DOCUMENT RESUME

ED 030 136 CG 003 105

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Micro-consultation and Behavioral Change.
American Psychological Association, Washington, D.C..
Spons Agency-Office of Education (DHEW), Washington, D.C.
Pub Date 30 Aug 68
Note-18p.; Paper presented at the American Psychological Association Convention, San Francisco, California, August 30, 1968.
EDRS Price MF-$0.25 HC-$1.00
Descriptors-Innovation, *Learning, *Microteaching, *Models, *Professional Training, Research, *School Psychologists, Simulation

This paper reports an effort to develop and field test a new social learning model for school psychologists. The conclusions of the research thus far completed would indicate strongly that it is entirely possible to recruit and retrain existing school psychologists making effective changes in both their cognitive and behavioral approach to school psychology. It would appear likewise that micro-consultation is a powerful tool to develop specific skills in psychologists and teachers. Further, preliminary evidence from the 1968 study would strongly suggest that a social learning framework shared by both teachers and psychologists making liberal use of behavior modification techniques and individual curricular planning can accelerate markedly the rate of achievement of educationally handicapped and mentally retarded children. (Author)

Micro-consultation and Behavioral Change

Paper presented APA Symposium 1

Psychology in the Schools: Approaches to Training

San Francisco, Friday, August 30, 1968

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Micro-consultation and Behavioral Change

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The need for research regarding the effectiveness of traditional and alternate new approaches to school psychology is apparent. The perusal of any issue of the Journal of School Psychology or Psychology in the Schools will substantiate the fact that there is a consensus within the profession that school psychology is somehow not meeting the needs of American education. To the present, however, there has not been any viable alternative model for school psychology which has been field tested aside from the traditional clinical-medical-testing model or the general guidance consultant model.

It is the purpose of this report to deal briefly with two items: 1) the presentation of the outline of a social learning model for school psychology practice[1], 2) a discussion of field testing research outcomes of this model which has been supported by three federal grants during 1967 and 1968. Because of the limited time available for the presentation, the speaker will relegate a considerable amount of the explanatory and supporting information to explanatory foot-notes which can be read at your leisure.

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[1] This social learning model has been developed at length in a manuscript prepared for the Thirteenth Professional Institute APA Division 16, The Mark Hopkins Hotel, San Francisco, California: August 26 - 29, 1968, and can be obtained from the author on request.

[2] Acknowledgment is made here for the support of the U. S. Office of Education in the following grants: OEG 4-7-120003-1952, OEG 9-8-70098-0026, and OEG 0-8-080699-1999 (012).

Part 1
A Social Learning Model for School Psychology

Recent research and writing in school psychology has suggested that school psychology is moving towards the enhancement of task-oriented learning (Bower, 1964; Bardon, 1964; Bardon and Bennett, 1967). In addition, it has become apparent that a viable phenomenon for the analysis of learning by the school psychologist is that of skill.[3] Earlier conceptions of learning such as the democratic man or well-adjusted personality were often too gross. The experimental psychology paradigm of stimulus-response may be too atomistic. Psychologists and educators can unite on the concept of skill as a basic phenomenon of learning. For the notion of skill is neither

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3 If school psychology is to provide a series of services to the school community in a comprehensive manner, it is imperative that somehow a logical model be developed. For school psychology can be considered an independent variable with the dependent variables being related to differential changes in skill acquisition rates either for students or teachers or both. There are two major assumptions on which this social learning model is premised; 1) that classroom learning constitutes a legitimate field of scientific phenomena and inquiry, and 2) that psychological practice in the schools can be ultimately shaped into a scientific procedure. Without these two assumptions any attempt to construct a scientific model for school psychology practice is doomed to failure.

Some of the logical requirements of a comprehensive natural science approach to school learning phenomena are: 1) the phenomena of the model must be empirically observable, definable and classifiable, 2) the interpretation of the phenomena must be non-eclectic, i. e. describable in terminology corresponding as accurately as possible to the simplistic empirical fact, 3) the ordering of the phenomena must be logically consistent and parsimonious yielding adequate discriminatory judgments, 4) the model must possess power functions for assessment and evaluation of differential phenomena within the model, and 5) the model must be philosophically sound and compatible with the scientific approach.

too global for precise measurement nor too minute to make detailed appraisal impossible. An empirical evaluation of the nature of classroom learning, plus the evaluation of a considerable amount of research literature in the specific areas of human learning and environmental "press" would appear to support the assertion here that the skill concept defined as a functional ability to perform a specific task is a legitimate behavioral phenomenon of classroom learning.[4]

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[4] In recent years, the work of Gagne in the description of conditions of learning (1963), the cognitive emphasis of Ausubel (1965) and Bruner (1966), the social learning theory of Bandura and Walters (1963) and the educational application of these approaches to classroom learning by Hewett (1968) and Patterson (1967) have provided the research backgrounf for reanalyzing the nature of educational phenomena. A new approach has been derived from a confluence of the anthropology of cultural transmission and the social psychology of learning. In addition, supporting neurological and physiological evidence has been provided by Berlyne (1960), Taylor (1962) and Vygotsky (1962) who have identified the neurological correlates of skill acquisition through sensory modalities.

Each of these researchers in his own way has helped to provide a research background which would support the notion of skill acquisition as the legitimate focus of the educational enterprise. For example, Gagne (1963) has provided a sequential learning model which takes into consideration the step-by-step process of learning through signal and stimulus-response learning to chaining, verbal association and subsequent multiple discrimination and generalization. Taylor and Berlyne (1962, 1960) have identified the fact that different sensory modalities are involved in skill acquisition. Ausubel (1965) and Bruner (1966) have suggested that a different type of learning is necessary for cognitive association, concept formation of the receptor type of learning. Ausubel particularly has emphasized the need for what he calls advanced organizers o r the cognitive scaffolding which allows for the sytematic expansion of verbal concepts. The behavior modification school which has involved the experimental manipulation of children's behavior and specialized studies with hyperactive, autistic, tantrum behavior and phobic children, though generally limited to experimental units outside the schools, has provided considerable research evidence regarding the efficacy of such techniques (Grossberg, 1964). Bandura and Walters (1963), though not again specifically addressing themselves to the classroom setting, and drawing heavily on social psychology, have indicated the strengths of such learning techniques as imitation, vicarious experiencing, modeling, and shaping of behavior. Skinner (1968) has also suggested that teachers could obtain far greater results if they could define the kinds of behaviors they wish to obtain. The same observation has been made by Mager (1967). Hewett (1967), in the application of much of this research and working in the specific context of educationally handicapped children, has developed what he calls the engineered classroom in which the educational task-orientation learning system is broken down into seven stages or steps. These he conceives to be attention, response, order, exploration, social skill acquisition, mastery and achievement.

Recognizing that a viable school psychology model must be based on a set of empirical phenomena, the notion of skill then becomes the central phenomenon in the social learning approach to school psychology. Classroom learning is conceptualized as a set of differential rates of skill acquisition within a social context. Learning becomes characterized as an hierarchy of skill acquisitions extending from simple to complex organizations, from perceptual-motor to social and cognitive skills. Further, in this frame of reference, the rate of skill acquisition by individuals may be considered a dependent variable related functionally to both structural and environmental programming as the independent variables.

The task of the school psychologist within this model relates chiefly to three functions: 1) assessment, 2) strategy-making and 3) evaluation. Psychologists must learn to develop specific skills in assessment, strategy-making, and evaluation of their interventions. Assessment in this approach includes not only the use of traditional testing tools, but also the use of specific skills in teacher interviewing to determine the exact parameters of the student problem behavior referred. It also includes the use of systematic behavioral observation in and out of the classroom by either the psychologist or elementary counselor, teacher or para-professional teacher aide. The entire focus of the assessment procedure is centered on the antecedents and consequences of behavior as interpreted through social learning theory. The major questions which are of concern to the psychologist are: WHAT, WHEN, WHERE, and HOW OFTEN? The absence of the question WHY is deliberate, for traditionally most school psychological practice has focused on the search for answers or hypotheses about the origin and causality of deviant behavior.[5] This is a

[5] The futility of such an exercise in seeking out the causal strands of behavior based on operant modes of behaving is highlighted by Kuo (1967) when he indicates that at least five sets of independent and 23 interactive factors must be taken into consideration to determine an adequate theory of behavioral causality in an animal organism: 1) morphological factors, 2) biochemical and biophysical factors, 3) stimulating objects, 4) developmental history and 5) environmental context.

futile search because of the multiplicity of possible causes and the fact that even a knowledge of specific causality cannot help a psychologist in providing a strategy of intervention relating to operant behavior.

Knowing the parameters of the problem behavior is one set of skills which school psychologists must acquire. This means that they must be able to assess behavior in its context and not removed from that context via testing. It also means that they must be able to know how to develop an appropriate strategy of intervention. The strategy refers to the specific ordering of techniques both behavioral and curricular which are utilized to realize the goals specified by the psychologist and teacher in consultation. Strategy development is in reality a kind of hypothesis making regarding individuals. It is preceded by a relevant assessment procedure wherein specific attention has been paid to obtaining basal response levels in terms of motor, social, and cognitive skills. Once this is known, then the process of prescriptive education begins as formulated through a strategy.[6] If one strategy does not work, then another alternative one is tried. Through the comparison of basal rates of skill behavior pre and post it is possible to determine the efficacy of the assessment and strategy-making procedures, and as a result to judge the efficacy of the school psychologist in a contextual setting relating to teachers and children.

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[6] Catterall (1967) in the Santa Clara Unified School District of California has devised a series of charts referring to prescriptive interventions. These interventions broadly fall into four major categories which are: 1) environmental interventions, 2) installed interventions, 3) assigned interventions, and 4) transactional interventions. Environmental interventions refer to possible changes in program management, structuring or placement changes. Assigned interventions refer to behavioral exercises such as physical, developmental, social or cognitive skill development with emphasis on the experimental development of new role models. Here game theory, sociodrama, etc., are relevant procedures. Installed interventions include a variety of specific learning techniques utilized to develop appropriate respondent and operanton behavior in the individual, and transactional interventions refer chiefly to a group of individual and group counseling experiences. These interventions represent a variety of possible activities which can be programmed and tested experimentally in terms of their effect on differential skill development.

Part II

Effecting Behavior Change in Sub-doctoral Trained School Psychologists

With the national emergencies which face the United States in the areas of education, the school psychologist could play a crucial and important role. For reasons which have been discussed only briefly in the first part of this paper, i. e. the conflicting goals, methods, and criteria implemented by various approaches to classroom learning, and the inheritance of training programs which have attempted to span a wide variety of bases, the school psychologist has not yet played such an important role. He has not been the beneficiary of hundreds of N. D. E. A. training programs such as have guidance and counseling people. More recently, new federal legislation and guidelines do not even mention the school psychologist as an individual who can be included in specialized manpower programs. Finally, since there is little time to attempt to train a whole new generation of school psychologists for a new role model in the schools, it is imperative that ways and means be found and tested of providing school psychologists with relevant mid-career professional development.

Through the support of three federal grants, the writer has been able to field test the efficacy of a social learning model for school psychology as described earlier. In the final stages of the N. D. E. A. Title VB counseling and guidance institute program, approval was granted to the author for conducting two N. D. E. A. Title VB institutes for school psychologists. These were planned for one group of thirty psychologists who were to attend two advanced training sessions at California State College, Hayward in eight weeks of the summer of 1967 and six weeks of the summer of 1968. The first summer was devoted to a study of social learning theory and focused on children who were presenting maladaptive acting-out behavior in the classroom. The second summer

was devoted to the eliciting of new skills through the use of teacher-psychologist teams working with groups of educationally handicapped children.

The 1967 Institute

There were a number of specific questions which were asked in relationship to the 1967 training program. Some of these were:

1. Do differential theoretical orientations result in differential approaches to school psychology practice as demonstrated by psychologist behaviors?

2. Is it possible to effect change not only in cognitive awareness, but in measurable dimensions of psychologists' behavior as manifested in their practice?

3. What is the learning effect on mature individuals of an immediate feed-back system such as television in the changing of cognitive concepts as well as behavioral practice?

4. What is the holding power of such intensive training techniques in terms of school psychological practice after the institute program has been completed?

Method

From 112 completed applications by individuals who met the criteria of: 1) completion of minimum graduate training in school psychology (i. e. master's degree and/or state certification or verification as a school psychologist), and 2) de facto performance of school psychological services, a random assignment based on geographical stratification of the total number of applicants was made to four classifications: A) participant status, B) control status, C) alternate status and D) other status. Thirty school psychologists from throughout the nation were invited to attend the 1967 institute.

A number of paper and pencil and behavioral measurements were obtained

on participants and controls both prior to the institute, during the institute and on a visitation follow-up to participants and controls in the fall of 1967.[7]

The independent variables of the 1967 institute program consisted of the didactic instruction, the television experience, group critiquing, and the micro-consultation procedure. Television was used both as a means of teaching and developing specific skills, and as a vehicle for measuring base rates of psychologists' responses in specific skill development. The use of television in what has been termed by the writer as micro-consultation was modeled on the micro-teaching format of Allen and Bush (1964) developed at Stanford University. In this approach, a specific skill is identified for teaching purposes. The student teacher teaches a brief five or ten minute unit to a group of real students, then reviews the play back of his teaching with some direct critiquing from his supervisor. Finally, he returns and teaches the same unit to another group. This is also video-taped and critiqued.

It was believed that this type of television learning experience would be particularly relevant to teaching school psychologists certain specific skills. Moreover, the immediate feed-back and the use of both instructor and colleague critiquing make full use of learning principles in developing new skills. This was considered to be particularly crucial with a group of school

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7 The paper and pencil measures included a Time Analysis Form designed to determine how the school psychologist spends his time, a Psychological Practices Questionnaire relating to self-concept, clinical, and behavioral alternatives in diagnosis and treatment, a Concept Check List Form also relating to theoretical preferences and values, a Psychological Services Questionnaire sampling attitudes towards the individual, school as a whole, research and the community, and the collection of sample psychological reports. In addition, behavioral ratings were made of pre, post, and field observations of interviewing and assessment skills via television and audio taping. In all, 111 separate variables were collected on participants with a lesser number on controls.

psychologists who had already developed a considerable repertory of behaviors relating to school psychology practice. It was believed that any attempt to change their behavior would have to involve some intensive and immediate learning consequences to effect change in their style or mode of operating.

As a result, the staff of the institute identified a number of specific psychological skills which were to be used in teaching the social learning approach.[8] Some of these were: 1) teaching psychologists how to structure the interview to obtain maximum behavioral information in a minimum of time, 2) teaching psychologists how to determine the parameters of the problem behavior referred by the teacher along with specific antecedents and consequences of that problem behavior, 3) teaching psychologists how to focus on one operant behavior rather than a total array of behaviors, 4) teaching psychologists how to develop a strategy for coping with the problem behavior referred, and 5) developing psychological skills in re-assessing the progress of the intervention via behavioral observation and base rates of problem behavior pre and post.

The specific format devised for teaching these skills was entitled micro-consultation. The steps to the process included:

1. Filming the psychologist in a specific sequence
2. Replaying the tape to the psychologists and a small group of colleagues and staff
3. Critiquing the tape in terms of a specific frame of reference or skill development
4. Refilming the psychologist in a new sequence which was either role-played or filmed with another individual
5. Critiquing of the new tape

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[8] Dr. Dwight L. Goodwin and Dr. William P. Garvey, both of San Jose State College, made a major contribution to the specific development of the sequence of micro-consultation steps and identification of psychologist skills.

This process was very time consuming, involving approximately one hour for each individual, but the participation of psychologist colleagues in this process helped continually to form new skills in their repertory of behavior. As a result, the total impact of the procedure was considerably effective in developing new psychologist skills relating to assessment and strategy-making.

In order to ascertain the effect of the micro-consultation procedure and the didactic instruction as against the simple novelty of being video-taped, a group of controls were brought into the college for two one-day workshops in which they simply were televised interviewing a teacher. They also were able to view themselves on tape, but no critiquing or teaching was done by the staff. These individuals were specified in the research design as control A or active controls as against those other controls who were simply tested prior to the institute and field tested in the follow-up procedures.

Subsequent to the completion of the institute a follow-up field visit was arranged in which members of the staff traveled to the home community of the 30 participants and some 16 controls. Though paper-pencil post-institute measures were also obtained on this visitation, the primary purpose of the field follow-up was to obtain behavioral data referring to interviewing and assessment skills. The audio and video tapes collected were then randomly analyzed by graduate students trained in a behavioral analysis technique.[9]

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[9] The behavioral interview rating form developed primarily by Dr. Dwight Goodwin of San Jose State College with assistance from other members of the staff breaks down a psychologist-teacher interview into discrete areas relating to 1) structuring the interview, 2) environmental assessment, 3) strategy planning, and 4) composite ratio scores. Each response of the psychologist is evaluated within the first three categories and frequencies of specific or non-specific responses can easily be tallied. Graduate students trained in the evaluation procedure reached reliability coefficients of agreement in their ratings of .80 and above before beginning the official ratings.

Statistical analyses of these data were completed at the Stanford University Computer Center. Considerable demographic, correlational, and analyses of pre-post changes were obtained.

Findings

Because of the tremendous amount of data obtained in this research and the absolute time limitations of this presentation, the speaker will only summarize in abbreviated form the results of the statistical analysis of the 1967 data. The analyses will be related to the initial questions posed regarding the Institute program. For individuals who may be interested in the more detailed analysis of the data, the writer would suggest that they write to him at California State College, Hayward. The final report of this research is presently nearing completion and should be available in several months.

1. Changes in Theoretical Orientation and Service Dimensions

It was possible not only to differentiate approaches to school psychology practice, i. e. self-concept, clinical, and behavioral approaches to diagnosis and treatment, but to demonstrate that older individuals tended to be more clinical, whereas younger ones were more behavioral. It was found that the 29 dependent paper-and-pencil measures were affected substantially by the treatment procedures and specifically by the micro-teaching approach. Of 29 analyses of covariance done on dimensions of psychological practice, time-allotment, theoretical orientation, concept check-list and psychological services questionnaires wherein pre-test scores were the covariates, 15 were significant at the .05 or .01 level. Though the vast majority of the group i. e. 24 out of 30 had been of a self-concept or clinical orientation initially, 26 expressed a behavioral-social learning preference on the post-testing.

2. Changes in Behavioral Dimensions

It is not unusual that individuals in an intensive training program would tend to identify with that program's goals. Thus, the real test of change relates not only to paper-pencil dimensions, but to behavioral dimensions. A total of 62 analyses of variance and analyses of covariance were run on the participant, active controls and passive control groups. The active control group represented a group of individuals who experienced two one-day workshops involving them in some experience with video-taping, but not the micro-consultation procedure. This was done to control for the novel effect of television per se. Some of these analyses involved holding both pre and post institute test scores on behavioral dimensions as covariates against the field test data. Even so, of these 62 analyses of variance and covariance 27 or 44 per cent yielded significant F ratios. In general, the field testing data obtained in the school districts well after the close of the institute revealed that the participant group was conducting behavioral assessment interviews with teachers in a far different manner from either active or passive controls. Moreover, an analysis of test reports completed prior to the institute and test reports following the institute showed considerable significant changes particularly in the degree of specificity of behavioral assessment and strategy-making procedures.

The 1968 Institute

Both the 1967 and 1968 institutes were based on the premise that school psychology practice should make a difference in the behavior of teachers and/or students. If school psychology practice is successful, some of the following kinds of dependent outcomes should be measurable: 1) increased learning rates, 2) decreased maladaptive behavior, 3) sequentially programmed development of skills, and 4) more effective teaching skills. Thus any real test of a new

model of school psychology must be verified in terms of its power potential to effect change in teachers and children.

For these reasons, in November 1967, the speaker contacted Dr. Arthur Phelan, Director of Title VI programs in California, detailing a proposed summer program in which psychologists, teachers and children could be integrated into a combined psychologist and teacher-training program. Encouragement was extended from the California State Department of Education and five school districts. Hayward, San Lorenzo, Castro Valley, Livermore Valley, and Oakland submitted some joint proposals for the training of special education teachers. Although there were some minor differences between these proposals, essentially the design which was approved involved the setting up of 25 teams each made up of one psychologist from the previous year's institute and two teachers from the district. Each team then worked with a group of 10 to 12 children. There were thus five districts with five classrooms each. Totally some 240 children variously identified as educationally handicapped or mentally retarded within the provisions of the California State Educational Code were thus involved.

Method

The program coordinated by the speaker and Dr. Richard Montgomery of the California State College, Hayward staff was implemented in three phases. Phase 1 involved the training of these fifty teachers and some 25 other ancillary personnel such as teacher aides, nurses and speech therapists, in a course entitled Social Learning during the spring of 1968. Phase 2 began during the summer session and covered two weeks of the six week session. During this time the psychologists and teachers obtained base rates of behavior through observation and testing on each of the children. A behavior rating device developed by Dr. Leo A. Hamerlynck of the University of Calgary and a participating faculty member in the program was used to measure attending and

non-attending behavior. The Jastak Wide-Range Achievement Test was used to measure previous learning. An experimental instrument entitled the Classroom Vocational Interest Inventory (Barclay, 1967) was used to measure self and group competency skills. At the end of Phase 2 a complete behavioral and test assessment of each child had been completed and a strategy devised for his individual programming. Phase 3 included the carrying out of this strategy and the final assessment of each child at the end of the summer program.

This institute program wished to determine how successful psychologists and teachers could be, as they worked together in teams all morning long with ten to twleve children for a six week period of time. Two questions were uppermost in mind:

1. What kind of mean gains will children who are educationally handicapped or mentally retarded make under this type of program?

2. What kinds of characteristics are related to successful team operation as judged by the criterion of teacher change and student mean gain in skill acquisition?

Since this program was just completed only, some sketchy data are presently available. However, these data appear to show some impressive results relating to mean gains in achievement rate.

Results

A pre-post analysis of the Wide Range Achievement Test has been done. Table 1 reports the mean differences obtained on pre- and post testing of the students in this program.

Table 1

Means of Difference Scores on Pre- and Post-treatment Measures *
on the Wide Range Achievement Test

District	N	Reading	Arithmetic	Spelling
Oakland **	10	.10	.36	.22
Hayward	39	.10	.31	.17
San Lorenzo	39	.44	.34	.14
Castro Valley	44	.25	.27	.14
Livermore Valley	38	.33	.50	.56
	170	1.22	1.78	1.23
Overall Mean Gains		.24	.36	.25

* Scores are reported in yearly units based on ten months of schooling.

** Oakland's program terminated one week earlier than the other four districts in four out of the five classes operating. Data are reported for this fifth class only which had classroom experience of equal length to the classes in other districts.

Please note some individuals were missed in either pre or post testing due to parent vacations and other absences.

This preliminary analysis would suggest that in terms of the norming of the Wide-Range Achievement Test children in the summer school program which really lasted for them only the equivalent of one month made somewhere between two-and one-half and three months mean gain. This is in comparison with children in normal classrooms and not children who have been categorized as mentally retarded or educationally handicapped. Tentatively, then, it would appear that the use of psychologist-teacher teams in working closely with children who manifest learning difficulties utilizing both behavioral

modification techniques and individual curriculum programming can result in some significant increases in the rate of mean achievement for these children.

Summary

This paper has reported an effort to develop and field test a new social learning model for school psychologists. The conclusions of the research thus far completed would indicate strongly that it is entirely possible to recruit and retrain existing school psychologists making effective changes in both their cognitive and behavioral approach to school psychology. It would appear likewise that micro-consultation is a powerful tool to develop specific skills in psychologists and teachers. Further, preliminary evidence from the 1968 study would strongly suggest that a social learning framework shared by both teachers and psychologists making liberal use of behavior modification techniques and individual curricular planning can accelerate markedly the rate of achievement of educationally handicapped and mentally retarded children.

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