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## Abstract

This study describes a current attempt to design a comprehensive guidance system which will be an integral part of a program of individualized education and which serves the needs of all students at each academic level. Preliminary investigation has led to tentative specification of 12 components comprising the guidance system, five involving indirect intervention on behalf of the students, and seven presenting guidance experiences directly through the instructional process. Basic objectives are to encourage problem solving behaviors among the students involved, and to create greater awareness of career information in order to enable students to make better decisions for their own futures. Programmatic research and development activities to assist individuals to acquire and perform behaviors which will result in their solving real-life problems wisely is also currently underway. The ultimate training program must specify behaviors included in solving real-life problems wisely, and reliable criterion measures for assessing students' abilities to perform these behaviors must be developed. Hopefully, findings from this research will point the way toward discovering a superior problem-solving training approach, including the cost in time and money for such a program in a school setting. (Author/CJ)

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ELEMENTS OF A COMPREHENSIVE GUIDANCE SYSTEM

INTEGRATED IN THE INSTRUCTIONAL PROCESS

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Guidance Research Program

American Institutes for Research

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## Designing a Comprehensive Guidance System

An attempt is currently being made to design a comprehensive guidance system which will be an integral part of a program of individualized education such as those visualized by Silberman and Carter (1965), Morgan and Bushnell (1966) and Flanagan (1968). To be comprehensive this guidance system must attempt to serve the needs of all students at each academic level and to concern itself with student outcomes outside of, as well as within, the educational setting. By integrating it closely with the basic instructional system at all academic levels, educators should be able to assist students in a variety of important ways that can influence their careers. These ways include helping them to acquire necessary personal assessment information, information about life opportunities available to them, and prerequisite problem-solving behaviors in planning decision making and management so that each one will be helped to formulate and pursue appropriate long-range and immediate goals. Such a guidance system must also be comprehensive in respect to the contact it has at any academic level with any specific student. It must be cognizant of, and responsible to, all the needs of each student.

To facilitate the identification of student needs and general groupings or clusters of them, preliminary investigation has led to the tentative specification of 12 components. These components comprise the comprehensive guidance system as it is presently being designed. Five of these 12 involve indirect intervention on behalf of the students. Here various counseling personnel and techniques derived from educational technology are used to conduct systems monitoring and research from the viewpoint of protecting, and fostering the development of, the individuality of students. All the seven other components present guidance experiences directly through the instructional process. Wherever possible, these experiences are integrated within instructional activities in the basic subject areas or coordinated with them.

Two of those seven remaining components represent the prescriptive phase of the guidance system. In these components the emphasis focuses on problem correction or remediation. Here the related instructional activities are not intended for all students but only for those students experiencing specifiable problems for which assistance is available. Attempts must be made to integrate such assistance with efforts to help students formulate and pursue agreed-upon long-range and immediate goals. Elements we are currently investigating in this prescriptive phase are being described today by Jones in another APGA symposium scheduled in this time period.

The remaining five components constitute the developmentally-oriented phase of the guidance system. These components involve instructional activities for all students and here the emphasis changes from correcting problems to preventing them and to helping students formulate and pursue their immediate and long-range goals. Dr. James A. Dunn is participating on the same symposium with Jones and is outlining some of the extensive work that is being conducted by Project PLAN guidance personnel on some of these five components. The remainder of this presentation reviews some of our recent attempts to develop and evaluate elements for the various developmentally-oriented components of a comprehensive guidance system. Our efforts are supported by a grant from the Division of Comprehensive and Vocational Education Research of the U.S. Office of Education.

#### "Orientation-in" Component of a Comprehensive Guidance System

In the developmentally oriented phase of guidance, the identification of one cluster of student needs has led to the formulation of the component designated as "Orientation-in." This system's component's purpose is to assist each student to acquire the various kinds of information, understandings, overt behaviors, and attitudes he needs in order to function successfully both in a new educational system (i.e., individualized education) and in the specific school setting in

which that system operates. An important ingredient in this acquisition process is practice in making the responses considered appropriate in that system and setting. Student needs relative to orientation are even more pronounced in an individualized instructional system since students in this context are encouraged to take more personal responsibility for their behavior than are students in a conventional instructional framework.

Data currently are being analyzed from a quasi-experimental study we initiated in order to analyze the effectiveness of an orientation program designed for intermediate and secondary level students initiating their contacts with an individualized instructional program. This type of orientation program provides a model for the coordination of guidance-related instructional units with those units in the basic subject areas for it is through orientation experiences that students can be assisted to plan, and begin to work on, their programs of study in each of their subjects.

Students in the study were randomly assigned to two treatment conditions. One group of students received the regular orientation program while students in the other group were given materials of the same format but substantially reduced in the amount of information and practice activities presented. Everything but that which was deemed absolutely necessary to allow the student to function in the individualized instructional system was eliminated. This reduction also curtailed the amount of involvement these students using the alternate orientation program had in planning and decision-making relevant to their programs of studies in each subject area. The basic purpose of this investigation was to determine the effectiveness of the more extensive orientation program which presented students with many opportunities for involvement in the formulation of personal plans and decisions. Criteria of this effectiveness included: knowledge of the terminology and functioning of the instructional system and of the responsibilities of students and staff in the system; inventoried opinions toward the system; expressed understandings of selected concepts and procedures in the system; observed performance of behavior necessary for students to function in the

system, including the frequency and nature of requests for assistance made by students; and the rate and quality of student performance on their subsequent programs of study in each subject area.

#### "Personal Choice Opportunities" Component of a Comprehensive Guidance System

Another component in the developmentally-oriented phase of a comprehensive guidance system stresses the needs students have for being aware of, and understanding, the world of career opportunities available to them. One part of the goal of this component is to help each student know and understand the variety of vocational opportunities available for personal involvement. An Occupational Knowledge Test has been constructed primarily to provide base line information on students' knowledge of the world of work, job families, and the requirements and opportunities available in a sample of 37 occupations. This information will be used to facilitate the development of vocational guidance instructional units which will be integrated in the regular instructional process.

Occupations sampled in this test represent major categories or families of occupations that typically require at least a high school education or equivalent preparation. Selection of specific occupations was based upon the frequency with which a myriad of occupations were selected by high school students participating in the Project TALENT five-year followup. Estimates of job opportunities specified in the 1968-69 Occupational Outlook Handbook were also used to help select those occupations and this resource book was a primary source of test item content.

This test designed originally for ninth-grade students should also be applicable for students in grades ten through twelve. Four parallel machine-scored forms of the test, two for males and two for females, are currently being field-tested. If these forms can be effectively developed, the Occupational Knowledge Test should also be useful as a criterion measure for evaluating the effectiveness of vocational guidance programs and instructional units.

## "Personal Problem-Solving Behaviors" Component of a Comprehensive Guidance System

### Importance of Problem-Solving Behaviors

A third example of a developmentally-oriented component in a comprehensive guidance system aims at helping each student to develop and use skills which enable him to solve real-life problems by making decisions and plans wisely and by implementing these. Helping students with the decision-making aspect of this component has often been viewed as a priority task of the guidance movement in American education (Krumboltz, 1967). Indeed, this decision-making or personal problem-solving orientation has been proposed as the framework for an entire guidance program within a school district (Gelatt & Varenhorst, 1968). Students' acquisition and performance of effective problem-solving behaviors is important for several reasons. First, problem situations (i.e., those situations in which the appropriate response is not immediately obvious) are frequent in number and significant in influence throughout an individual's life (Siegel, Siegel, & Andrews, 1964). Second, many of the problems faced by an individual in today's world have become more complex (e.g., choosing an occupation) or have recently come into existence (e.g., use of extensive leisure time). Some guidance leaders have noted that this trend toward new problems and the increasing complexity of old ones is likely to continue, perhaps even at an accelerated pace in the future (Wrenn, 1962). Third, inadequate response capabilities in such problem situations invariably lead to ineffective behaviors (D'Zurilla & Goldfried, 1968) so that both the problem solver and perhaps others suffer the aversive consequences of this ineffective performance.

A study of previous research reveals a lack of progress toward the guidance goal of assisting students in learning how to solve real-life problems wisely. Several reasons for this deficit can be hypothesized. For example, Means (1966) concludes from her work in problem solving that several skills are involved and

that they are not all dependent on one another. This conclusion suggests the possible complexity of a training program for problem solving. This possibility and the apparent complexity and individuality of personal-life problems may be factors inhibiting investigators from initiating attempts to specify work and train problem-solving behaviors. Perhaps many investigators are discouraged by a belief that whatever differentiates persons who solve problems wisely from persons who do not appears to be almost mystical in nature or else specific to the individual or the situation. Another possible factor influencing inadequate progress in this area might be investigators' preference to concentrate on contrived laboratory problem-solving tasks which lend themselves much more easily to the control of variables and to mathematical analysis than do personal life problems.

#### Development of a Training Program for Problem-Solving Behaviors

It has been suggested that the present behavior patterns of individuals involved in problem-solving situations probably have been learned in earlier problem-solving contexts (Skinner, 1953; Brim, 1962). If these patterns are learned phenomena, they must be open to modification through training. Such training might enable students both to acquire effective problem-solving behaviors and to maximize their transfer value to a wide variety of problem-solving situations. Programmatic research and development activities to assist individuals to acquire and perform behaviors which will result in their solving real-life problems wisely is currently underway in an attempt to investigate one additional component of a comprehensive guidance system.

The ultimate training program must specify behaviors included in solving real-life problems wisely, and alternate strategies for training students for these behaviors. Reliable and valid criterion measures for assessing students' abilities to perform these behaviors must also be developed. Related research efforts must investigate the effect of various learner characteristics upon the training process so that



in the final program an optimal match between student characteristic and training strategy can be attained.

In the development of this training program, efforts are being focused upon those students who manifest a need and express a desire for training assistance. In addition, an attempt is being made to maximize the integration of this program into the total curriculum. The flexibility and student planning opportunities available in an individualized instructional setting provide a more suitable context for this integration than is possible in a more conventional instructional setting. Finally, the training program attends to both the process and the outcome of problem solving. It avoids an extreme position in the product vs. process controversy (cf. Bross, 1953; Halpern, 1968) by postulating that both the behavior leading up to a problem solution and the effectiveness of the solution itself must be given consideration in the training process.

From a study of many models (e.g., Dewey, 1933; Polya, 1945; Simon, 1957) of the problem-solving process, a comprehensive list has been compiled of behaviors useful in solving real-life problems. Also, a set of instructional objectives for the training program has been prepared and alternative training strategies and tentative criterion instruments for measuring students' performance of problem-solving behaviors are being developed. A device to assess the need and desire students have for assistance in acquiring and using problem-solving behaviors has recently been field tested. This instrument exposes the student to several statements describing useful problem-solving behaviors. All of the students are asked to indicate whether or not they usually perform the behaviors as they deal with their own real-life problems. An opportunity is also provided for them to record their desire to learn how to perform each of the problem-solving behaviors described. Field tests with 53 eleventh-grade students revealed over one-half of them manifested a desire for training assistance in problem-solving behaviors. An investigation will be made to see if there are differences on the criterion

measures of problem-solving behaviors between students who request, and those who do not seek, assistance from the training program for these behaviors.

### Preliminary Research on a Training Program

Currently, an exploratory research study is underway with the intention that its findings should give major direction to the further development of the personal problem-solving training program. The problem-solving behavior that has been selected for initial study is the consideration of several alternative solutions or courses of action prior to the selection of one alternative for implementation. This behavior is postulated to be of key importance in the problem-solving process.

Since there is little indication from the literature as to just what the nature of training experiences for such a problem-solving behavior should be, several general strategies are being explored. Students indicating a lack of effective problem-solving behaviors and expressing a desire to improve their performance have been randomly assigned, equally divided as to sex, to several treatment conditions. Social modeling is used as a central training strategy and its effectiveness across three media (video tape, audio tape, and written booklet) is being investigated. The male model is portrayed as having a personal problem (i.e., how to use the approaching summer vacation), and as exhibiting the desired behavior of considering several alternative solutions before carrying out a solution to his problem. Subsequently he experiences positive consequences which he attributes to the fact that he has considered several alternatives and selected the best one. The importance of his behavior in the problem-solving process is pointed out by the model's comments throughout the presentation. In addition to the modeling treatments just described, there are similar strategies combining the social modeling technique with socially reinforced student participation. Also being investigated is a traditional training strategy utilizing a straight

forward didactic approach involving classroom lecture. A group of students acting as a control group receive programmed materials unrelated to personal-problem solving.

One of the most critical concerns of any program purporting to train problem-solving behaviors is the issue of how such behaviors are measured. Attempts to assess problem-solving behaviors are few in number and focus primarily on students' information searching skills or on their utilizing particular rules for selecting a problem solution in paper-and-pencil test situations (cf. Townsend & Smith, 1964; Dilley, 1965; Halpern, 1967). A different emphasis is being taken in the two situational criterion measures which are being explored in the current study. In the first of these, the student is asked to assist a hypothetical character in solving a personal problem. By using a series of slides he may obtain information on the problem solver, the available alternative solutions to the problem and the possible consequences of these various alternatives. The student is allowed to choose freely from the available slides during a specified time period. The specific slides selected, the order of selection, the amount of time spent viewing each slide and the solution the student chooses to the problem are recorded.

The second criterion situation necessitates that the student selects one of the personal problems he is currently experiencing in his own life. From an available pool of individuals, he is asked to select the one person he would most like to have assist him in solving the problem he has chosen. Tape recorded information on the background, interests, abilities and values of each of these available individuals is then given to him in a series of information packets. Records are kept of the number of information packets selected, the order of selection, the amount of time spent with each information packet, and student's final choice of a person to assist him with his problem.

Both of these criterion instruments are introduced to the students in such a way that they appear to be field testing experiences (i.e., experiences in

which students are asked to try out new guidance materials) rather than criterion measures. This procedure has been included in an attempt to maximize the probability of obtaining a typical personal problem-solving performance from the students. It is anticipated that the field test and experimental use of these criterion instruments will provide guidelines to facilitate the development of similar situational criterion measures for the complete training program for problem-solving behaviors. The goal is that a complete battery of instruments will be made available to assess both the level of performance of students' behaviors during the personal problem-solving process and the quality of the product (i.e., the problem solution) of this process.

The findings from this research will answer several questions regarding the training of this key problem-solving behavior and of other related behaviors. Hopefully, a superior training approach will be discovered and the relationships of various media and social reinforcement and modeling strategies will be assessed. Further, the data should yield clues for further research and development activities in training other problem-solving behaviors and perhaps help delineate the parameters of the total training program. The research should provide information which will suggest how elaborate, how costly, and how time consuming such a program would be if undertaken in a public school setting. In this way another component of a comprehensive guidance program will have been subjected to prototypic development and evaluation.

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