.

_____ _____

Signature of Parent(s) Date

_____ _____

Signature of Parent(s) Date

Appendix B

Informed Consent for Child

STUDENT CONTRACT

I, _____ agree to work for Mitchel Woltersdorf every school day until our job is done. This job means helping Mitch make videotapes of myself and my watching them. I understand I will be paid 0.25 cents for both making them and watching them and will be paid a bonus for how much time I spend watching the videotape I make. The more time I spend watching the screen, the more I will be paid. I will be paid every day that I work. This contract will be reviewed after I have worked for Mitch for 2 weeks.

Signed: _____

Signed: _____

Appendix C

Informed Consent Package for Teachers

TEACHER'S PACKET

TEACHER'S NAME: _____

CHILD'S NAME: _____

GRADE: _____ **ROOM:** _____

Child: _____ Date: _____

Teacher: _____ Grade: _____

School: _____

School's Telephone Number: _____

School's Mailing Address: _____

INSTRUCTIONS: ***Check the box below the answer which best describes this child.***

DESCRIPTOR	ANSWER			
	Not at All	Just a Little	Pretty Much	Very Much
1. Fidgeting ---------->	[]	[]	[]	[]
2. Hums and makes other odd noises ---------->	[]	[]	[]	[]
3. Excitable, impulsive -->	[]	[]	[]	[]
4. Inattentive, easily distracted ---------->	[]	[]	[]	[]
5. Fails to finish things he/she starts -------> (short attention span)	[]	[]	[]	[]
6. Quarrelsome ---------->	[]	[]	[]	[]
7. Acts "smart" ---------->	[]	[]	[]	[]
8. Temper outbursts (explosive and un- --> predictable behavior)	[]	[]	[]	[]
9. Defiant ---------->	[]	[]	[]	[]
10. Uncooperative --------->	[]	[]	[]	[]

---

*Adapted from Loney, J., & Milich, R. (1982). Advances in Developmental and Behavioral Pediatrics, 3, 113-147.

Appendix D

Behavioral Observation Sheet

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
VOCALIZ																								
DISTRAC																								
FIDGETS																								

15 min ▲ 20 min ▲

	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	TOTALS
VOCALIZ																	
DISTRAC																	
FIDGETS																	

VOCALIZATIONS: talking when not spoken to be teacher; making audible sounds of any type or intensity.

DISTRACTED: not looking at work; not looking at teacher when she/he is talking; responding to distractors.

FIDGETING: touching hair, ears, lips, face; either one or both feet off the floor; butt not touching seat; playing with pencil et al; strumming fingers; out of seat entirely; scratching self any where.

MATH PERFORMANCE:

Total problems: _____

% of problems completed: _____

left undone: _____

% of problems correct: _____

done wrong: _____
(undone + wrong)

****

TIME STARTED: _____ TIME FINISHED: _____

RATER: _____

CHILD: _____

DATE: _____

SCHOOL: _____ SUBJECT PERIOD: _____

****

INTER-RATER RELIABILITY: _____% PHASE : _____

Appendix E

Raw Data for all Participants

Andrew				
Days	Fidget	Distract	Vocaliz	Math Prf
1	19	24	6	
2	30	12	3	
3	21	22	5	
4	27	10	7	87
5	25	13	5	
8	24	19	2	
9	26	22	6	75
10*	25	18	7	
11*	6	12	4	
12*	14	4	5	
15*	14	4	0	
16*	9	10	7	
17*	14	4	6	100
18*	14	4	8	
19*	17	12	7	
22	18	11	4	92
23	21	11	3	96
24	16	5	0	
25	25	6	10	
29*	22	8	6	
30	23	9	3	
31	16	8	2	
32	27	17	10	
33	23	15	3	
36	24	10	5	93
48	20	10	5	97
60	26	17	5	97
90	25	15	6	
140	24	13	4	
181	25	16	5	

Note: * = treatment present, Days = number of days from first day of baseline of first child (Andrew) used as reference for all children.

Joey				
Days	Fidget	Distract	Vocaliz	Math Perf
1				
2				
3				
4				
5	23	10	8	72
8	29	12	10	77
9	21	24	18	
10	19	15	8	
11	23	16	9	
12	19	21	10	
15	24	14	11	
16*	17	11	0	
17*	10	12	3	
18*	15	15	3	
19*	10	7	2	90
22*	10	4	3	100
23*	16	16	4	100
24*	11	9	3	93
25*	14	9	2	
29	13	5	0	
30	27	11	10	100
31	9	11	8	
32	22	15	9	100
33*	18	14	8	
36	22	18	7	100
37	24	8	8	
38	9	13	0	94
39	25	2	1	
52	16	1	11	93
64	20	5	10	
94	19	9	6	96
134	21	7	7	
175	22	10	8	

Note: * = treatment present, Days = number of days from first day of baseline of first child (Andrew) used as reference for all children.

Trevor				
Days	Fidget	Distract	Vocaliz	Math Prf
1				
.				
.				
10	18	6	2	
13	24	9	6	
14	20	19	6	78
15	23	10	6	80
16	21	22	8	
17	18	23	9	
18	18	19	5	
20*	20	16	4	
21*	23	19	6	88
22*	22	19	5	
23*	20	13	6	
24*	22	16	5	
27*	18	13	9	
28*	19	17	9	
29*	8	6	8	93
30	17	3	0	
31	22	20	9	92
34	9	15	0	93
35	21	15	3	93
36*	19	10	5	100
37	15	4	7	36
38	11	9	3	65
41	19	9	10	
42	6	12	8	78
54	18	16	6	90
65	23	10	7	
95	15	5	9	100
145	16	15	3	
155	18	11	6	
180	20	16	5	

Note: * = treatment present, Days = number of days from first day of baseline of first child (Andrew) used as reference for all children.

	Joseph			
Days	Fidget	Distract	Vocaliz	Math Prf
1				
.				
.				
15	26	18	9	
18	30	22	3	
19	30	10	4	86
20	28	9	10	
21	29	17	9	83
22	26	21	5	
25	30	14	10	
26*	14	14	0	
27*	14	10	2	96
28*	18	13	6	94
29*	11	8	3	100
32*	18	11	1	
33*	19	12	3	
34*	13	4	0	
35*	18	10	3	
36	20	13	3	
39	19	7	2	
40	17	4	0	100
41	27	8	7	98
42*	17	5	6	100
43	16	8	3	100
46	16	17	4	100
47	19	10	3	
48	24	4	5	
60	16	14	4	
72	25	15	0	80
102	21	3	0	96
152	26	0	5	96
168	27	7	5	
180	28	11	3	

Note: * = treatment present, Days = number of days from first day of baseline of first child (Andrew) used as a reference for all children.

Appendix F

Percent of Change of Treatment Effect Between Intervention Phase and Maintenance Phase and Between Maintenance Phase and Follow-Up Phase.

		Percent change between treat & maintenance phase	Percent change between maintenance & follow-up phase
Andrew	Fidgeting	<62	<20
	Distractions	<20	<69
	Vocalizations	<22	<41
	Math Performance	< 4	> 2
Trevor	Fidgeting	>16	< 1
	Distractions	>27	< 4
	Vocalizations	>46	<93
	Math Performance	<17	>15
Joey	Fidgeting	<43	< 5
	Distractions	<13	>46
	Vocalizations	<99	> 5
	Math Performance	> 4	< 6
Joseph	Fidgeting	<21	<25
	Distractions	>16	>15
	Vocalizations	<98	>12
	Math Performance	> 3	< 8

Figure Captions

Appendix G. Performance of each subject on target behavior designated "fidgeting" during all phases of the multiple baseline design. (Phases identified as follows: A = baseline, B = intervention, C = maintenance, and D = follow-up phase. Horizontal dotted line across B, C, and D represents median baseline score against which all data points are compared).

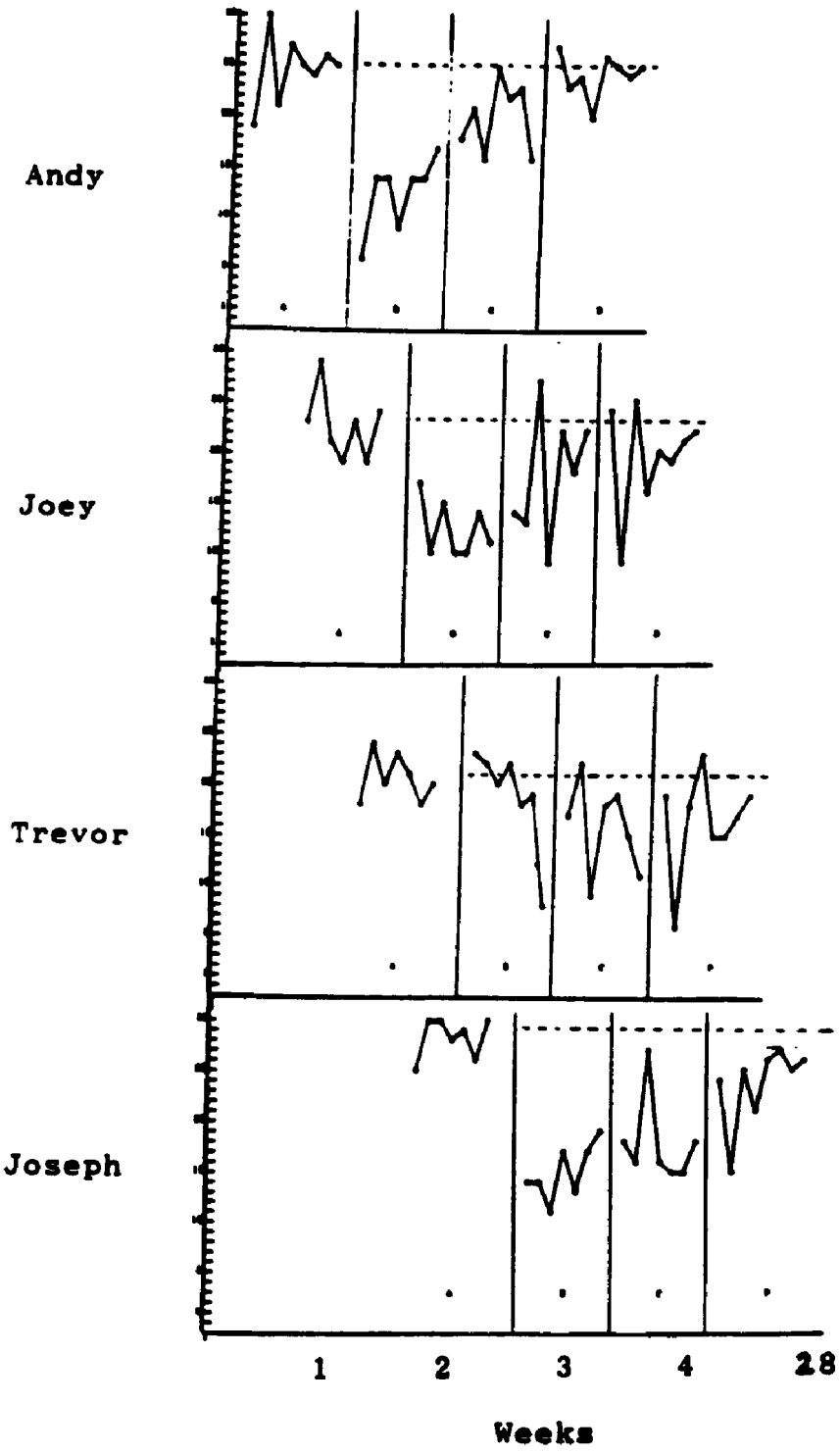
Appendix H. Performance of each subject on target behavior designated "distracted" during all phases of the multiple baseline design. (Same information as Appendix G).

Appendix I. Performance of each subject on target behavior designated "vocalizations" during all phases of the multiple baseline design. (Same information as Appendix G).

Appendix J. Performance of each subject on target behavior designated "math performance" during all phases of the multiple baseline design. (Same information as Appendix G).

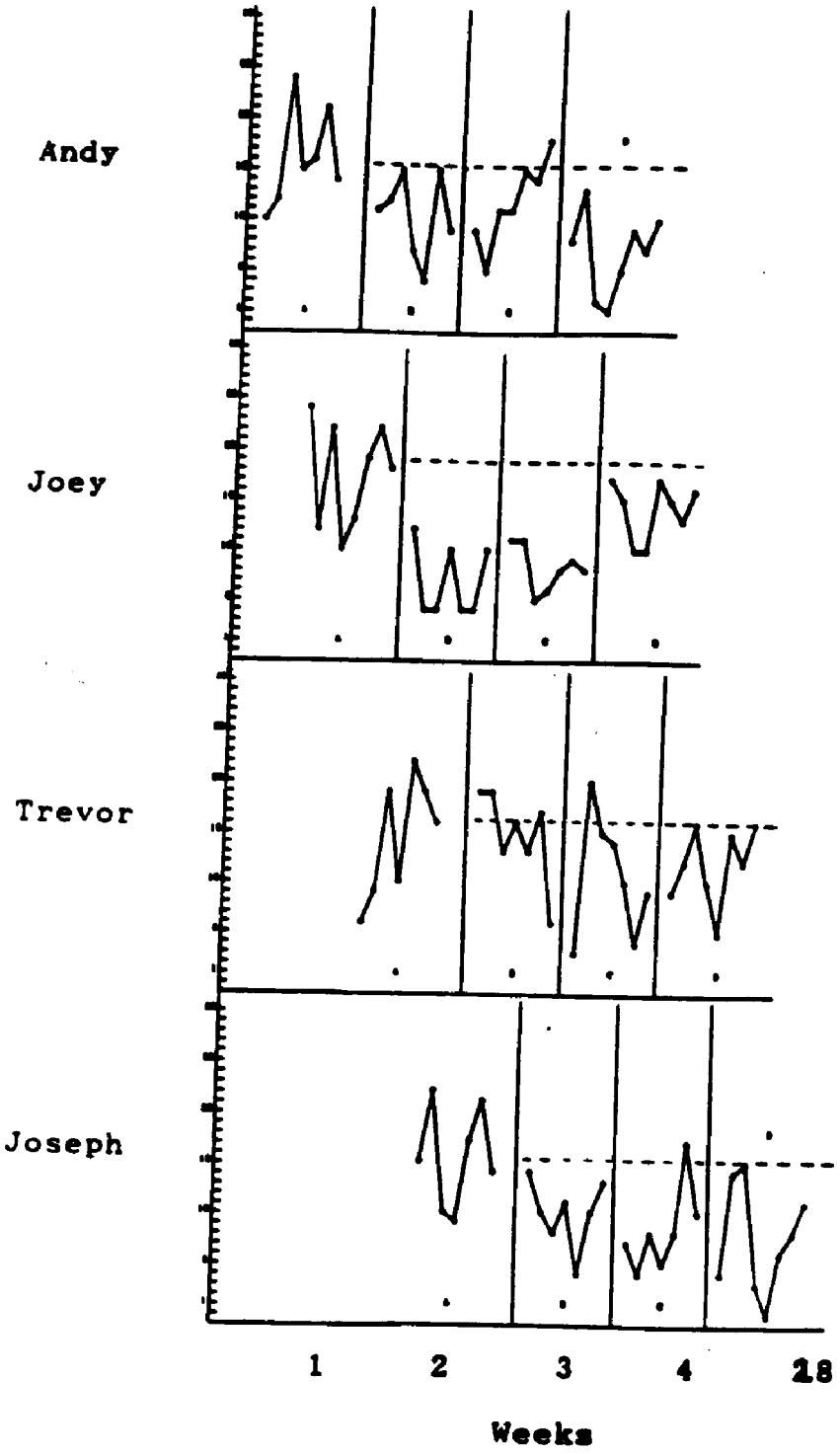
Appendix G

Performance of each Subject on "Fidgeting"



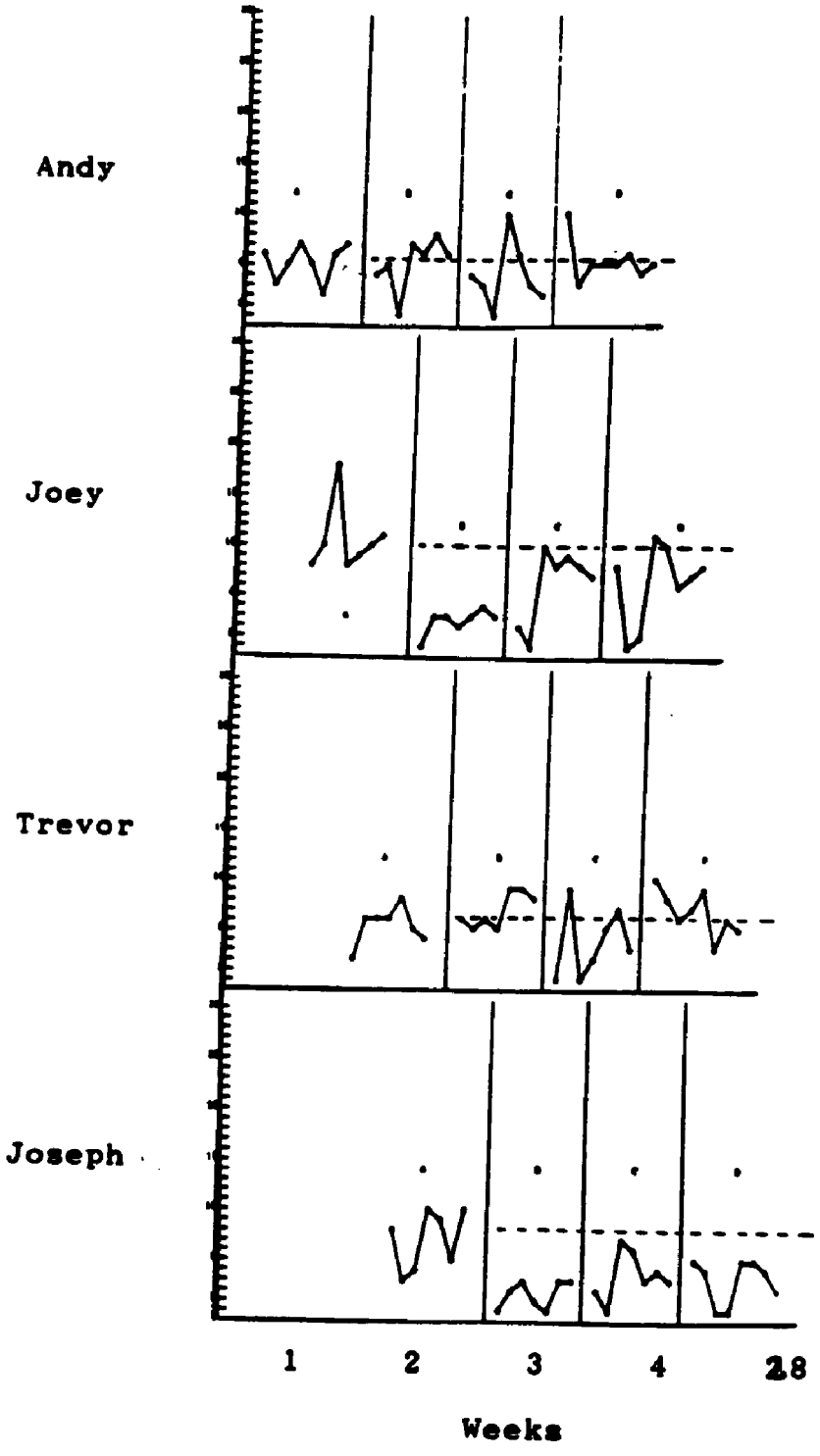
Appendix H

Performance of each Subject on "Distracted"



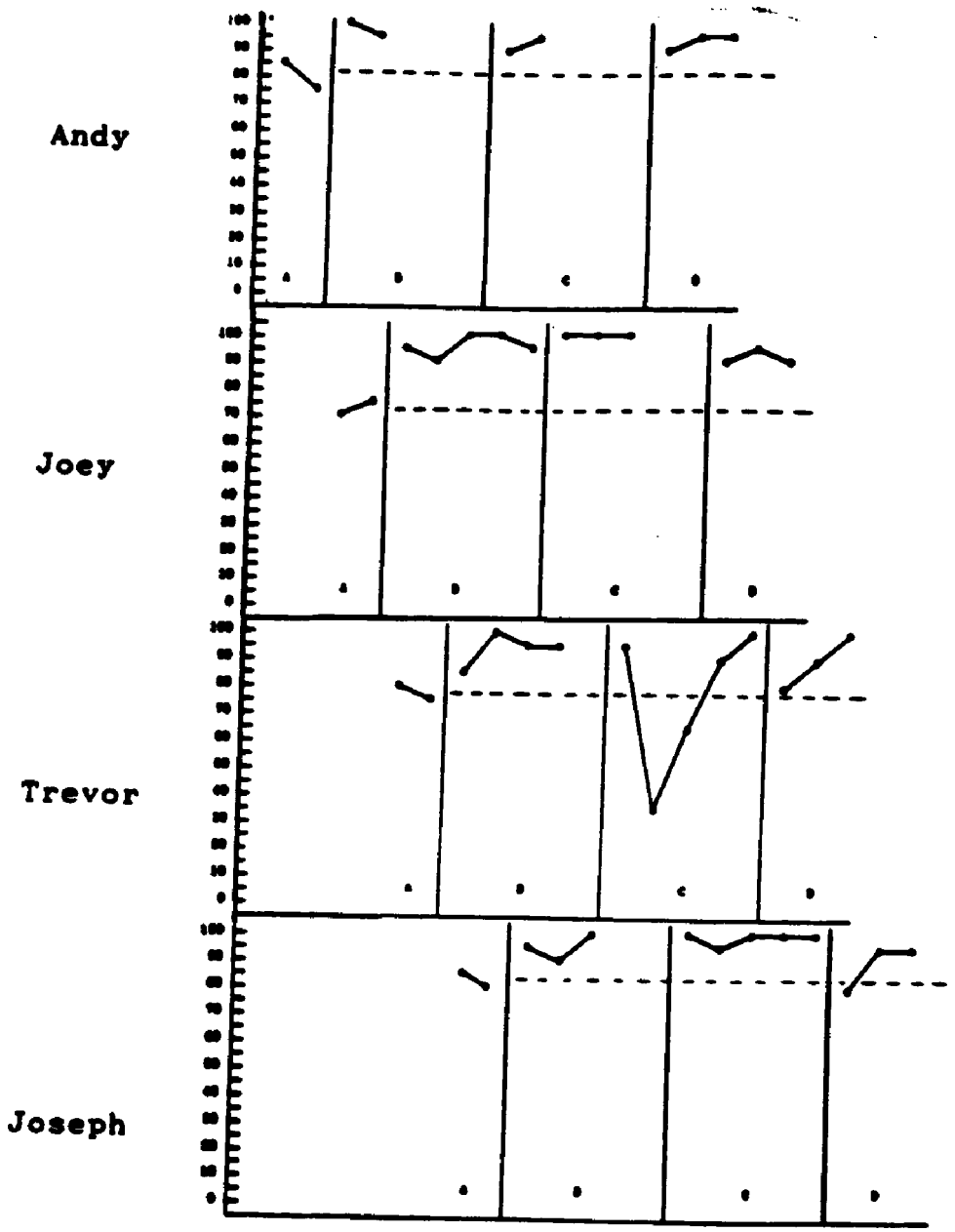
Appendix I

Performance of each Subject on "Vocalization"



Appendix J

Performance of each Subject on "Math Performance"



Appendix K

List of Appropriate Journals

1. Behavior Therapy.
2. Journal of Behavior Therapy and Experimental Psychiatry.
3. Child Behavior and Family Treatment.
4. Journal of Clinical Child Psychology.
5. Journal of Applied Behavior Analysis.

Appendix L

Letter of Submission

1 June 1989

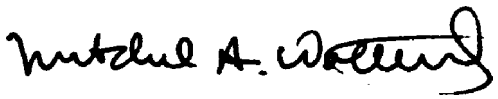
Edward Blanchard, Editor
Association for the Advancement of Behavior Therapy
15 West 36th Street
New York, New York 10018

Dear Dr. Blanchard,

Enclosed please find five copies of the manuscript entitled "Videotape Self-modeling in the Treatment of Attention-Deficit Hyperactivity Disorder." It is being submitted for consideration for publication in Behavior Therapy and has not been previously published, nor is it presently submitted elsewhere for publication consideration.

Thank you in advance for your consideration of this manuscript. I look forward to the reviewer's comments.

Sincerely,



Mitchel A. Woltersdorf
647 N. Madison #B
Pasadena, CA 91101

Appendix M

Vita

MITCHEL A. WOLTERSDORF

Biographical data:

Mitchel A. Woltersdorf
647 N. Madison #B
Pasadena, CA 91101

Married with 3 children

POB: Chicago, IL

Educational data:

1985-	Fuller Graduate School of Psychology Ph.D. Candidate 180 N. Oakland St. Pasadena, CA 91182
1977-1979	Trinity Evangelical Divinity School Deerfield, IL M.Div. Graduate
1973-1974	Northwestern Medical School School of Physical Therapy Licensed in Physical Therapy (CA, WI) 333 E. Huron St. Chicago, IL
1967-1970	Northeastern Illinois University 5500 N. St. Louis Ave. Chicago, IL B.A. in Education, with Honors

Employment data: **PSYCHOLOGY**

September 1989-	Psychology Intern, Veterans Administration Los Angeles-Outpatient Clinic.
January 1988-	Administrative Assistant to Director of Training, Fuller Graduate School of Psychology, Pasadena, CA. Establishing WASC protocol for applicant interviews, administrating clerkship and pre-internship placements, general administrative duties.

May 1988-	Psychology Pre-Intern Pasadena Community Counseling Clinic Pasadena, CA Therapy with adult outpatients, supervision of practicum students, case conferences, topical presentations.
Fall 1988	Teaching Assistant in Clinical Child Psychology Fuller Graduate School of Psychology Assist with grading of papers and tests, administrative duties.
Fall 1988	Teaching Assistant in Integration Introduction Fuller Graduate School of Psychology Assist with grading of papers and tests, administrative duties, responsible for some lectures.
Jun 87-Jun 88	Psychology Assessment Clerk LA County-USC Medical Center Assessment of inpatient children and adolescents, educational assessment, interface with physicians and social workers, child and adolescent outpatient rotation, research: use of CDI with conduct disorder.
Sep 87-Jun 88	Practicum Student Child Development Clinic Pasadena, CA Assessment and intervention of outpatient children and adolescents, community psychology, school consultation, home visitations, research outcome studies, family therapy.
Jan 87-Oct 87	Student Assistant to the Dean Fuller Graduate School of Psychology Administrative duties: financial responsibility for grant-in-aid, correspondance with alumnae and supporters, control of therapy subsidy program, manage transfers of credit, assist with orientation of new students, student counseling.

Sep 86-Jun 87	Practicum Student Inter-Community Alternatives Network (I-CAN) Pasadena, CA 91104 Assessment and intervention in adult day-care setting, individual and group psychotherapy, milieu therapy, social skills groups, vocational training and counseling.
Employment Data:	**PHYSICAL THERAPY**
Aug 85-	Clinical Supervisor Beverly Hospital Physical Therapy Department Montebello, CA Supervision of staff physical therapists and assistants, clinical training instructor, patient treatment in orthopedics, neurology, med-surgical, oncology, geriatrics, and pediatrics-ob/gyn.
Oct 82-Jul 85	Clinical Supervisor Eastmoreland Hospital Physical Therapy Department Portland, OR Supervision of staff assistants, patient treatment in orthopedics and med-surgical.
Jan 79-Apr 81	Clinical Director Physical Therapy Department Villa Maria Nursing Home Hurley, WI Management of department, supervision of staff assistants, patient treatment in gerontology.
Jan 79-Apr 81	Clinical Director Physical Therapy Department Ashland Nursing Home Ashland, WI Management of department, supervision of staff assistants, patient treatment in gerontology.
Oct 74-Aug 78	Staff Physical Therapist Swedish Covenant Hospital Chicago, IL Staff position involving treatment of patients in orthopedics, neurology, neurosurgery, and rehabilitation, assist in EMG and NCV studies.

Publications and Presentations: PSYCHOLOGY

Macbeth, L., Woltersdorf, M. & Bohner, M. (1988, April). Factor structure of the Children's Depression Inventory with conduct disordered children. Poster presented at Western Psychological Association Convention, Burlingame, CA.

Meharg, S. & Woltersdorf, M. (submitted). The therapeutic use of videotape self-modeling: A review. Psychological Bulletin.

Prater, J., Honda, R., Meharg, S., Woltersdorf, M., Keens, S., Oncley, P., & Blackford, I. (1987, April). Training teachers to use self-reinforcement in the classroom. Poster presentation at Western Psychological Association Convention, Long Beach, CA.

Walker, C. & Woltersdorf, M. (1988, April). Attention Deficit-Hyperactivity Disorder: A clinical review of interventions. Poster presented at Western Psychological Association Convention, Burlingame, CA.

Woltersdorf, M.A. (1976, May). Acupressure and the gate theory of pain. Paper presented at Northwestern Medical School, School of Physical Therapy, Visiting Alumnus Lecture.

Woltersdorf, M. A. (1987, June). Approximations to truth: A trouble-shooting model for integration. Invited address as winner of West Coast student paper competition of Christian Association for Psychological Studies-West Convention, Seattle,WA.

Woltersdorf, M.A. (1988, April). Variable description in integration. Paper delivered at Christian Association for Psychological Studies-International Convention, Denver, CO.

Woltersdorf, M.A. (1988, April). The spirituality of personnel psychology. Paper delivered at Christian Association for Psychological Studies-International Convention, Denver, CO.

Woltersdorf, M.A. (1988, April). Analysis of attention deficit-hyperactivity assessment measures. Poster delivered at Western Psychological Association Convention, Burlingame, CA.

Woltersdorf, M. A. (1988, August). Analysis of assessment measures used with ADH and CD children. Poster presented at Annual American Psycholgical Association Convention, Atlanta, GA.

Woltersdorf, M. (chair), & Meharg, S. (1988, April). Emergency short-term groups for children suffering from earthquakes. Symposium presented at Western Psychological Association Convention, Burlingame, CA.

Woltersdorf, M. A. (1988, June). Eschatology and a clinical problem-solving metatheory. Paper presented at Christian Association for Psychological Studies-West Convention, Twins Peaks, CA.

Woltersdorf, M.A. (1988, May). Extending the therapeutic hour through videotape self-modeling. Poster presented at the 18th Annual National Clinical Directors Training Symposium, Pasadena, CA.

Woltersdorf, M. A. (1989, February). Using videotape technology to help behavior disordered children. Paper accepted at California State Psychological Association, San Francisco, CA.

Woltersdorf, M.A. (1989, April). Treating attention deficit-hyperactivity disorder in the home and classroom using videotape self-modeling: A pilot study. Paper accepted for combined meeting of Western Psychological Association and Rocky Mountain Psychological Association, Reno, NV.

Woltersdorf, M. A. (forthcoming). Reaction formation. In R.J. Hunter, H.N. Malony, L.O. Mills, & J. Patton (eds.), Dictionary of Pastoral Care and Counseling. TN: Abingdon Press.

Woltersdorf, M.A. (forthcoming). Intellectualization. In R.J. Hunter, H.N. Malony, L.O. Mills, & J. Patton (eds.), Dictionary of Pastoral Care and Counseling. TN: Abingdon Press.

Woltersdorf, M.A. (forthcoming). Psychodynamics. In R.J. Hunter, H.N. Malony, L.O. Mills, & J. Patton (eds.), Dictionary of Pastoral Care and Counseling. TN: Abingdon Press.

Woltersdorf, M.A. (forthcoming). Psychosexual development. In R.J. Hunter, H.N. Malony, L.O. Mills, & J. Patton (eds.), Dictionary of Pastoral Care and Counseling. TN: Abingdon Press.

Woltersdorf, M.A. (forthcoming). The subconscious. In R.J. Hunter, H.N. Malony, L.O. Mills, & J. Patton (eds.), Dictionary of Pastoral Care and Counseling. TN: Abingdon Press.

Woltersdorf, M.A. (forthcoming). An eschatological theory of personality. In H.N. Malony (ed.), Travis Award Papers of 1985-1986. Pasadena, CA: Integration Press.

Research data: PSYCHOLOGY

Master Thesis: Training teachers to use self-reinforcement in the classroom: A time generalization study.

Dissertation: Using videotape self-modeling in the treatment of attention deficit-hyperactivity disorder.

Grants: Early detection of disruptive behavior disorders in the primary grades (primary author Paul Clement, Ph.D.). NIMH Grant MH45099-01.

Using videotape self-modeling in the treatment of ADHD in children (Dissertation study). Sigma Xi Grant awarded Feb 1989.

Professional data: PSYCHOLOGY

Member of APA since 1985 (Student Affiliate)
WPA since 1985 (Student Affiliate)
CAPS since 1986 (Student Affiliate)
CSPA since 1986 (Student Affiliate)
Div 29 APA since 1985 (Student Affiliate)
Div 51 APA since 1987 (Student Affiliate)
APS since 1988 (Student Affiliate)

Award data: PSYCHOLOGY

John Stauffer Fellowship Award 1988
CAPS-West Student Paper Competition winner 1987
Dean's Award 1986
Travis Award for Theoretical Paper 1986

Continuing Education: **PSYCHOLOGY**

The Rorschach Comprehensive System: An Update
June 14, 1987
Sponsored by CSPA, 7 CEU, Category I

Continuing Education: **PHYSICAL THERAPY**

Isokinetic Workshop: Clinical and Research Applications
Schwab Rehabilitation Hospital, Chicago, IL
Sponsored by University of Health Sciences, Chicago Medical School, 0.75 CEU's, November 1975.

Physical Therapy in Acute and Chronic Pulmonary Disease
Institute of Rehabilitation Medicine,
New York University Medical Center, New York, NY.
December 1976.

Transcutaneous Neural Stimulation and Acupressure in Manual Therapy,
Institute of Orthopedic Physical Therapy, Vail, CO.
January 1976.

Electrotherapeutic and Electrodiagnostic Techniques for Physical Therapists,
Northwestern University Medical School, Chicago, IL
1.6 CEU's, May 1976.