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ABSTRACT

This report presents the results of the second year of a training program designed to help preschool kindergarten children who are deficient in interpersonal cognitive problem-solving (ICPS) skills. The ICPS skills have been demonstrated to indicate good or poor behavioral adjustment, defined in terms of the reflectivity/impulsivity dimension of behavior. The training was intended to teach children how to think and help them develop a problem-solving thinking "style" for coping with everyday interpersonal problems. Subjects were 69 entering kindergarteners who had received ICPS training in nursery school and 62 kindergarteners who had not. The trained group was divided into a retraining group (N=39) and a control group (N=30), and the previously untrained group was divided into a training group (N=35) and an untrained group (N=27). Each group was administered the Preschool Interpersonal Problem Solving Test (PIPS) at the end of nursery school and kindergarten. Children trained in nursery school but not in kindergarten conceptualized a significantly greater number of solutions to interpersonal problems than untrained children after nursery school, and showed no significant loss over the following year. One year of training was found to be as beneficial as two with respect to behavioral adjustment, and findings suggested that early nursery intervention is optimal. Possible reasons for the efficacy of training in ICPS skills are discussed. (GO)

A Preventive Mental Health Program for Young "Inner City" Children: The second (kindergarten) year[1]

Paper presented at the American Psychological Association

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Is it possible to improve the classroom behavior of overly impulsive and inhibited children by teaching them how to think? Three years of working with children as young as four years of age have shown that such is possible and has given us a new approach in dealing with and handling behavioral difficulties (Shure and Spivack, 1973; Spivack and Shure, 1974).

Teaching children how to think so they can conceptualize various alternatives to typical age relevant interpersonal problems (e.g., Johnny has a toy Jimmy wants) and to recognize potential consequences to an interpersonal act (e.g., grabbing the toy) has had marked impact on actual classroom behavior of four-year old "inner city" children attending day care preschools in Philadelphia.

Youngsters beginning the training as impulsive became more able to wait for what they want, and less nagging and demanding. They became better able to share and take turns, and less easily

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upset in the face of frustration. Youngsters who started out inhibited, timid, fearful or shy became more socially outgoing, better liked by their peers and more aware of others. And most importantly, youngsters who improved most in the trained thinking skills also improved most in classroom behavioral adjustment, supporting Spivack's theoretical position that change in the mediating interpersonal cognitive problem-solving skills generated change in behavioral adjustment (Spivack, 1973). And the cognitive and behavioral effects of training were independent of both initial and change IQ, indicating that children within a wide IQ range (70-120+) were able to benefit.

The training program is based on research findings indicating consistently from preschool through adulthood that individuals deficient in interpersonal cognitive problem solving (ICPS) skills are significantly more poorly adjusted than those more efficient in such skills (Spivack and Shure, 1974). In children four and five years of age these skills specifically centered on alternative and consequential thinking as described earlier. The results of training four-year-olds revealed that it is possible to improve classroom behavior and adjustment not by direct modification of behavior itself but by altering the child's interpersonal problem solving thinking style.

The purpose now is to present results of the second year, as the children moved from preschool into kindergarten. Half the nursery-trained youngsters were retrained in kindergarten (N=39), the remaining half serving as kindergarten controls (N=30). Half the nursery controls were first trained in

kindergarten (N=35), the remainder having never received training (N=27). Questions asked concerned the effects of amount and timing of training as well as whether benefits would last over time.

First, I will describe the highlights of the program as used with kindergarten youngsters, then the research results and implications.

The Training Program

The underlying approach is to teach children how to think, not what to think. The aim established early was to help the child develop a problem solving thinking "style" that would guide him in coping with typical everyday interpersonal problems.

The format of the program is a script composed of daily lessons in game form. In redesigning the script for kindergarten it was necessary to keep in mind that some youngsters had been exposed to the training in preschool and some would be receiving training for the first time. In considering the added sophistication of the children, it was important to design the games so as not to be too demanding for those first receiving training.

The concepts were for the most part the same as those taught to four-year-olds. To avoid repetition, the content was changed for all but the most popular games, and new, more challanging games added. (The sequence of concepts is shown in an accompanying chart provided).

The early games consisted of basic word concepts needed to establish an association for their later use in problem-solving.

For example, understanding and thinking about the word not was important so the child could learn to decide what and what not to do, and whether an act is or is not a good idea. With the games centered on people and interpersonal relations, in one game the teacher would say: "I am thinking of a girl. I am not thinking of a_____(children respond, a boy). If I am thinking of a girl, I am not thinking of _____(children respond, for example, Peter). Good, I am not thinking of Peter because Peter is a boy." The game continued. "I am thinking of a girl with a blue blouse on. What girl am I not thinking of? (Children respond, e.g., Judy). Good, I am not thinking of Judy because Judy does not have a blue blouse on." The teacher continues this game adding more and more articles of clothing until finally she asks, "Who am I thinking of?"

Thinking about the words same and different are also important so the child could think about different ideas and different things that "might happen if..." The child could also learn to recognize that "hitting and kicking" are the same idea because both are "hurting." In addition to action games played by the four-year-olds (e.g., "I am tapping my knee. Can you do something different?") a number of pictures were shown of children doing the same or different things. For example, pictures were shown of two children playing in the snow, and the children were asked "Are these boys doing the same thing or something different?" In a sequenced series of games the children were asked to point to various combinations of the same child doing different things,

different children doing the same thing, and different children doing different things.

Words that designate how people feel were emphasized--happy-sad-mad--and that feelings change. Using pictures, the teacher would ask: "Do these children feel the same way or a different way? Show me a boy who does not feel the same way as this boy." Besides reinforcing the concepts not, same and different, these games illustrate that children can do different things and feel different ways at different times. Sensitivity to what others are doing and feeling was emphasized throughout the kindergarten script (in a sequenced pattern).

Other concepts prerequisite to interpersonal problem solving included games designed to teach why-because, might-maybe and now-later, through use of pictures, puppets and simple role-playing techniques. A picture was shown of a girl crying and the teacher asked: "How is this girl feeling?" After a child answered "sad" the teacher followed with "She might feel sad because...(and the children would respond). Pointing to another child in the picture, the teacher asked, "What can this boy do to make her feel happy again?" After a child answered, the teacher continued: "That might make her happy. Can you think of something different he can do?"

After having mastered the word concepts and pre-problem solving skills, the children were now ready for the games and dialogues that teach interpersonal problem solving thinking. The basic strategy was the same as that used with four-year-olds but the content of the problems differed.

One picture depicted two children with their mother in a grocery store; one child was shown pushing a grocery cart. The problem presented was: "This girl wants her brother to let her push the grocery cart." The children were then asked for all the things the girl could do or say so her brother would let her push the grocery cart. After one idea was offered, e.g., "ask him," the teacher would then say: "That's one way. Can anyone think of som-thing different she could do or say? That's the idea of the game." Responses as "push him out of the way," or "snatch the cart" were accepted in the same manner as "ask" or "say please, can I push the cart." The teacher never judged a solution, only elicited them. In the next set of lessons, the children would evaluate for themselves whether an idea is or is not a good one.

In one picture for example, a girl was shown holding drumsticks and a boy a triangle. The problem: "How can this girl get the boy to let her have the triangle?" After a solution was offered, e.g., "snatch it," the teacher said, "That's one thing she could do. Now let's think of what might happen next if the girl snatches it." After one response, e.g., "He might hit her," the teacher would follow: "Yes, that's one thing that might happen. Can you think of something different that might happen?" As in the case of solutions, the child was never told potential consequences to an act. Nonforceful solutions as "let him hold her drumsticks" were evaluated by the child in the same way as were forceful ones. With the skills the child now had, he could decide whether an act is or is not a good idea because of what might happen next.

The total length of training was 10 weeks, with the teachers presenting the lessons for 20 minutes on a daily basis.

In addition to formal training, teachers were taught guided dialogues using the "style" of the program at other times during the day. In helping the child solve his own problems and evaluate his own solutions, the teacher also learned to extract from the child his thinking.

Before training, a typical teacher-child interaction:

Teacher: Robert, why are you hitting Larry?

Robert: He won't let me play with the clay.

Teacher (to Robert): You can't hit him. You have to ask.

Teacher (to Larry): Larry, you have to learn to share.

When Larry indicates there is not enough clay for both (a realistic assessment in this case) the teacher suggests to Robert: "Why don't you build a tower with some blocks?" Robert immediately replies "I don't want to. I want the clay," whereupon he proceeds to grab the clay from Larry.

Now the teacher has a new problem on her hands. And the more she tells or suggests to them what to do, the more angry and frustrated the children become.

After training, a teacher handled a similar situation in a different way:

Teacher: Steven, why are you hitting Ralph?

Steven: He won't let me have the red truck.

Teacher: Hitting is one thing you can do. What might happen if you hit him?

Steven: He might hit me back.

Teacher: Can you think of a different idea so he won't hit you back?

Steven: I can ask him.

Teacher: That's another idea. Go ahead and try it.

Steven (to Ralph): Can I have the red truck? I'll give it right back.

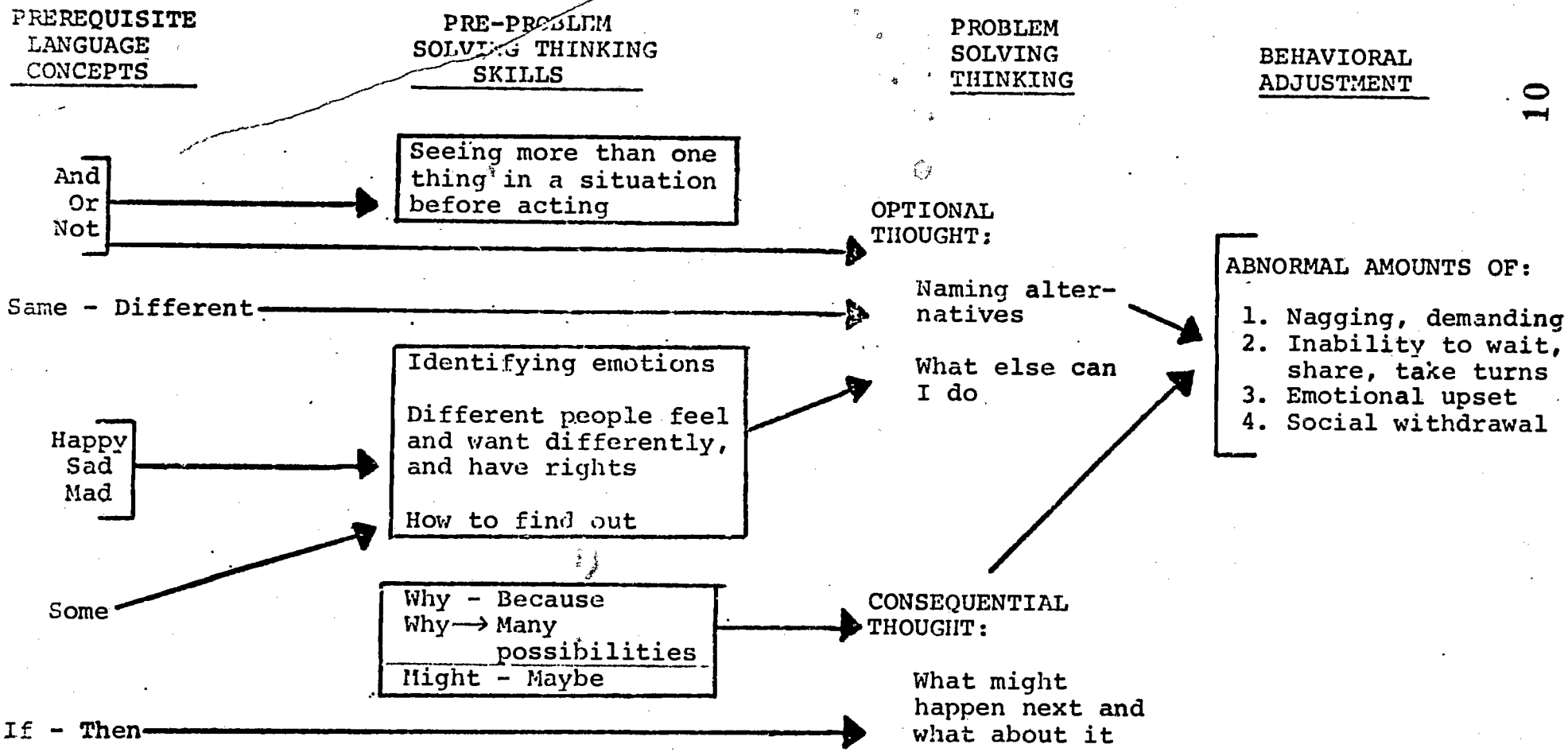
Ralph: No, I need it now.

Teacher: There is only one red truck. Can you think of something different to do now? Ralph seems to need it now. Then you can play with the red truck later.

Steven: I'll go build an airport now. I'll get the red truck later.

Here the teacher encouraged Steven to think about the consequences of his first impulse (to hit) and guided him to try another solution. Ordinarily,this would have been sufficient. When the teacher recognized that Ralph was really using the only red truck available at the moment she then guided Steven to think of something different to do. Had the teacher suggested "Why don't you build an airport?" the child might have responded, "I don't want to" as did the first child. The results are quite different when the child thinks of something to do himself. It is important that the teacher recognized Ralph's rights to the toy and did not insist he share it.

PROBLEM SOLVING CURRICULUM



The problem is not always between one child and another. Sometimes the problem is between a child and the teacher. One child wanted to bring a ball to storytime. The more a teacher would demand he put it away or even explain the ball would be in the way the more the child would refuse to put it down. A training teacher simply said: "Can you find a good place to put the ball until later? We're having a story now." The child enthusiastically found "his" place and no more needed to be said.[2]

Results and Discussion

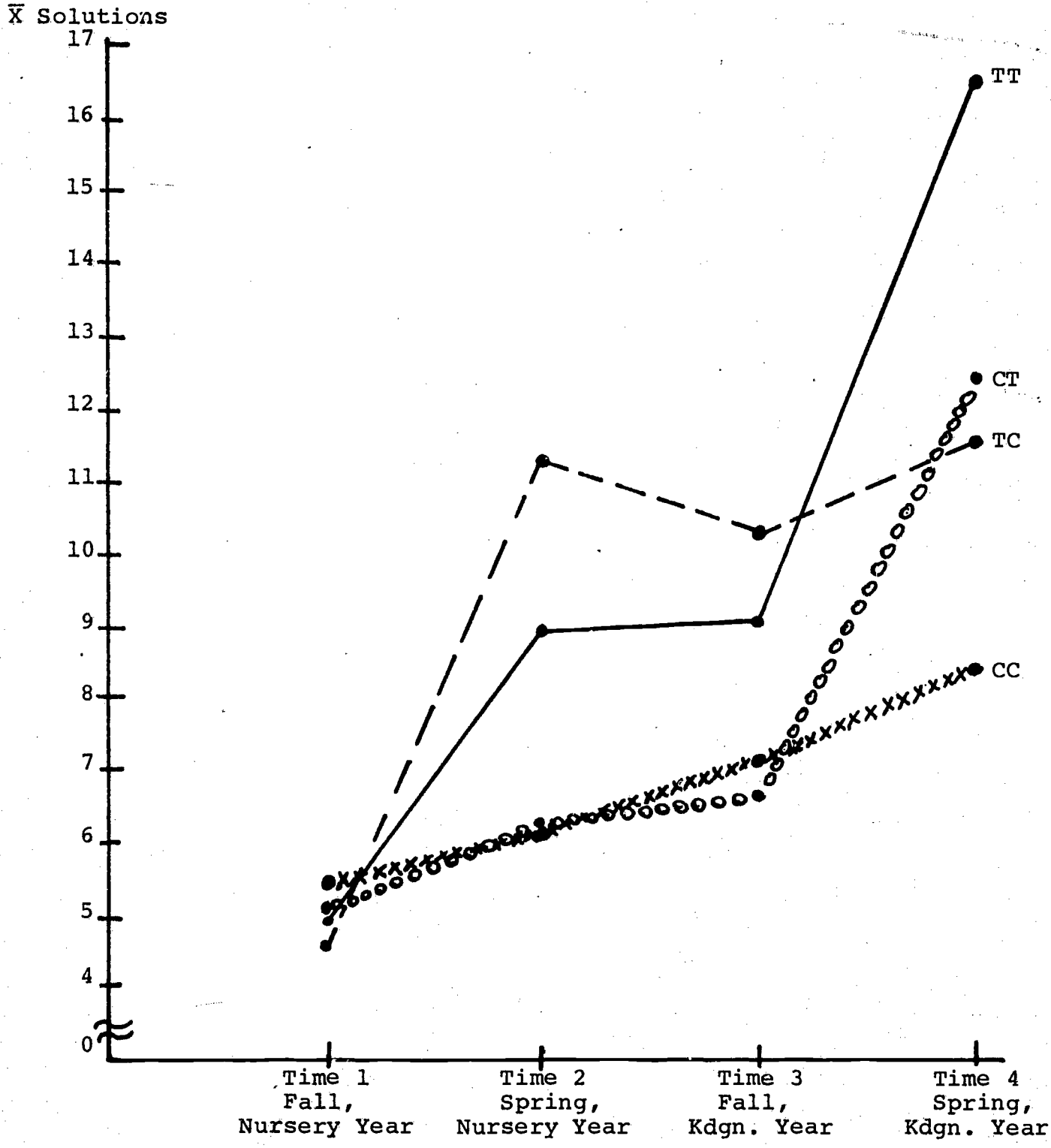
Holding Power. The first question asked was whether effects of training in the nursery year would last throughout kindergarten without further reinforcement.

As measured by the Preschool Interpersonal Problem Solving (PIPS) Test (Shure and Spivack, 1974b), youngsters trained in nursery (but not kindergarten) conceptualized a significantly greater number of solutions to interpersonal problems than controls immediately following training (post-nursery) and showed no significant loss over time. At the end of the kindergarten year (a full year later) nursery-trained youngsters remained significantly higher than those who never received training. These results can be seen in Figure 1 . With no pretest differences at Time 1 (pre-nursery training) the TC group

[2]The complete day-by-day program script for four-year-olds, its background research and use of dialoguing is described in Spivack and Shure (1974). The complete kindergarten program script is available from the authors (Shure and Spivack, 1974a).

Figure 1

Patterns of Change for Alternative Solutions (PIPS) for Four Groups from Pre-Nursery to Post-Kindergarten



Key:
———Training Nursery, Training Kdgn. (TT) [N=39]
-----Training Nursery, Control Kdgn. (TC) [N=30]
ooooo Control Nursery, Training Kdgn. (CT) [N=35]
xxxxx Control Nursery, Control Kdgn. (CC) [N=27]

Ns based on Ss available entire two-year period

(Trained nursery-Control kindergarten) was significantly higher at Time 2 (post-nursery) and remained so through Time 4 (post-kindergarten) than was the CC group (Control nursery-Control kindergarten, that is, the never-trained group). Similar results held for the number of consequences conceptualized to a given interpersonal act (e.g., grabbing a toy), as measured by the What Happens Next Game (Spivack and Shure, 1974).

Most importantly, the improved behavior of impulsive and inhibited youngsters, behaviors most crucial to this study also maintained holding power as measured a full year following training. With no difference in the percentage of youngsters in each group starting nursery in the adjusted category (about 40%), 83 percent of the nursery-trained youngsters were rated by their teachers as adjusted at a point immediately following nursery training (as measured by the Hahnemann Preschool Behavior Rating Scale [Spivack and Shure], 1974). Seventy-seven percent were still rated adjusted at the end of the kindergarten year. Of those never trained, only 41% were rated adjusted at the end of nursery (no increase) and 30% at the end of kindergarten (a slight decrease). Despite the changes in time, raters and setting, the positive result of training persisted.

Another very exciting finding emerged regarding behavior. Among all youngsters judged behaviorally adjusted throughout the nursery year, significantly fewer who were trained were likely to be judged impulsive or inhibited in kindergarten than those not trained. This finding suggests the program not only helps youngsters already displaying impulsivity or inhibition, but it also

helps to prevent the emergence of such behavior as measured at a later time.

Effect of Kindergarten Training. I will now talk about the effect of training on youngsters exposed for the first time in kindergarten.

If one were to institute the present training program into kindergarten classes without prior nursery training, the results indicate that clear benefits could be gained. As in the nursery year, kindergarten-trained youngsters improved significantly beyond controls in their ability to conceptualize alternative solutions to interpersonal problems (shown in Figure 1, Time 3 to Time 4, groups CT and CC). These findings were also true for potential consequences to an interpersonal act and in the percentage of aberrant (impulsive or inhibited) youngsters rated adjusted following training. Fourteen of 20 (70%) of those beginning kindergarten training as aberrant ended up adjusted following training as compared to only one of 16 controls (a difference significant at the .01 level). As in the nursery year, youngsters beginning as aberrant and ending adjusted improved in alternative and consequential thinking (ICPS) skills significantly more than did aberrant youngsters who remained so, again suggesting a direct link between change in the trained thinking skills and in behavioral adjustment.

Given that the present training program was effective either year, it is now important to examine effects of differential amount of training, and whether at the end of the kindergarten year, differences existed between youngsters trained in kindergarten, and those trained a year earlier, in nursery.

Amount and Timing of Training. With appropriate pretest controls, analyses of variance revealed significant post-kindergarten differences among the four groups on solution ($p<.001$) and consequence ($p<.001$) scores. On both measures, Newman-Keuls indicated youngsters trained two years (the TT group in Figure 1) superior to all other groups ($p<.01$), never-trained (CC) significantly more deficient than all other groups ($p<.01$) and no difference between nursery-only (TC) and kindergarten only (CT) training groups. The percentages of initially impulsive and inhibited youngsters (at Time 1) judged adjusted at post-kindergarten (Time 4) was similar in all three training groups (70% to 88%) while only 19% of never-trained youngsters beginning impulsive or inhibited were judged adjusted at the end of kindergarten (the latter group significantly different from all groups at .01).

Because two years of training had a greater impact on the measured ICPS skills, and all training groups showed equal behavioral gains, differential behavioral adjustment in the first grade as a function of length of training became of interest. The N became quite small however, making interpretation only suggestive. If a child was rated aberrant at the beginning of nursery, he was more likely to remain so consistently throughout the first grade if he never received training (7 of 12, 58%). Of nine nursery-trained youngsters initially rated aberrant, only 2 remained so throughout (22%). Dramatically, only one of 23 children trained both years remained aberrant throughout. With these small Ns, the difference in percentage is significant between the two-year and never-trained youngsters, but not

between the two-year and nursery-trained groups. Implications for prevention also remained in evidence. Eleven of 14 (78%) of two-year trained youngsters remained consistently adjusted at every measured time period from pre-nursery through first grade. Remarkably, such was also true of 5 of 6 (83%) of those trained in nursery only. On the other hand, only one of six never-trained youngsters who began nursery adjusted was rated so consistently throughout.

In conclusion, one year of training was as beneficial as two with respect to the ultimate criterion goal--behavioral adjustment. Perhaps the ICPS skills obtained after one year of training, whether that year be nursery or kindergarten was sufficient to guide adjusted overt behavior as demonstrated in the classroom (as measured through the first grade). Given the previously described findings on holding power, however, it is suggested that early nursery intervention is optimal in that youngsters trained at that time did begin kindergarten at a better behavioral vantage point. Nevertheless, the results suggest that if a child is not trained in nursery, it is not too late to affect his behavioral adjustment by altering his ICPS skills if trained a year later, in kindergarten.

The question now becomes: Why is this training so effective? We believe (and the data support) that individuals who develop the habit of problem-solving thinking can better evaluate and choose from a variety of possible solutions to a problem, turn

to a different one in case of actual failure, and experience less frustration and fewer signs of maladaptive functioning. He is less likely to make impulsive mistakes, become frustrated and aggressive, or end up evading the problem entirely by withdrawing. We do know from another part of our research that a child's own mother is in a highly unique position to affect her child's thinking skills and behavioral adjustment. While mother may be in a paramount position for still longer range impact, the results of these studies clearly show the teacher can play a predominant role in affecting a child's behavior when she teaches him a problem solving style of thinking.

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