

# Research in Review

Column Editor: Ira J. Gordon

Contributor: Ralph H. Ojemann

## New Opportunities in Research

THE very existence of the school seems to give evidence that a child's learning can be guided. Society at large as well as teachers and other educational personnel apparently share in this assumption. Instead of letting children learn by such incidental experiences as their environment happens to provide, man long ago found that by the selection and planning of experiences, learning can be hastened. In this respect, persons who have consciously recognized the basic reason for the existence of the school have been in advance of many investigators in the field of child development.

Until recently, and to some extent even today, some investigators have sought to throw light on how the child develops by studying children as they, the observers, happened to find them. Without inquiring as to the prior experiences of the children, these investigators proceeded to plot childhood growth by stages and ages. A good example of this is the work of Piaget on the development of concepts. Piaget studied the growth of language, number, physical causality, moral judgment and other concepts. An example of the type of results he reported is furnished by his summary of the data from his study of the growth of ideas as to why boats float (6: 135-63). He presented to children of various ages such objects as a small boat made of wood,

a stone, a piece of iron, and asked in each case whether the object would "lie on the water" or "go to the bottom" and why. He summarized his data thus:

During the first stage which ends at about 5 years, floating is explained by animistic and moral reasons. During a second stage, extending on the average from 5 to 6, the child thinks that boats float because they are heavy. During a third stage (average age 6-8), on the contrary, the child says that they float because they are light. But this explanation is still fraught with reasons of a dynamic order. Finally, at about 9 years, the child begins to understand the true relation between the weight of the boat and that of the liquid element.

Moreover, the earlier the explanations are, the less simple we shall find them. There is an over-determination of factors which is very interesting to observe. In addition, it should be noted at once, that, in spite of appearances, these experiments on floating are subject to a scheme of evolution completely analogous to that which we found in our investigation of explanations relative to the suspension of clouds and the heavenly bodies, and to the fall of heavy objects to the ground (6: 135-36).

Piaget makes such a summary without inquiring as to what kinds of experiences his subjects had had. There is mounting evidence which suggests that planned experiences can alter significantly the course of development of concepts of physical causality (1; 7; 9). Moreover,

considerable activity is presently going on to devise increasingly more effective planned experiences for learning physical causality (2). In fact, there is some evidence, for example, that teaching machine programs can be developed for use at early age levels for fostering an understanding of such a phenomenon as condensation.

There is also increasing evidence that the growth of concepts of social causality can be significantly altered through the use of planned experiences even at the elementary school ages (3).

Furthermore, evidence suggests that planned experiences can work in two directions. They can help a child develop a logical approach to the daily situations in his environment, such as when he learns the role of air or oxygen in sustaining a fire. Experiences can also be used to develop an illogical approach. In the investigations of the writer and his associates in the development of ideas of social causality, it has been pointed out (4; 8) that a number of influences in the present-day school tend to teach children an arbitrary judgmental approach to interpersonal situations. Evidence obtained from control groups tends to substantiate this. For example in a study of the effect of some planned experiences in social causality at grades 4, 5, and 6 (5) the control groups in which no changes were made evidenced a trend toward a higher arbitrary judgmental score at the end of the experiment than at the beginning. The pretests were given in the fall and the post-test six and one-half months later.

One of the tests used, known as the Problem Situations Test, presented to the subjects behavior situations with which they were required to deal. There were six possible responses, three immediately punitive and three non-punitive.

**WILEY  BOOKS**  
**FOUNDATIONS**  
**OF**  
**EDUCATION**

*Edited by* **GEORGE KNELLER**, *Professor of Education, UCLA. 15 Contributors.*

This is unabashedly a book for the serious student of education. Yet it is so much more—by virtue of its content, quality of authorship, and underlying theme—that any person with an abiding interest in education could, and should, read it.

The book pictures education as a vital facet of our culture, including all elements contributing to the history, thought, and behavior of man as he reaches toward the truth. That is the theme: these are a few of the problems covered:

- The nature of educational knowledge: values, ideas, and ideals
- The impact of social, religious, economic, political, legal, and general cultural forces on education
- The influence of science and technology on education
- The nature and functions of extra-school educational agencies
- The relation of the various levels and specialties of education to the educational enterprise as a whole
- The profession of teaching and the professional responsibilities of teachers

The book is divided into four sections: theoretical foundations; social foundations; foundations for a science of education; the concerns of education.

1963 650 pages \$6.95

*send now for your on-approval copy*

**JOHN WILEY & SONS, Inc.**

605 Third Avenue New York 16, N. Y.

*(Note change of address)*

Only limited information about the development of the behavior in the situation was given. The score was the number of situations in which the subject chose a punitive response. The total experimental groups showed a significant reduction in their willingness to be immediately punitive while the total control group showed a tendency toward a higher score at the close of the experiment. The difference between the experimental and control groups was highly significant but that is not the point of emphasis here. The point of emphasis is the trend in the control group itself, that is, the difference between the pre- and post-test scores of the control group. This trend, while not significantly different from zero, leans in the direction of higher arbitrary judgmental scores on the post-test.

A similar result was noted when changes in daily behavior scores ob-

tained by trained observers were investigated (5). The observers used a specially prepared observation form. They were not members of the teaching team and the data were obtained without the child's knowledge of the purpose of the observations. There were four experimental-control group "pairs" with 106 subjects in the experimental groups and 100 in the control groups at the fourth grade level. There were also four experimental-control fifth grade groups totaling 99 in the experimental groups and 113 in the control groups. Again the differences between the experimental and control groups were significant. The important point to note is that the trend in the control groups in three of the four fourth grade groups and in all four of the fifth grade groups was in the direction of higher arbitrary judgmental scores at the end of the experiment than at the beginning.

## Teach PHONICS SUCCESSFULLY, QUICKLY, EASILY . . .

As taught to children in kindergarten, primary and remedial classes in all . . .

- 50 STATES and D. C.
- 19 FOREIGN COUNTRIES
- 12,000 SCHOOLS
- 40,000 CLASSROOMS

# The PhonoVisual Method

Success is immediate and striking in Phonetic Instruction for pupils learning to read and spell the simple, effective Phono-visual Method. Based on the use of two scientifically planned pictorial charts and organized game-like procedures, the Phono-visual Method works easily and rapidly.

"We stress the Phono-visual Method of instruction in all grades from 1 through 6. We have under consideration extending the program into the junior high schools. This testifies to our implicit confidence in the materials."

*Dr. Carl F. Hansen, Superintendent of Schools,  
Washington, D. C.*

*Blackboard writing first—in large, clear letters.  
"What sound does this word begin with?"*



**THE PHONOVISUAL TEACHER GETS RESULTS  
... SAVES TIME, EFFORT and CHILDREN**

*We will furnish information about "Phono-visual in Action" (16mm. demonstration film in color with sound track).*

Write Dept. EL-2

**Phono-visual Products, Inc.**

4805 Wisconsin Ave.  
Washington 16, D. C.

Such trends increase the importance of the study of planned experiences. It appears that significant changes can be made in the growth of concepts of physical and social causality. But it also appears that merely setting up a school with its planned experiences is not sufficient. The experiences that are planned must be carefully tested.

Furthermore, there is need to develop a theory of how guided experiences work. What happens in the central mental processes when verbal, auditory, and other types of experiences are applied according to some plan? Why are some sequences more effective than others? What theories can be developed to conceptualize these phenomena and what are the agreements and disagreements among the theories? Those areas of agreement based on tested knowledge can be used to develop criteria for constructing guided experiences. The disagreements can be used to generate hypotheses which are to be tested experimentally.

The evidence already available indicates that extensive changes can be made in the course of human development through the use of planned experiences. The kinds of experiences which can be devised are limited only by the imagination of man. This resource is only now beginning to be tapped under the stimulation provided by the current interest in programmed learning.

But it is not sufficient to design a program and put it into operation. The design must be examined in the light of what is known about the way in which guided experiences operate and must also be tested with careful controls. The field is wide open for the development of theoretical frameworks which lead to hypotheses and to experimental tests of these hypotheses. Such basic work can

**FOLLETT**  
**PUBLISHING**  
**COMPANY**



**NEW**  
**SOCIAL STUDIES PROGRAM**

Send today for the special  
20 page report detailing how  
you can give your school a more  
productive social studies program

**FOLLETT PUBLISHING COMPANY**  
Dept. DM • 1010 W. Washington Blvd., Chicago 7

be most rewarding for, as we have seen, there is already evidence that planned experiences can produce significant changes in the course of human development.

#### References

1. J. A. Easley, Jr. "Is the Teaching of Scientific Method a Significant Educational Objective?" *Philosophy and Education*. I. Scheffler, editor. Boston: Allyn & Bacon, 1958. p. 154-79.
2. Philip Morrison. "Experimenters in the Schoolroom." *Science*, Vol. 138; No. 3547; 1962. p. 1307-10.
3. Ralph H. Ojemann, E. E. Levitt, W. H. Lyle, Jr., and M. F. Whiteside. "The Effects of a 'Causal' Teacher Training Program and Certain Curriculum Changes on Grade School Children." *Journal of Experimental Education*, Vol. 24; No. 2; 1955. p. 96-114.
4. Ralph H. Ojemann. "The Human Relations Program at the State University of

Iowa." *Personnel and Guidance Journal*, November 1958. p. 199-206.

5. Ralph H. Ojemann and Bill C. Snider. "The Effect of a Teaching Program in Behavioral Science on Changes in Causal Behavior Scores." (In press.)

6. Jean Piaget. *The Child's Conception of Physical Causality*. New York: The Humanities Press, Inc., 1961. Chapter VI. p. 135-63.

7. J. Smedslund. "Transitivity of Preference Patterns as Shown by Preschool Children." *Scandinavian Journal of Psychology*, Vol. 1; 1960. p. 49-54.

8. F. S. Stiles. "Developing an Understanding of Human Behavior at the Elementary School Level." *Journal of Educational Research*, Vol. 43; No. 7; 1950. p. 516-24.

9. J. R. Suchman. "Inquiry Training in the Elementary School." *Science Teacher* 27: 42-47; 1960.

—RALPH H. OJEMANN, *Director, Preventive Psychiatry Research Program, State University of Iowa, Iowa City.*

---

#### Knowledge and Competence

(Continued from page 452)

in the organization. He should be able to see clearly his role in relation to those of other persons and to understand that the role he is expected to perform changes as the roles of others change. Leaders should develop insight into the *informal*, as well as the *formal* structure of the organization. Both kinds of organization influence communication and decision making in the institutions.

*Knowledge of educational research and research methodology.* It is implied in the other areas of knowledge and competence that the instructional leader should be well informed about research in education and related fields and its application to the problems and needs of his job situation.

However, expression of more than "knowledge about" research is required from the competent leader. He must in-

creasingly demonstrate that he values research as a means of improving instruction, that he is able to identify areas in which research is needed, that he can and does use research in studying problems confronting the school and community, and that he is able to help others use research techniques. Inasmuch as classroom teachers are increasingly seeking research techniques for studying and improving their teaching, it becomes more and more important that leaders in the school increase competence in this area.

*Leaders develop areas of competence unevenly.* The five areas of competence described are deemed significant because many of the causes of problems confronting instructional leaders are imbedded in them.

The areas are not considered to be exclusive; in fact, overlapping and interrelatedness characterize the group. The achievement of growth and development in one area will enhance development in other areas. The same levels of maturity in all areas, by all leaders, would not be expected, either. Both situational factors and personal factors will regulate the extent of growth in each. Certain areas of growth gain importance in specific situations; therefore, individuals will develop competencies unevenly, depending upon their abilities and the demands of the situation.

One factor governing the level of competence needed in a given area, for example, will be the level of competence of *other* people in the situation. While the degree of breadth and depth of knowledge and competence in each area will be differentiated for each person, by job, situation and personality, a minimum command of all fields is essential and is directly related to job effectiveness.

Copyright © 1963 by the Association for Supervision and Curriculum Development. All rights reserved.