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ABSTRACT

A survey was conducted of 406 elementary, middle, and secondary school teachers to determine their understanding, acceptance, and use of the principle of operant conditioning. The treatment of data was by percent and chi square analysis primarily according to sex, experience, degree, and position. Subjects reported that a) they believed that the nature of the interaction between students and teachers is an influencing factor in student achievement and is deserving of concentrated study; b) they were familiar with the principle of operant conditioning; c) they understood the principle of operant conditioning but they had not decided about accepting it as a principle for governing behavior; and d) they felt that operant conditioning may be used to control the behavior of groups as well as individuals and that the managing of behavior is ethical within the context of the operant model. Subjects' indecisiveness about operant conditioning is reflected in the reporting of its usage in their classrooms: 126 use the technique, 116 do not, and 164 gave no response to the question. (HMD)

# TEACHERS AND OPERANT CONDITIONING

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## Introduction

B. F. Skinner once stated in an interview that he estimated that the reviews of his controversial book, Beyond Freedom and Dignity, to be eighty per cent unfavorable.<sup>1</sup> It is in this book that he takes issue with freedom and dignity as it is defined in our society and promulgates a technology of behavior based on the principle of operant conditioning which he says can lead us to a new culture free of the destructive tendencies which exist in our present conceptualizations of freedom and dignity. Because of his expressions he has been accused of communism, fascism, manipulation, making totalitarianism palatable, etc. What Skinner proposes in Beyond Freedom and Dignity and his other writings on operant conditioning is obviously disturbing to the American psyche. He has held up a new mirror and what we see is not what we want to see. The effect of his work has been to give us a new insight into what motivates behavior. It is an insight which carries with it the suggestion that we are not in complete charge of our own destinies and that we never really have been. For anyone to suggest that in the land of the free is heresy. It naturally creates a reaction and a backlash; phenomena which have occurred with practically every important discovery in the history of mankind, particularly those related to explanations of human behavior.

It is true that operant conditioning raises the value question of what kind of society we want. The technology that is emerging from it provides a more efficient means for achieving predetermined goals than any that has been proposed heretofore. It is a technology which will be developed despite the protestations and objections. The institutions of our society will, have to confront it as a viable

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<sup>1</sup> Interview in Psychology Today, November 1972

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and workable technique for the manipulation and alteration of human behavior. Education, as one of those institutions, will be in the vanguard in this issue. This survey of over 400 educators sought to determine their understanding and acceptance of the principle of operant conditioning and two of its technologies, behavior modification and behavioral objectives. These educators were teachers and administrators in the elementary, middle, and secondary schools located primarily in the northern part of Illinois which is one of the fastest growing population areas of the country. In a population somewhat more male (226) than female (180) the breakdown by position was 111 elementary school teachers (kindergarten through fifth grade), 93 middle school teachers (grades six, seven, and eight), 151 secondary school teachers (nine through twelve) of which 56 taught English and social studies, 39 mathematics and science, and 56 were teachers of language, art, industrial arts, home economics, business and physical education. Forty-nine of the educators surveyed were in some sort of administrative position in the schools. In terms of teaching experience they were a relatively young group. Two-hundred eighty-two had taught five or less years, 83 had taught six to ten years, 31 had taught eleven to twenty years, and only six indicated over twenty years of teaching experience. The highest degree held by the majority (almost sixty-nine per cent) was either a Bachelor of Arts or a Bachelor of Science in Education. Seventeen per cent held the Master of Arts or Master of Science in Education degrees.

The limitations of this survey are obvious. The sample is not randomized and, therefore, cannot be said to be totally representative of all educator opinion on this subject. It is, however, a fairly large sample with a fairly even distribution by position in a population area of significance in this country and this lends credence to its results. The treatment of the data was by per cent and chi square primarily according to sex, experience, degree and position. It is reported in tabular and narrative form.

### Premise.

The premise of this study was that the educators feel that the nature of the interaction between students and teachers is an influencing factor in student achievement and as such is deserving of concentrated study. This premise has never been seriously questioned by those who concern themselves with learning and ninety-seven per cent of the respondents to this survey showed affirmation of it.

The principle of operant conditioning, of course, is one definition of the nature of that interaction. It prescribes the circumstances under which behavior is shaped. Broadly speaking it states that the probability of behavior being replicated is increased by the application of appropriate reinforcement stimuli shortly after it occurs. It is the lineal descendant of the law of effect which was discovered by E. L. Thorndike; it is not the conditioning of reflexes as determined by the Pavlovian experiment. It provides instead the opportunity for environmental change in society because it operates on the environment to produce effects. The proper application of the principle requires an operant analysis of the setting, the behavior, and the consequences. In essence it is the application of the notion that behavior is shaped and maintained by its consequences and that, therefore, we need only to alter the consequences so that the behaviors we want to shape are more effectively reinforced. The technology that has emerged from this concept includes behavior modification, behavioral objectives, contingency management, and token economy, among others. It is a technology in its embryonic stage of development. However, it is developing rapidly and its possibilities in terms of sophistication and use are almost infinite. It truly can create a new culture.

Obviously operant conditioning is an important principle for those engaged in the educative process because it is very explicit and definitive in its application. Essentially it says to the educator that here is a way that you can

improve the level of student performance individually and en masse in a more predictable way than you have ever been able to do in the past. You need only to adapt it to the educational setting. This is a tempting prospect in an institution which must constantly deal with problems of motivation and control; and one that by its very nature appeals to the strong strain of pragmatism that exists in this society. Educators as a group are not immune to this proposal. They must cope on a day to day basis with some very difficult learning and behavioral problems and they seek effective and efficient ways of dealing with them. They are also under pressure to show results. Teaching is fatiguing work, both mentally and physically, even for those who enjoy it, and the advent and development of a technology of behavior which shows promises of providing a higher level of success and therefore more satisfaction will not escape their attention. In this survey seventy-two per cent indicated familiarity with the principle of operant conditioning with no significant difference by sex, experience, degree or position. The critical questions, however, are those related to understanding and acceptance.

#### Teacher Understanding and Acceptance of Operant Conditioning

Teacher understanding of operant conditioning at a minimal level was determined by their responses to direct and choice questions. Understanding was indicated by just over half of the total respondents with no significant difference by sex and experience. Table I shows, however, that the bachelor degree level respondents had

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TABLE I

EDUCATOR UNDERSTANDING OF THE  
PRINCIPLE OF OPERANT CONDITIONING

	N	%
Yes	207	51.0
No	131	32.3
No Response	68	16.7
Total	<u>406</u>	<u>100.0</u>

Degree	Yes	No
Bachelors	146(62.7%)	87(37.3%)
Masters	28(49.1%)	29(50.9%)
Other	33(70.2%)	14(29.8%)

$$x^2 = 5.32271 \quad df = 2$$

$$P < .10$$

Position	Yes	No
English-Social Studies	28(60.9%)	18(39.1%)
Mathematics-Science	22(71.0%)	9(29.0%)
Other	22(46.8%)	25(53.2%)

$$x^2 = 4.71384 \quad df = 2$$

$$P < .10$$

a significantly higher proportion of those who felt they understood it than did the masters degree level. On the face of it this would seem unusual until one realizes that it has only been in recent years that operant conditioning has become part of the lexicon of teacher education. The other significant difference showed up among secondary teachers where more mathematics and science teachers indicated understanding. Speculation leads one to suggest that these disciplines lend themselves more to the programmatic characteristics of operant conditioning and, therefore, to more exposure and understanding. The other comparisons by position showed no significant differences and, indeed, the ones cited were at the ten per cent level of confidence.

To check understanding of the principle of operant conditioning at its most minimal level the subjects of this survey were asked to indicate the appropriate teacher response involving a student usually late to class who arrives on time. The greater majority, seventy-two per cent, indicated that praise for his appropriate behavior was more indicative of the principle than an alternate negative response. This understanding was further confirmed by the responses made to a inquiry on the

most effective way of shaping behavior. An overwhelming majority, ninety-four per cent, indicate positive reinforcement as opposed to negative reinforcement or punishment. It is true that the responses made to these questions do not necessarily indicate a very sophisticated understanding of a complex principle. Very few people, outside of Dr. Skinner and those who are experimenting and working with it on a daily basis, have that level of understanding. On the other hand, it does indicate that the majority of the subjects in this particular survey have had sufficient exposure to differentiate its primary characteristic which indicates at least a minimal level of understanding. Further queries in the survey into the technology that has sprung from the principle supports this thesis.

Understanding the principle, however, does not ensure acceptance of it as a principle for governing behavior and Table II shows that a greater number are undecided on this point. Broken down by position this occurs more among secondary

TABLE II

EDUCATOR ACCEPTANCE OF OPERANT  
CONDITIONING AS A PRINCIPLE  
FOR GOVERNING BEHAVIOR

	N	%
Yes	149	36.7
No	19	4.7
Undecided	161	39.7
No Response	<u>77</u>	<u>19.0</u>
Total	406	100.0

Position	Yes	No	Undecided
English-Social Studies	16(35.6%)	4(8.9%)	25(55.5%)
Mathematics-Science	20(64.5%)	1(3.2%)	10(32.3%)
Other	16(34.0%)	1(2.1%)	30(63.8%)

$$x^2 = 10.86959 \quad df = 4$$

$$P < .05$$

teachers outside of those in mathematics and science than in any other group with significance at the five per cent level. The "doubting thomases" again appear to

be in those areas where the subject matter is not as inherently structured. All other comparisons were not significant. The obvious conclusion which must be drawn is that a large segment of the population of this survey was holding in abeyance their complete acceptance of operant conditioning as a principle of governing behavior. This may reflect, among other things, an incomplete knowledge of the principle or an unwillingness to accept its significance and possible effects. Among those who indicated acceptance thirty-one per cent consciously practiced it in the classroom. This is significantly reflected by degree level. All other comparisons

TABLE III  
EDUCATOR USE OF OPERANT CONDITIONING  
IN THE CLASSROOM

	N	%
Yes	126	31.0
No	116	28.6
No Response	164	40.4
Total	406	100.0

Degree	Yes	No
Bachelors	82(49.4%)	84(50.6%)
Masters	17(43.6%)	22(56.4%)
Other	27(75.0%)	9(25.0%)

$$x^2 = 9.18219 \quad df = 2$$

$$P < .02$$

were not significant. It should be noted, however, that the indecision related to acceptance is well reflected in the number of negative responses recorded and the non-respondents.

In order to explore the possibility that educators might find operant techniques unacceptable because they felt that conditions in education made them inapplicable or for ethical reasons inquiries were made into their attitudes concerning their effectiveness in controlling groups, whether or not they felt present conditions in education made their use inoperable, and if they felt that the managing



of behavior was unethical regardless of the techniques employed. The query into group control is closely related to the question on using operant techniques under the present conditions in education. In both instances, the larger percentage affirmed these notions with some reservation on their applicability to the educational setting as shown on Tables IV and V. A significantly higher percentage of administrators than teachers felt that operant techniques were applicable in the educational situation.

TABLE IV

EDUCATOR OPINION OF USING OPERANT TECHNIQUES  
TO CONTROL GROUP BEHAVIOR AS WELL AS INDIVIDUAL BEHAVIOR

Yes	228	56.2
No	12	3.0
Undecided	90	22.2
No Response	76	18.7
Total	406	100.0

TABLE V

EDUCATOR OPINION OF THE APPLICABILITY  
OF OPERANT TECHNIQUES FOR MANAGING BEHAVIOR  
UNDER PRESENT CONDITIONS OF EDUCATION

	N	%
Yes	187	46.1
No	45	11.1
Undecided	102	25.1
No Response	72	17.7
Total	406	100.0

Position	Yes	No	Undecided
Administrators	28 (73.7%)	4 (10.5%)	6 (15.8%)
Teachers	159 (53.7%)	41 (13.9%)	96 (32.4%)

$$x^2 = 5.72912 \quad df = 2$$

$$P < .10$$

This would strongly suggest that the indecisiveness previously noted in reference to acceptance of the principle is closely related to a failure on the part of teachers to see how it can effectively work in the classroom. This contention is further supported by the responses made regarding the ethics of behavioral management. In response to this query the overwhelming majority, eighty-five percent,

declared that they felt that the managing of behavior was ethical regardless of the techniques employed (Table VI).

TABLE VI

EDUCATOR OPINION OF THE ETHICS OF  
MANAGING BEHAVIOR REGARDLESS OF THE  
TECHNIQUES EMPLOYED

	N	%
Yes	344	84.7
No	17	4.2
Undecided	35	8.6
No Response	10	2.5
Total	406	100.0

Position	Yes	No	Undecided
English-Social Studies	43(76.8%)	1(1.8%)	12(21.4%)
Mathematics-Science	33(89.2%)	3(8.1%)	1(2.7%)
Other	48(85.7%)	2(3.6%)	6(10.7%)

$$x^2 = 9.15538 \quad df = 4$$

$$P < .10$$

There was reservation on this issue on the part of some English and social studies teachers at the secondary level, but for the greater majority there was none. On the face of it this would appear to be a disturbing outcome. One must remember, however, that this query was within the context of a survey on operant conditioning which most related to positive techniques of behavioral management. Aside from that, however, it reinforces the pragmatism theme in American society as reflected in the educator. It also indicates that as a group educators are ready psychologically to accept operant techniques within the educational setting so long as an effective way can be found to utilize them.

#### Summary

The educators in this survey overwhelmingly felt that the nature of the interaction between students and teachers is an influencing factor in student achievement and, therefore, is deserving to concentrated study. They were for the most

part familiar with the principle of operant conditioning, having been exposed to it in a variety of situations but primarily through the classes they've taken. They have some understanding of operant conditioning but considerable indecisiveness about accepting it as a principle for governing behavior. This is reflected in their use of it and in their feelings about its applicability in present educational circumstances. They did feel, however, that it may be used to control the behavior of groups as well as individuals, and that the managing of behavior is ethical within the context of the operant model.

### Concluding Commentary

The implications of operant conditioning for society as a principle for controlling behavior was not a part of this survey. Yet there are implications, and they are probably best personified by the writings of B. F. Skinner, particularly Walden II and Beyond Freedom and Dignity. Skinner has not shied away from transforming his laboratory findings into sociological and cultural speculations and it is those speculations which have given him visibility and made him controversial. The comments made regarding him and the technology that is emerging from his work are not bland. Educators are no exception in this regard and they expressed their opinions in the section of this survey provided for that purpose. Some of the more critical ones were "writing behavioral objectives is a waste of time" (from a science teacher), "operant conditioning and behavioral objectives both tend to dehumanize students" (from a fourth grade teacher), "-----operant conditioning has no place in our society, where we value the worth and dignity of the individual!" (from a third grade teacher), "My answers are pragmatic. I accept the theories and practice of behavior modification and operant conditioning, but I think its a hell of a way to live, really." (from an English teacher); and, finally, from another English teacher, "Practically speaking, operant conditioning and the use of behavioral

objectives have a value. Speaking philosophically, in the sense of an ideal, any conditioning or use of preconceived objectives is an infringement upon individual rights (and therefore immoral, in my opinion) and ultimately irrelevant."

Those comments which reflect more favorable attitudes were "I think all teachers should take a behavior mod course before graduating and those already in the field should be required to take one as a 'refresher' course - I found it to be useful. I wish I had had this information much earlier in my teaching career" (from a first grade teacher with over twenty years of experience), and "It is a shame and inexcusable that NIU offers no course in Behavior Modification. They should seek out some of the valid studies made by Skinner, etc." (from a TMIH teacher at the secondary level). Finally, "We all manipulate. If behavior mod can be used for setting up situations in which people can have freedom and develop their potential through choice then I agree with their utilization. If it's used for strict regimentation, etc., it is ethically and morally reprehensible." (from a secondary social studies teacher).

Out of 406 respondents to the survey thirty-four commented in one fashion or another on the subject matter of the questionnaire. Some, as has been indicated, were primarily critical and others favorable. The greater number, however, seemed to take a more balanced view in that they suggested that certain aspects of the technology that is growing out of operant experimentation will be useful so long as they are used in a manner which does not lead us to an unthinking regimented society incapable of throwing off its shackles. This fear which has been expressed in a number of groups regarding the use of operant techniques is real in the sense that a lack of the understanding of the principle and its implications by the individuals in a society can ultimately lead to that state of affairs. History is replete with misused power because of the ignorance of the people. Fortunately we have thus far avoided that kind of debilitating outcome because we have insisted on maintaining

an open society; and we are capable of making good judgements concerning operant conditioning also.

Ultimately, the controversy surrounding Skinner and operant conditioning is good. It is the "filter" of a free society which provides balance against the drive for completely pragmatic answers to all our problems. Operant conditioning will have an impact on the schools as well as on the other institutions of our society. However, that impact will not be as total as its protagonists conjure. The pragmatism which drives us to search for new ways to solve our problems also operates to make us selective in their application to the many problems we face. Therefore, there is little danger of a complete takeover by any one of them. What more frequently happens in our institutions is that we fail to react in such a way as to extract the best from what scientific experimentation provides because we refuse to take a second look at controversial discoveries for the good that they might do us. Could it be that our value systems are so insecure that we cannot deal with these discoveries on other than a very superficial level? If so, that would be the ultimate tragedy.

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