



September 1979

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Recommended Citation

Epstein, Irwin and Hench, Christine (1979) "Behavior Modification in the Classroom: Education or Social Control?," *The Journal of Sociology & Social Welfare*: Vol. 6 : Iss. 5 , Article 3.

Available at: <https://scholarworks.wmich.edu/jssw/vol6/iss5/3>

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BEHAVIOR MODIFICATION IN THE CLASSROOM:
EDUCATION OR SOCIAL CONTROL?

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ABSTRACT

This study presents an analysis of the empirical literature on behavior modification in the classroom. Data were drawn from all relevant articles published in four behavior modification journals from 1963 through 1976. An assessment of the intervention techniques employed and the behavioral objectives sought in this literature suggests that traditional intervention techniques are still primarily directed towards control rather than educational goals. Newer, more innovative techniques, however, are more likely to be directed towards academic achievement.

Among both educators and clinicians, the use of behavior modification technology in the classroom has long been a contentious issue. Advocates for classroom use of behavior modification view it as the most effective and efficient approach for reducing "maladaptive" behavior in the classroom and for promoting learning (Bijou, 1970). Critics have challenged the use of behavioral methods in schools on several grounds. Some have contended that behavior modification is antithetical to the goals of education and fails to incorporate learning theory (MacMillan and Forners, 1970). Other critics have contended that by focusing on specific behaviors, behavior modification narrows and trivializes the learning experience rather than generalizes it (MacMillan and Forners, 1970; Moskovitz, 1973; Simons, 1973; Day, 1974).

The more trenchant critics of behavior modification in classroom settings have raised ethical-political questions about its use. For example, the right to indiscriminately alter socially deviant behavior has been challenged by Weir (1969), who takes the position that, within limits, social deviance is a right in a free society. Cote (1973) argues that behavior modification changes the child when it is the educational

system that needs to be changed. Elsewhere, Epstein (1975) has suggested that in school settings behavior modification is more likely to be used to control rather than educate children. More specifically, MacMillan and Forness (1970) assert that target behaviors described as "maladaptive" by behaviorists are, in practice, anything that annoys the teacher. Thus, their critical review of the literature in this field indicates that frequently the measure of success of a program of behavioral intervention is the increase in purely conforming behaviors such as sitting quietly in one's seat, facing forward, etc. The link between these behaviors and educational attainment is merely assumed. In a more systematic review of 14 articles in the Journal of Applied Behavior Analysis, Winett and Winkler (1972) criticize classroom behavior modification for supporting the educational status quo and for attempting to produce passive, compliant students.

Attempting an empirical test of Winett and Winkler's assertions, Dangel and Hopkins (1977) surveyed all the classroom studies appearing in the Journal of Applied Behavior Analysis between 1968 and 1977, comparing the number of studies which aimed primarily at improving academic behaviors with those which aimed at promoting departmental behaviors. Their findings revealed that, indeed, departmental behaviors were twice as likely to be targeted as academic behaviors.

The foregoing criticisms of classroom behaviorism can be divided into two categories: those which focus on the means used to change classroom behaviors, and those which focus on the ends to which these means are directed. The purpose of the present study is to empirically assess the means employed and the ends sought in the empirical literature on behavior modification in the classroom. In this context, Dangel and Hopkin's thesis is tested more broadly in a comprehensive survey of all relevant articles in four major behavior modification journals for a period ranging from 1960 through 1976. Another intent of the present study is to determine whether, over time, there have been changes in the proportion of interventions directed to departmental versus academic behaviors. Finally, we consider the empirical relationships between behavioral techniques used and behavioral objectives sought in this literature.

METHOD

Sample

Data for this study were drawn from 170 articles published in four major behavior modification journals. The journals are Behavior Research

and Therapy (BRAT), Behavior Therapy (BT), Journal of Applied Behavior Analysis (JABA), and Journal of Behavior Therapy and Experimental Psychiatry (JBTEP). All articles involving behavior modification with minors, in classrooms, appearing in these journals from their inception through 1976 are included in the study.

Coding and Reliability

Information on the following variables were coded for each article: 1) journal in which the study was published; 2) year in which it was published; 3) organizational setting of the study; 4) institutional residency or nonresidency of the subjects; 5) diagnostic grouping of the subjects; 6) age of the subjects; 7) institutional site of the study; 8) target behavior and behavior deficits which were modified; and 9) method of intervention used to modify the target behavior.

The coding scheme was adopted from the Behavior Therapy Bibliography (Morrow, 1971). The Bibliography contains annotated references to behavior modification articles and books published from 1950 to 1969. Already coded by the authors of the Bibliography were those articles appearing in the four behavior modification journals mentioned above prior to 1970. Articles appearing in journals from 1970 to 1976 were coded on these variables by two coders. Reliability coefficients were computed by comparing the coding in the Bibliography with that of the two coders involved in the present study on randomly selected articles (ten coded by the authors of the Bibliography and ten coded by each of the two coders in the present study). Reliability coefficients for all the variables coded ranged from .61 with variables containing up to 40 code categories to 1.00 with smaller variables; all well beyond the .001 level of statistical significance.

Since some articles involved the use of more than one intervention technique or were aimed at more than one target behavior, each target behavior-intervention pair was used as the unit of analysis, rather than each article. As a result, a total of 258 target behavior-intervention pairs, drawn from 170 articles, were analyzed.

Behaviors targeted in classroom studies were originally coded into four categories: performance in 3r subjects (reading, writing, arithmetic), performance in non-3r subjects, disruptive classroom behavior (talking out, looking around, getting out of one's seat, roaming around, throwing things, hitting, sassing, diddling), and miscellaneous classroom behaviors.

For the purpose of analysis, a new variable was created which combined performance in 3r subjects and performance in non-3r subjects into a category called academic measures and school disruption and miscellaneous classroom behaviors into a category called deportmental measures. Two other school-related behaviors, truancy and study habits, were excluded from the present study because the site of the intervention for those behaviors was generally not the classroom.

Intervention techniques were originally coded by Morrow (1971), into 40 categories. For purposes of analysis, these were reduced to the following four categories: (1) aversive conditioning and extinction; (2) positive reinforcement and discrimination training; (3) token economy; and, (4) modeling, programmed instruction, and programmed standardized sequence. This reduction was based on the theoretical relationships between the categories as well as their empirical distributions and associations. Thus, for example, aversive conditioning and extinction procedures are viewed by critics as the most punitive of the behavior modification techniques (Epstein, 1975). Positive reinforcement, frequently viewed as the most benevolent behavior modification technique, generally accompanies discrimination training in studies in which the latter is mentioned. Studies which report the use of token economies clearly stand by themselves both conceptually and empirically. Modeling, programmed instruction, and programmed standardized sequence techniques constitute an empirically small, residual category. Finally, an "other" category was added to include innovative interventions such as prompting, feedback, public display of success, peer programming, timing, etc., which were not covered in Morrow's code categories.

Intervention Techniques

Table 1 shows the distribution of intervention techniques reported in the four behavioral journals. Although some critics of behavior modification have expressed concern about the use of aversive conditioning and extinction procedures (Epstein, 1975), the findings indicate that positive reinforcement and discrimination training are the modal intervention categories in all of the journals. Thus, 54% of the interventions reported in all of the journals combined fall into this category. Extinction procedures and aversive conditioning represent 21% of the interventions reported in the classroom management literature.¹ The category of "other" interventions

¹Since the total population of relevant articles is analyzed, tests of statistical significance are inappropriate and are not presented in the paper.

Table 1

Intervention Techniques by Journal

	<u>BRAT</u>	<u>BT</u>	<u>JABA</u>	<u>JBTEP</u>	<u>All Journals</u>
<u>Aversive Conditioning and Extinction Procedures</u>	31%	32%	17%	46%	21%
<u>Positive Reinforcement and Discrimination Training</u>	50	39	58	46	54
<u>Token Economy</u>	13	16	8	0	9
<u>Modeling, Programmed Instruction and Programmed Standardized Sequence</u>	0	7	4	0	4
<u>Other</u>	6	7	14	9	12
Total =	100%	101%	101%	101%	100%
N =	16	31	200	11	258

represents 12% of the interventions reported.

A comparison across journals reveals some interesting variations. Thus, for example, the Journal of Applied Behavior Analysis contains the most published studies in this area, and reports the lowest use of aversive conditioning and extinction (17%) the highest use of positive reinforcement and discrimination training (58%), and the highest use of the more innovative "other" category (14%). Alternately, the Journal of Therapy and Experimental Psychiatry shows the highest use of aversive conditioning and extinction (32%), and lowest in the use of positive reinforcement (39%).

Table 2 shows the distribution of intervention procedures in articles published from 1963 through 1976 for all journals combined. The years 1963 through 1968 and the years 1975 through 1976 have been combined to provide sufficiently large bases for comparison with other years. The findings indicate a reduction in the proportion of aversive conditioning and extinction procedures reported, ranging from 33% in the period 1963 to 1968 to 12% in the period 1975 to 1976. Positive reinforcement and discrimination training show a more erratic path, peaking in 1970 at 80%, dropping to 30% in 1974 and rising to 39% in 1975-76. The use of token economy has increased slightly since 1972 and "other," previously uncoded, more innovative techniques have clearly increased since 1971. Since papers published in the Journal of Applied Behavior Analysis represent 78% of the total interventions reported, analysis of time trends for that journal alone was conducted. This analysis shows similar patterns in the use of various intervention techniques over time.

Targets of Intervention

Changing the focus from intervention techniques to the goals of classroom behaviorism, Table 3 shows the proportion of academic versus departmental measures employed in articles in each of the journals. When all journals are combined only 34 percent of the interventions reported are aimed at academic outcomes, as compared with 66 percent aimed at departmental measures. These findings are consistent with Dangel and Hopkin's (1977) findings cited earlier. Thus, whether the unit of analysis is the study itself as in their paper, or the target behavior-intervention pairing as in ours, departmental ends are twice as likely to be pursued as improvement in academic behaviors.

Looking at differences across journals, there is considerable variation in the degree of attention given to each of these outcomes. Thus, for example, 50% of the interventions reported in Behavior Research and Therapy

Table 2
Intervention Techniques by Year of Publication

	<u>1963-68</u>	<u>1969</u>	<u>1970</u>	<u>1971</u>	<u>1972</u>	<u>1973</u>	<u>1974</u>	<u>1975-76</u>
<u>Aversive Conditioning and Extinction Procedures</u>	33%	31%	16%	21%	24%	15%	17%	12%
<u>Positive Reinforcement and Discrimination Training</u>	58	58	80	55	52	70	30	39
<u>Token Economy</u>	6	4	4	3	12	11	13	15
<u>Modeling, Programmed Instruction and Programmed Standardized Sequence</u>	3	8	0	0	2	0	4	10
<u>Other</u>	--	--	--	21	10	4	35	24
Total =	100%	101%	100%	100%	100%	100%	99%	100%
N =	33	26	25	33	50	27	23	41

Table 3
Intervention Targets by Journal

	<u>BRAT</u>	<u>BT</u>	<u>JABA</u>	<u>JBTEP</u>	<u>All Journals</u>
<u>Departmental Measures</u>	50%	87%	64%	73%	66%
<u>Academic Measures</u>	50	13	37	27	34
Total =	100%	100%	101%	100%	100%
N =	16	31	200	11	258

are aimed at academic outcomes, as compared to only 13% of those in Behavior Therapy. For the Journal of Applied Behavior Analysis and the Journal of Behavior Therapy and Experimental Psychiatry this figure is 37% and 27% respectively.

Table 4 shows the distribution of academic vs. departmental outcome measures over time for all journals. These findings indicate a slight increase ($Tau B = .11$) in the use of academic measures from 1963 to 1976. Although the use of academic measures does barely surpass departmental measures in 1974 (52% vs. 48%, respectively), there is a return to a pattern of dominance of departmental measures in 1975-1976. In that final period, 61% of the intervention target behaviors were departmental.

A similar analysis for the Journal of Applied Behavior Analysis is presented in Table 5. These findings reveal a stronger positive trend ($Tau B = .20$) in the use of academic measures. Thus, in the period 1963-1968, only 14 percent of the measures employed were academic, as compared with 48 percent in the most recent time period. Clearly however, attention to academic measures still constitutes only about one-half of the outcome measures associated with behavioral interventions in this journal.

Relationship Between Means and Ends

Table 6 shows the relationship between the types of interventions employed and the behavioral objectives to which they are addressed in the four journals. The findings indicate considerable covariation between the behavioral techniques employed and the target behaviors with which they are paired. Thus, only 13% of the aversive conditioning or extinction procedures used are tied to academic behavioral outcomes. Similarly, only about a quarter of the interventions employing token economy are directed towards academic ends. On a more positive note, 39% of the interventions involving discrimination training and positive reinforcement, 44% of the interventions involving modeling, programmed instruction and standardized sequence, and 58% of the "other" interventions are geared to improving academic performance. A similar analysis of the data taken from the Journal of Applied Behavior Analysis alone reveals a comparable pattern.

Table 4

Intervention Targets by Year of Publication

	<u>1963-68</u>	<u>1969</u>	<u>1970</u>	<u>1971</u>	<u>1972</u>	<u>1973</u>	<u>1974</u>	<u>1975-76</u>
<u>Departmental</u> <u>Measures</u>	79%	77%	68%	61%	62%	74%	48%	61%
<u>Academic</u> <u>Measures</u>	21	23	32	39	38	26	52	39
Total =	100%	100%	100%	100%	100%	100%	100%	100%
N =	33	26	25	33	50	27	23	41

Tau - B = .11

Table 5
Intervention Targets by Year of Publication in JABA

	<u>1963-68</u>	<u>1969</u>	<u>1970</u>	<u>1971</u>	<u>1972</u>	<u>1973</u>	<u>1974</u>	<u>1975-76</u>
<u>Departmental Measures</u>	86%	83%	74%	52%	55%	68%	55%	52%
<u>Academic Measures</u>	14	17	26	48	45	32	46	48
Total =	100%	100%	100%	100%	100%	100%	101%	100%
N =	21	24	23	23	38	22	22	27

Tau - B = .20

Table 6

Intervention Targets by Intervention Techniques

	<u>Aversive Conditioning & Extinction</u>	<u>Positive Reinforcement and Discrimination Training</u>	<u>Token Economy</u>	<u>Modeling, Programmed Instruction and Standardized Sequence</u>	<u>Other</u>
<u>Departmental Measures</u>	87%	61%	78%	56%	42%
<u>Academic Measures</u>	13	39	22	44	58
Total =	100%	100%	100%	100%	100%
N =	55	140	23	9	31

SUMMARY AND IMPLICATIONS

This study presents an analysis of the interventions employed and the behavioral objectives sought in the empirical literature on behavior modification in school settings. Data were drawn from all the relevant articles published in four major behavior modification journals from 1963 through 1976. Paired interventions and target behaviors were the units of analysis.

The findings indicated that more than half of the interventions reported involve positive reinforcement or discrimination training. Extinction procedures and aversive conditioning techniques represent about a fifth of the interventions reported. A historical analysis indicates a slight decline in the proportion of interventions making the use of aversive conditioning and extinction techniques and an increase in the use of previously uncoded new techniques.

Although in recent years aversive techniques seem to be employed less frequently, an analysis of the ends to which behavior modification in the classroom is addressed indicated that virtually two-thirds of all of the interventions reported are directed to departmental ends. And, while there is a slight increase historically in the attention given to academic performance, the years 1975-76 still demonstrate the dominance of departmental versus academic objectives.

Finally, an analysis of the relationship between means and ends of behavior modification in the classroom reveals that most traditional intervention techniques (i.e., aversive conditioning, extinction, positive reinforcement and discrimination training, token economy, modeling, programmed instruction, programmed standardized sequence) are primarily geared to achieving departmental rather than academic objectives. The more innovative "other" techniques are, however, primarily directed towards academic performance measures.

What these findings suggest is a greater sensitivity within the ranks of behavior modification practitioners within the school and researchers in this field to public criticisms about the use of aversive conditioning and extinction techniques. Caution should be exercised, however, in making generalizations from the behavior modification literature to the wider field of behavior modification practice. Thus, it has been pointed out that:

"Published studies are never representative of the universe of practice. Successful treatment is more likely to be written about and published than is failure. Blatant abuses are covered up (Epstein; 1975, 139)."

Despite the apparent decrease in the use of more aversive and extinction techniques, our findings strongly support the criticism that behaviorism in the classroom is still aimed at departmental rather than academic outcomes. Although there is a slight trend toward more academic outcome measures, our analysis supports the contention that behavior modification procedures in the classroom still tend to be used for control rather than for educational purposes.

Caution should be exercised as well in interpreting the positive trend toward the use of more academic outcome measures since the distinction between academic and departmental behaviors is frequently obscured by teachers whose assessment of academic performance tends to be colored by departmental criteria (Knafle, 1972). Consequently, the trend in favor of more academic performance measures may be specious and a consequence of an increasing failure to distinguish between these two dimensions.

Defenders of departmental behavioral objectives might argue that there is a logical link between "appropriate classroom behavior" such as sitting still, minding the teacher, etc., and learning. It should be pointed out, however, that this relationship has never been established empirically. In fact, one study showed that when behavioral contingencies were set up to reinforce "attending behavior," these behaviors increased but academic performance remained the same. When academic behavior was reinforced, academic performance increased as did disruptive and non-attentive behaviors (Ferritor et al., 1972).

Other studies have raised questions about the extent to which behavioral change in the classroom generalizes from target to other behaviors (Hopkins et al., 1971; Semb and Semb, 1975; VanHouten et al., 1974). These studies indicate that behavioral contingencies only work for those behaviors specifically targeted. Since it is questionable whether departmental behavior has any intrinsic connection with learning, the dominance of departmental objectives is even less justified.

Probably the most hopeful finding in the present study is the association between the use of newer, innovative interventions and academic outcomes. To the extent that behavioral practitioners eschew aversive and other control-oriented techniques in favor of newer, less punitive, more academically oriented techniques, behavior modification may yet play a positive educative role in the classroom.

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