

THE SIMULTANEOUS PRESENTATION PROCEDURE: USE IN SELECTING REINFORCERS FOR BEHAVIORAL INTERVENTION

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ABSTRACT

The present study demonstrates the use of a simultaneous presentation procedure in selecting reinforcers. The procedure was based on the simultaneous presentation design reported by Browning (1967). It was employed during a summer school session to select quality reinforcers for two identical twin boys who were developmentally delayed, noncompliant, and mute. Use of the simultaneous presentation procedure quickly and efficiently helped determine each boy's preferred reinforcer. This preferred reinforcer was then used in an important instructional task. The simultaneous presentation procedure is one practical avenue to the critical task of identifying preferred reinforcers for individuals with disabilities and can be easily used by trainers during the course of treatment. It may enable trainers to use positive reinforcement instead of negative reinforcement procedures (avoidance of aversive stimuli), thus increasing the efficacy and the acceptability of the training. The procedure could be used prior to beginning a training program and to periodically reevaluate reinforcer effectiveness.

The use of reinforcement is an essential part of most behavior change programs (Kazdin, 1989). Recently, several researchers have noted a tendency to assume that certain consequences (such as praise) are reinforcers without evidence that this is so in particular situations (Forehand, 1986; Roberts, 1985). However, clinical judgment or knowledge of a child's interests and preferences cannot always predict a child's effective reinforcers (Browning, 1967). Only empirical application can confirm reinforcer effectiveness.

Young children and children with language delays who are unable, or unwilling, to complete reinforcement surveys or answer interview questions

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furnish additional challenges for those wishing to intervene with their problem behaviors. Furthermore, identification of preferred reinforcers for individuals with disabilities by caregivers is often not valid (Green, Reid, Canipe, & Gardner, 1991). Researchers have noted the importance of determining reinforcer preference when treating children with severe disabilities (Fox, Rotatori, Macklin, & Green, 1983; Green et al., 1991; Green, Reid, White, Halford, Brittain, & Gardner, 1988; Pruitt, Farrell, & Erickson, 1987; Rotatori, Fox, & Switzky, 1979; Steege, Wacker, Berg, Cigrand, & Cooper, 1989; Wacker, Berg, Wiggins, Muldoon, & Cavanaugh, 1985) and for children with communication difficulties (Lovaas, 1968; Sherman, 1968). This is a particular concern because treatment can be significantly improved by using an effective reinforcer and because these populations present additional challenges in identifying reinforcers due to the nature of their disabilities.

There are several survey instruments that assist in the selection of potential reinforcers for a variety of populations (Cautela & Brion-Meisels, 1979; Cautela & Kastenbaum, 1967; Dewhurst & Cautela, 1980; Houlihan, Jesse, Levine, & Sombke, 1991; Houlihan, Rodriguez, Levine, & Kloeckl, 1990; Jones, Mandler-Provin, Latkowski, & McMahon, 1988; Phillips, Fischer, & Singh, 1977). These surveys all purport to identify a range of potential reinforcers. However, most rely on written or verbal measures and do not differentiate well between the effectiveness of individual reinforcers.

The current literature suggests that attempts to identify reinforcing stimuli for persons with profound disabilities often rely on subjective opinions of caregivers (Green et al., 1991, 1988; Parsons & Reid, 1990). The lack of empirical support for reinforcer effectiveness prior to program implementation might result in inefficiency or ineffectiveness in an otherwise sound teaching or research procedure. Green et al. (1991, 1988) found that individuals' approach responses to individual stimuli were strong indicators of their subsequent effectiveness when used to reinforce behaviors. These researchers found systematic assessment of individual approach responses much more effective than caregiver opinion in identifying reinforcers. Unfortunately, few proven approaches to determining quality reinforcers currently exist (Green et al., 1991, 1988; Wacker et al., 1985). There is a need to develop an efficient procedure to implement this best-practice recommendation and involve individuals with developmental delays in selecting their reinforcers.

This study introduces a simultaneous presentation procedure that has parallels to Browning's design. Browning (1967) used a "simultaneous availability of conditions design" to compare three procedures used to treat a 9-year-old boy in a residential setting with a "severe bragging" problem. At any particular time the child could seek out a therapist using the treatment he preferred. This treatment design differs from other designs in that all of the treatments are available simultaneously (Barlow & Hersen, 1984; Kazdin, 1982). In Browning's (1967) study, the treatments did not occur simultaneously but were simultaneously available and the child made a choice from among the alternatives. The "simultaneous presentation" aspect of Browning's design was used

in the present study. In this study, the term "simultaneous presentation procedure" was chosen because the children were presented with five reinforcers at the same time but could only select one. This simultaneous presentation is the critical procedural difference between the present study and Browning's (1967).

The present study demonstrated the use of a simultaneous presentation procedure in selecting preferred reinforcers for two children with disabilities. The goals of the study were to (a) establish the utility of the simultaneous presentation procedure in selecting and using reinforcers, (b) identify preferred reinforcers for two boys who were developmentally delayed and nonverbal to use in behavioral programs during the school year, and (c) use the preferred reinforcers to increase compliance in the two boys to prepare them for other instructional tasks.

Method

Participants

The participants were two 4-year, 1-month-old monozygotic twin brothers. The boys were enrolled in a four-week summer special needs preschool program for children with emotional, physical, and developmental disabilities. These children were referred to this classroom because they were considered to be severely developmentally delayed (and exhibited behavior problems such as impaired social interaction, impaired verbal and nonverbal communication skills, atypical stereotypic motor movements, and noncompliance).

Both children had extreme language and social deficits and had been assessed by a speech pathologist and an audiologist three months prior to the study. Test results (Bzoch-League Receptive Expressive Emergent Language Scale) (REEL) (Wnuk, 1987) showed each boy to be functioning at a 5 to 6 month receptive language age and a 4 to 5 month expressive language age. The McCarthy Scales of Children's Abilities (Bickert, 1984) were administered to the boys; however, no valid results were obtained on this measure because neither child was able to successfully perform any of the verbal or nonverbal items. The district psychologist cited the boys' inattentiveness and lack of comprehension of verbal directions as factors preventing them from completing any items.

Based on the boys' inability to communicate or respond consistently to verbal requests, and because there was a history of biologically based hearing impairment in the immediate family, hearing deficiency was suspected. A valid assessment of the boys' hearing could not be obtained because of noncompliance with testing. Occasional compliance with verbal requests was observed.

Setting

The study was conducted in a special needs preschool classroom serving fifteen children with intellectual, physical, and emotional disabilities. Ex-

perimental sessions were held individually with each boy during a 45-minute unstructured play time and a 45-minute structured table time.

Play Time. This was a 45-minute period of unstructured free play when the children were allowed to move freely about the classroom and use any of the toys, games, and activities in the classroom. The children rarely played cooperatively.

Table Time. These sessions occurred while the participant was sitting at one of the four small tables in the classroom. Several puzzles, learning games, books, and art materials were placed on the table. These served to focus the child's activity during the experiment.

Design

In a preexperimental phase five potential reinforcers were selected. An adaptation of a simultaneous availability of conditions design was used (Browning, 1967; Kazdin, 1982). This design was chosen because of its potential utility in determining individual preference and because of its underrepresentation in the literature (Barlow & Hersen, 1984). The adaptation of the Browning (1967) design used for this study incorporated elements of a multiple baseline design as well as an alternating treatments component in an effort to control for reactive interventions because the study involved two participants in a similar environment instead of one participant, as in Browning's. In a preexperimental phase a reinforcement checklist was completed by caregivers. There were three experimental phases in this study: baseline, simultaneous presentation, and preferred reinforcer. The three phases were introduced in the format of a multiple baseline across situations design, and the simultaneous presentation of reinforcers occurred within the situations (play time and table time). In baseline, rates of compliance were determined and reinforcers were not used. In the simultaneous presentation phase, the child could select any of the five reinforcers contingent on compliance. In the final phase, only the reinforcer selected most often in the prior phase was delivered contingent on compliance.

Procedure

Preexperimental. In this phase the Autism Reinforcer Checklist (Atkinson, Jenson, Rovner, Cameron, Van Wageningen, & Petersen, 1984) was independently completed by the mother and the four teachers of each boy. The top five potential reinforcers for each boy were used in the study (see Table 1).

Baseline. Baseline information was obtained in 10-minute recording sessions during play and table times. During these sessions, the experimenter recorded the number of compliant responses to a list of 10 simple one-step requests (see Table 2) given in a random order at the rate of approximately one per minute. An audiotaped tone was used to signal the experimenter to give a request. The child's response was scored as compliant if it occurred within 20 seconds of the request. Compliance was not reinforced during baseline. Noncompliance to

Table 1
Preferred Reinforcers Nominated by Participants' Caregivers as Determined on the Autism Reinforcer Checklist as Compared to Preferred Reinforcers Determined by the Simultaneous Presentation Procedure

| Preferred reinforcers | ARC ^a Rank (score) | SPP ^b Rank (%) | Tom | ARC Rank (score) | SPP Rank (%) |
|-----------------------|-------------------------------|---------------------------|--------------|------------------|--------------|
| Tim | | | Apple | 1.0 (5.0) | 2.0 (24%) |
| Raisin | 1.0 (5.0) | 4 (0%) | Raisin | 2.5 (4.6) | 1.0 (60%) |
| Apple | 2.0 (4.8) | 4 (0%) | Back scratch | 2.5 (4.6) | 4.5 (2.5%) |
| Soda pop | 3.0 (4.6) | 4 (0%) | Soda pop | 4.0 (4.4) | 4.5 (2.5%) |
| Nose squeeze | 4.5 (4.4) | 2 (23%) | Cookie | 5.0 (4.2) | 3.0 (10%) |
| Cracker | 4.5 (4.4) | 1 (77%) | | | |

^aARC = Autism Reinforcer Checklist.

^bSPP = Simultaneous Presentation Procedure.

Note: Scores from the ARC were the result of averaging individual responses to the instrument. Percentages on the simultaneous presentation procedure were derived from the number of times an item was selected divided by the total number of opportunities.

requests was ignored in all phases of the study. For at least 25% of the sessions in each phase for each boy, a second trained observer also scored compliance.

The second observer was a graduate student in clinical psychology. *Simultaneous Presentation.* In the third phase, all five of the reinforcers selected through use of the ARC were simultaneously presented to the participant after each compliant response, and the participant was allowed 20 seconds after a compliant response to select one reinforcer. This simultaneous presentation was done using a small, clear plastic box with no lid and several compartments. Each reinforcer was placed in a separate compartment and the whole box was presented to the participant following compliance. The compartments holding the reinforcers were switched when fresh reinforcers were needed. This occurred approximately every two sessions.

Table 2
List of Ten Simple Requests Used

1. Touch your nose.
2. Shake hands.
3. Stand up.
4. Sit down.
5. Raise your arm.
6. Point to [me].
7. Wave your hand.
8. Pat your head.
9. Clap your hands.
10. Look at me.

For each boy, four of the articles were food items. A non-food item was also included in the box because both boys had one social reinforcer in their lists of potential reinforcers. For Tom, the non-food item was a wooden back scratcher fashioned like a hand that represented having his back scratched by the researcher. For Tim, a small plastic nose was used to represent having his nose squeezed by the researcher. Prior to the simultaneous presentation phase, both boys were trained to select these objects to get the associated activity reinforcer. The experimenter accomplished the training by modeling the response and selecting from the reinforcers while the child watched. This training required only two trials and was done during the last play time baseline period for each boy (Figure 1). This training is indicated in Figure 1 by the data point and arrow after the baseline phase.

Treatment with Preferred Reinforcer. The reinforcer that produced the highest rate of compliance during the simultaneous presentation phase for each boy (i.e., was selected most frequently) was used as the exclusive reinforcer for compliance during the final phase of the study. All other procedures were similar to the previous phase. This phase of the study continued until the end of summer school.

Results

Preexperimental

Since only the top five reinforcers for each boy were chosen for the study, the average scores did not show a great deal of variance. Although the mother and one teacher rated the twins as having very different preferences, three of the teachers rated the twins as having exactly the same preferred reinforcers.

Baseline

Variability during baseline sessions was quite high for both boys (see Figure 1). The percentage of compliance decreased to very low levels across the play time baseline sessions. During table time, the percentage of compliance was considerably higher for both boys, with Tim averaging 70%, a figure that precluded obtaining major increases during the treatment phase.

Reinforcement

For both boys, the percentage of compliance increased over baseline levels during both the simultaneous presentation and preferred item phases (see Figure 1). However, increased compliance was associated almost exclusively with the selection of each child's preferred reinforcer.

It was not observed in association with the other reinforcers highly rated by participant-observers on the ARC. Compliance was maintained using only the preferred reinforcer in the final study phase. Tim's average baseline level of

compliance was 37.5% during play time and 70% during table time. His level of compliance steadily increased in both play and table time during the simultaneous presentation phase. The average level of compliance increased to 85% during play time and 82.5% during table time in the final phase of the study. There is a clear difference in preferences with time.

Tom's compliance also increased in response to the use of his preferred reinforcer. His average baseline level of compliance was 25% during play time and 56% during table time, and his average compliance increased during the simultaneous presentations phase, just as his brother's had. In the final phase of the study Tom's level of compliance was 76.6% during play time and 80% during table time, suggesting that use of the preferred reinforcer maintained compliance, at least for this short maintenance phase.

Reliability

Intrater reliability observations of child compliance were made in 25% to 28% of the sessions across each of the three phases (baseline, simultaneous presentation, and preferred treatment). The overall reliability of the data gathered (agreements divided by disagreements + agreements) was 95% (range: 90% to 100%) for Tom's table time compliance and 100% for his play time compliance. The reliability was 100% for Tim's table time compliance and 98.75% (range: 95% to 100%) for his play time compliance.

Discussion

Clinical judgment or knowledge of a child's interests and preferences can not always predict the effectiveness of a particular reinforcer for a child (Browning, 1967). In addition, it is difficult to obtain nominations for reinforcer preference from individuals with developmental delays. The present study demonstrates that reinforcer preference can be practically determined by using a simultaneous presentation procedure. The data suggest that the preferred reinforcer is capable of maintaining rates of compliance at a level comparable to the simultaneous presentation of reinforcers, and is certainly the simpler alternative. Because reinforcer preferences are very individual, their selection should be considered in program implementation. Change in reinforcer preference can also be periodically evaluated using the current procedure.

It seems unwise to assume that all individuals will respond the same to certain potential reinforcers. In this study, 3 of the 4 teachers surveyed rated reinforcers the same for both children, apparently assuming that identical twins would have identical reinforcer preferences. This type of thinking appears to extend beyond this study. For example, many teachers use stickers as reinforcers for entire classrooms. It is clear from the present results that these assumed similarities may not exist (see Figure 1). There was no common reinforcer preference between the boys, despite their being rated as having three reinforcers in common on the ARC.

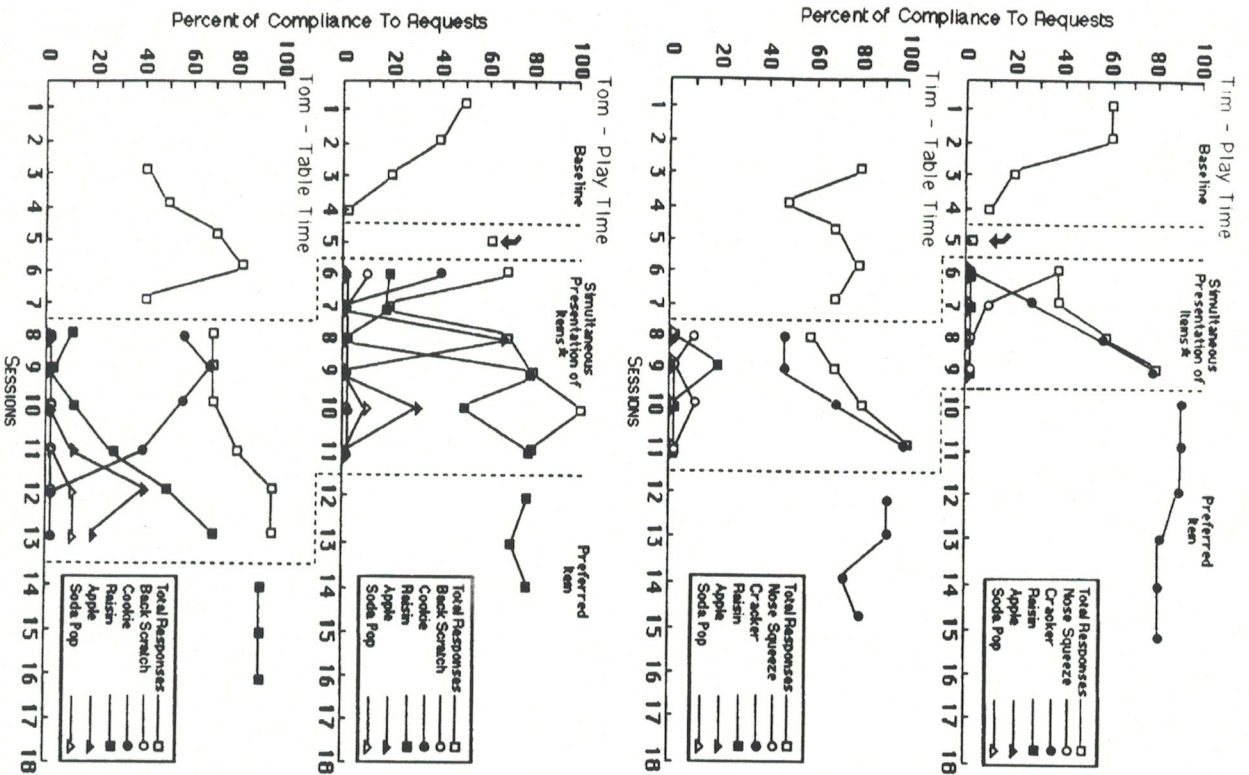


Figure 1. Compliance rates for both Tim and Tom across two settings (table time and play time). Reinforcer preferences were tracked across three conditions: baseline, simultaneous presentation of items, and preferred item. The arrows indicate the session when the reinforcers were introduced. All items were simultaneously available during the simultaneous presentation of items phase, and these data indicate the percentage of times each item was selected given compliance.

Tim's selection of reinforcers shows an interesting phenomenon, in that during play time his selection of reinforcers switched from the nose squeeze, which was initially selected exclusively, to the cracker. During table time, Tim's preference for the cracker was always dominant, but he did "sample" other reinforcers during this time, something he did not do during play time.

Tom's selection of reinforcers varied more than Tim's. For example, during play time, Tom initially selected a variety of reinforcers, and only after several sessions did a preference for raisins finally become clear.

Finally, an incident from the last day of summer school illustrated the participants' individual differences. The boys were taken to the zoo on the last day of summer class. The boys' mother had packed a lunch containing crackers and raisins. Tim ate all the crackers without touching the raisins, and Tom ate all of the raisins without touching the crackers. Even in remarkably similar children, there appear to be clear differences in preference that can easily go unnoticed by knowledgeable caregivers. Use of the simultaneous presentation procedure quickly and efficiently helped the experimenter determine each boy's preferred reinforcer. This preferred reinforcer was then used in an important instructional task.

Browning (1967) noted several advantages to the simultaneous presentation designs not found in commonly used designs. With certain problem behaviors (e.g., bizarre speech) it is often difficult to establish a stable baseline. It might be viewed as unethical to conduct a prolonged baseline in an effort to produce stability with some behaviors (e.g., food refusal). The simultaneous presentation procedure, like the alternating treatment or multielement design, lessens the impact of trends because they are viewed as an integral part of choosing the more effective treatment. The procedure, like the simultaneous presentation design (Browning, 1967), also lessens the need for multiple returns to baseline or the trial-and-error procedure of consecutive trials of individual stimuli.

When compared to the systematic assessment of reinforcers used by Green et al. (1988), the simultaneous presentation procedure presents several advantages. The simultaneous presentation procedure can save time by being incorporated directly into the training process. Because it can be part of the actual training program instead of a separate process, it is less intrusive. Simultaneous presentation also allows for periodic monitoring of the current reinforcer preference, which could change during the training program (as can be seen in Tom's table time preferences). Lastly, simultaneous presentation is less intensive than the procedure used by Green et al. (1988) and yet offers the advantage of involving caregivers in the initial selection of reinforcers.

As used, the procedure allowed the participants to select what may have been the most effective procedure. The preferred reinforcer alone maintained child compliance, and at above-baseline rates, although it is not clear if it did this better than nonpreferred reinforcers alone, as no comparison was made. However, other researchers (Green et al., 1991) have reported that nonpreferred stimuli do not function as reinforcers. The simultaneous presentation procedure is one practical avenue to the critical task of identifying preferred reinforcers for

individuals with disabilities and can be easily used by trainers during the treatment course. It may enable trainers to use positive reinforcement instead of negative reinforcement procedures (avoidance of aversive stimuli), thus increasing the efficacy and the acceptability of the training. The procedure could also be used prior to beginning a training program and to periodically reevaluate reinforcer effectiveness.

Authors' Note

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References

- Atkinson, R.P., Jenson, W.R., Rovner, L.R., Cameron, S., Van Wageningen, L., & Petersen, B.P. (1984). Brief report: Validation of the autism reinforcer checklist for children. *Journal of Autism and Developmental Disorders, 14*, 429-433.
- Barlow, D.H., & Hersen, M. (1984). *Single case experimental designs: Strategies for studying behavior change* (2nd ed.) (pp. 282-284). New York: Pergamon Press.
- Bickert, L. (1984). The use of the McCarthy Scales of Children's Abilities to assess moderately mentally retarded children. *Psychology in the Schools, 21*, 305-321.
- Browning, R.M. (1967). A same-subject design for simultaneous comparisons of three reinforcement contingencies. *Behaviour Research and Therapy, 5*, 237-243.
- Cautela, J.R., & Briton-Meisels, J. (1979). A children's reinforcement survey schedule. *Psychological Reports, 44*, 327-338.
- Cautela, J.R., & Kastenbaum, R. (1967). A reinforcement survey schedule for use in therapy, training, and research. *Psychological Reports, 20*, 1115-1130.
- Dewhurst, D.L., & Cautela, J.R. (1980). A proposed reinforcement survey schedule for special needs children. *Journal of Behavior Therapy and Experimental Psychiatry, 11*, 109-112.
- Forehand, R. (1986). Parental positive reinforcement with deviant children: Does it make a difference? *Child and Family Behavior Therapy, 8*, 19-25.
- Fox, R., Rotatori, A.F., MacKlin, F., & Green, H. (1983). Assessing reinforcer preference in severely behaviorally disordered children. *Early Child Development and Care, 11*, 113-122.
- Green, C.W., Reid, D.H., Camppe, V.S., & Gardner, S.M. (1991). A comprehensive evaluation of reinforcer identification processes for persons with profound multiple handicaps. *Journal of Applied Behavior Analysis, 24*, 537-552.
- Green, C.W., Reid, D.H., White, L.K., Halford, R.C., Brittain, D.P., & Gardner, S.M. (1988). Identifying reinforcers for persons with profound handicaps: Staff opinion versus systematic assessment of preferences. *Journal of Applied Behavior Analysis, 21*, 31-34.
- Houlihan, D., Jesse, V.C., Levine, H.D., & Sombke, C. (1991). A survey of rewards for teens. *Child and Family Behavior Therapy, 13*, 1-12.
- Houlihan, D., Rodriguez, R., Levine, H.D., & Kloeckl, J. (1990). Brief report: Validation of a reinforcer survey for use with geriatric patients. *Behavioral Residential Treatment, 5*, 129-136.
- Jones, R.N., Mandler-Provin, D., Larkowski, M.E., & McMahon, W.M. (1988). Development of a reinforcement survey for inpatient psychiatric children. *Child and Family Behavior Therapy, 9*, 73-77.
- Kazdin, A.E. (1982). *Single-case research designs: Methods for clinical and applied settings* (pp. 183-184). New York: Oxford University Press.

- Kazdin, A.E. (1989). *Behavior modification in applied settings* (4th ed.) (pp. 104-131). Pacific Grove, CA: Brooks/Cole.
- Lovaas, I.O. (1968). A program for the establishment of speech in psychotic children. In H.N. Sloane & B.D. MacAulay (Eds.), *Operant procedures in remedial speech and language training* (pp. 131-132). Boston: Houghton Mifflin.
- Parsons, M.B., & Reid, D.H. (1990). Assessing food preferences among persons with profound mental retardation: Providing opportunities to make choices. *Journal of Applied Behavior Analysis*, 23, 183-196.
- Phillips, D., Fischer, S.C., & Singh, R. (1977). A children's reinforcement survey schedule. *Journal of Behavior Therapy and Experimental Psychiatry*, 8, 131-134.
- Pruitt, D., Farrell, A., & Erickson, M. (1987). A multidimensional scaling analysis of reinforcer preference in elementary school children. *Journal of Genetic Psychology*, 148, 197-207.
- Roberts, M.W. (1985). Praising child compliance: Reinforcement or ritual. *Journal of Abnormal Child Psychology*, 19, 611-629.
- Rotatori, A.F., Fox, R., & Switzky, H. (1979). An indirect technique for establishing preferences for categories of reinforcement for severely and profoundly retarded individuals. *Perceptual and Motor Skills*, 48, 1307-1313.
- Sherman, J.G. (1968). Use of reinforcement and imitation to reinstate verbal behavior in mute psychotics. In H.N. Sloane & B.D. MacAulay (Eds.), *Operant procedures in remedial speech and language training* (pp. 219-227). Boston: Houghton Mifflin.
- Stege, M., Wacker, D., Berg, W., Cigrand, K., & Cooper, L. (1989). The use of behavioral assessment to prescribe and evaluate treatments for severely handicapped children. *Journal of Applied Behavior Analysis*, 22, 23-33.
- Wacker, D., Berg, W., Wiggins, B., Muldoon, M., & Cavanaugh, J. (1985). Evaluation of reinforcer preferences for profoundly handicapped students. *Journal of Applied Behavior Analysis*, 18, 173-178.
- Wnuk, L. (1987). A review of the Bzoch League Receptive-Expressive Emergent Language Scale and the Test for Auditory Comprehension of Language. *Canadian Journal for Exceptional Children*, 3, 95-98.

SCHOOL PROGRAMS FOR AT-RISK CHILDREN AND YOUTH: A REVIEW

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ABSTRACT

The present paper reviews and evaluates the available literature regarding programs that assist the at-risk student. Literature was gathered using computer searches of the ERIC, CUE, and Psych Lit data bases, as well as manual searches from the reference sections of the journal articles and papers found regarding the topic. The programs developed to assist at-risk children consisted of both pull-out and in-class models. Effective pull-out programs to assist at-risk children, such as Chapter 1 and special education programs, were reviewed. The common elements of pull-out programs included a wide range of services such as tutoring, skill-based structured instruction, homework hot lines, and computer tracking of pupil progress. Additional findings indicated that such in-class procedures as classwide peer tutoring, direct instruction, precision teaching, cooperative learning, computer-assisted instruction, behaviorally based interventions, personalized systems of instruction, and career development were also effective models to assist the education of at-risk children and youth. From the literature reviewed, early intervention with populations identified at risk is highly recommended. Dissemination of data-based and effective procedures needs to occur at the pre- and inservice levels to assist educators in remediating academic and social deficits, as well as to prevent at-risk children from dropping out of school.

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The present review examined programs, teaching strategies, and intervention procedures to assist at-risk children and youth. While no clear definition of "at risk" or what constitutes an at-risk student emerged from our review, the term is generally used to denote students who are either at risk of failing to graduate from high school or at risk of developing emotional and/or behavioral problems, but have yet to do so. Generally, these students already exhibit at least some mild form of academic or behavioral problem; but that is not always the case, as in children identified as at risk due to economic (i.e., poverty) or familial (e.g., divorce, substance abuse, siblings who have dropped out of school) factors. No specific definitional criteria were set for studies to be included in the present review, but nearly all references to at-risk children and youth fit the above description.

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