**ABSTRACT**

This bibliography was developed for the use of researchers and practitioners in the area of individual differences, learning and instruction. It is not exhaustive, given the enormous amount of writing on the topic, but hopefully it contains a useful selection of the work in this area. (Author)
Working Paper No. 92

INDIVIDUAL DIFFERENCES, LEARNING AND INSTRUCTION:
A SELECTED BIBLIOGRAPHY

Edition One

by Frank H. Farley

Report from the Project on Motivation and Individual Differences in Learning and Retention

Frank H. Farley, Principal Investigator

Wisconsin Research and Development Center for Cognitive Learning
The University of Wisconsin
Madison, Wisconsin

April 1972
STATEMENT OF FOCUS

The Wisconsin Research and Development Center for Cognitive Learning focuses on contributing to a better understanding of cognitive learning by children and youth and to the improvement of related educational practices. The strategy for research and development is comprehensive. It includes basic research to generate new knowledge about the conditions and processes of learning and about the processes of instruction, and the subsequent development of research-based instructional materials, many of which are designed for use by teachers and others for use by students. These materials are tested and refined in school settings. Throughout these operations behavioral scientists, curriculum experts, academic scholars, and school people interact, insuring that the results of Center activities are based soundly on knowledge of subject matter and cognitive learning and that they are applied to the improvement of educational practice.

This Working Paper is from the Motivation and Individual Differences in Learning and Retention Project in Program 1, Conditions and Processes of Learning. General objectives of the Program are to generate knowledge about concept learning and cognitive skills, to synthesize existing knowledge and develop general taxonomies, models, or theories of cognitive learning, and to utilize the knowledge in the development of curriculum materials and procedures. Contributing to these Program objectives, this project has these objectives: to determine the developmental role of individual differences and motivation-attention in the learning and memory process and to ascertain at what age certain individual differences become important in learning and memory and at what age certain motivation-retention relationships emerge; to develop a theory of individual differences and motivation in learning and memory; and to develop practical means, based on the knowledge generated by the research, as well as synthesized from other sources, to maximize the retention of verbal material.
## CONTENTS

<table>
<thead>
<tr>
<th>Section</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>Abstract</td>
<td>vii</td>
</tr>
<tr>
<td>I. General References</td>
<td>1</td>
</tr>
<tr>
<td>II. Methodological References</td>
<td>7</td>
</tr>
<tr>
<td>III. Aptitude × Treatment Interaction (ATI) Research, Theory and Methodology</td>
<td>13</td>
</tr>
<tr>
<td>IV. Individual Differences and Learning (non-ATI Research)</td>
<td>33</td>
</tr>
<tr>
<td>V. Programs and Packages for Individualized Education</td>
<td>45</td>
</tr>
<tr>
<td>VI. Miscellaneous</td>
<td>53</td>
</tr>
</tbody>
</table>
ABSTRACT

This bibliography was developed for the use of researchers and practitioners in the area of individual differences, learning and instruction. It is not exhaustive, given the enormous amount of writing on this topic, but it hopefully contains a useful selection of the work in this area. The major categories by which the bibliography is organized are not mutually exclusive, and some overlap occurs. Accordingly, criticisms of the category assignment of many items could be made and are invited. Intensive experimental and developmental research into individual differences in relation to learning and instruction is in its infancy; many of our current categories are at this stage primarily heuristic.

Research papers, technical reports, theses and so on that may not be included in the current version are in some cases referenced in books or extensive reports that are cited in the relevant section.

Readers who know of work that should be included in this bibliography are appreciatively invited to submit recommendations for inclusion in the next edition.
I

GENERAL REFERENCES


Gagné, R. M. (Ed.) Learning and individual differences. Columbus, Ohio: C. E. Merrill, 1967


II

METHODOLOGICAL REFERENCES


Cronbach, L. J., & Furby, L. How we should measure "change" or should we? Psychological Bulletin, 1970, 74, 68-80.


Jones, M. B. Molar correlational analysis. *Monograph No. 4*, U.S. Naval School of Aviation Medicine, 1-93.


Madansky, A. The fitting of straight lines when both variables are subject to error. *Journal of the American Statistical Association*, 1959, 54, 173-205.


III

APTITUDE x TREATMENT INTERACTION
(ADI) RESEARCH, THEORY AND METHODOLOGY


Ashbaugh, W. H. Effect on achievement of written responses to programmed learning material for students of differing academic ability. Psychological Reports, 1964, 14, 780-782.


Budoff, M., & Quinlan, D. Reading progress as related to efficiency of visual and aural learning in the primary grades. Journal of Educational Psychology, 1964, 55, 247-252.


Carroll, J. B.  Instructional methods and individual differences: Discussion of Dr. Cronbach's paper. In R. M. Gagné (Ed.), *Learning and individual differences*. Columbus, Ohio: C. E. Merrill, 1967, 40-44.

Carroll, J. B., & Leonard, G.  The effectiveness of programmed "Grafdrils" in teaching the Arabic writing system. Laboratory for Research in Instruction, Graduate School of Education, Harvard University, Cambridge, 1963.


Feldman, M. E. Learning by programmed and test format at three levels of difficulty. Journal of Educational Psychology, 1965, 56, 133-139.


Gagné, R. M. (Ed.) Learning and individual differences. Columbus, Ohio: C. E. Merrill, 1967.


Goldberg, L. R. Student personality characteristics and optional college learning conditions. ORI Research Monograph 9 (1). Oregon Research Institute, University of Oregon, Eugene, Oregon, 1969.


Hartley, J. Linear and skip-branching programmes: A comparison study. 
*British Journal of Educational Psychology, 1965, 35,* 320-328.


Herman, W. L., Jr., Potterfield, J. E., Dayton, C. M., & Amershek, K. G. The relationship of teacher-centered activities and pupil-centered activities to pupil achievement and interest in 18 fifth-grade social studies classes. 

Holland, J. C. The misplaced adaptation to individual differences. Learning Research and Development Center, University of Pittsburgh, Pittsburgh, Penn., 1969.

Hopkins, K. D., Oldridge, O. A., & Williamson, M. L. An empirical comparison of pupil achievement and other variables in graded and ungraded classes. 


Iwahara, S., & Tanabe, N. Anxiety level and the effect of verbal reinforcement combinations on a verbal-coding task. 


Jacobs, J. N., & Bollenbacher, J. K. An experimental study in teaching high school biology by television in the Cincinnati Public Schools. 
*Science Education, 1959, 43,* 399-405.

Jacobs, J. N., Bollenbacher, J. K., & Keiffer, M. Teaching seventh-grade mathematics by television to homogeneously grouped below average students. 

Jensen, A. R. Social class, race, and genetics: Implications for education. 

Jensen, A. R. How much can we boost IQ and scholastic achievement? 

Johnson, P. O., & Fay, L. The Neyman-Johnson technique, its theory and applications. 

Johnson, P. O., & Neyman, J. Tests of certain linear hypotheses and their applications to some educational problems. 
*Statistical Research Memoirs, 1936, 1,* 57-63.


Lemke, E. A., Randle, K., & Robertshaw, C. S. Effects of degree of initial acquisition, group size, and general mental ability on concept learning and transfer. *Journal of Educational Psychology, 1969, 60*, 75-78.


Madansky, A. The fitting of straight lines when both variables are subject to error. *Journal of the American Statistical Association*, 1959, 54, 173-205.


Reynolds, P. D. Certain effects of the expectation to transmit on concept attainment. *Journal of Educational Psychology*, 1968, *59*, 139-146.


Ripple, R. E., Millman, J., & Glock, M. D. Learner characteristics and instructional mode: A search for disordinal interactions. *Journal of Educational Psychology*, 1969, *60*, 113-120.


Salomon, G. Cue-attendance and hypothesis generation as two procedures of training for the generation of subjective response uncertainty. Unpublished Preliminary Draft, Indiana University, Undated.


Sassenrath, J. M., & Garverick, C. M. Effects of differential feedback from examinations on retention and transfer. *Journal of Educational Psychology*, 1965, 56, 259-263.


Thompson, G. G., & Hunnicutt, C. W. The effect of repeated praise or blame on the work achievement of "introverts" and "extroverts." Journal of Educational Psychology, 1944, 35, 257-266.


Traub, R. E. Importance of problem heterogeneity to programmed instruction. *Journal of Educational Psychology*, 1966, 57, 54-60.


Tuckman, B. W. A study of the effectiveness of directive vs. non-directive vocational teachers as a function of student characteristics and course format. Final Report, USOE Grant No. OEG-1-7-062300-0345, September, 1968.

Van De Riet, Hani. Effects of praise and reproof on paired-associate learning in educationally retarded children. *Journal of Educational Psychology*, 1964, 55, 139-143.


Williams, J. P. Effectiveness of constructed-response and multiple-choice programming modes as a function of test mode. *Journal of Educational Psychology*, 1965, 56, 111-117.


Campbell, D. C. Teacher-pupil personal value discrepancy as a prediction of course achievement. Mimeo. Harvard University, 1967.


Dunham, J. L., Guilford, J. P., & Hoepfner, R. Abilities pertaining to classes and the learning of concepts. Report No. 39, Psychological Laboratory, University of Southern California, 1966. (See also Psychological Review, 1968, 75, 206-221.)


Hoepfner, R., & Guilford, J. P.  Figural, symbolic, and semantic factors of creative potential in ninth-grade students. Report No. 35, Psychological Laboratory, University of Southern California, 1965.


Lemke, E. A., Randle, K., & Robertshaw, C. S. Effects of degree of initial acquisition, group size, and general mental ability on concept learning and transfer. *Journal of Educational Psychology*, 1969, *60*, 75-78.


Woodrow, H. The effect of practice on groups of different initial ability. *Journal of Educational Psychology*, 1938, 29, 268-278.


DeCecco, J. P. Class size and coordinated instruction. British Journal
of Educational Psychology, 1964, 34, 65-74.

Della-Piana, G. An experimental evaluation of programmed learning.

Dreyer, R. E., & Beatty, W. H. Instructional television research. Project
No. 1: An experimental study of college instruction using broadcast

Eash, M. J., & Bennet, C. M. The effects of class size on achievement

Eglash, A. A group discussion method of teaching psychology. Journal
of Educational Psychology, 1954, 45, 257-267.

Faw, V. A psychotherapeutic method of teaching psychology. American

Gaa, J. P. Goal-setting behavior, achievement in reading, and attitude
toward reading associated with individual goal-setting conferences.
Technical Report No. 142, Wisconsin Research and Development Center for
Cognitive Learning, University of Wisconsin, Madison, 1970.

Gerberich, J. R., & Warner, K. O. Relative instructional efficiencies
of the lecture and discussion methods in a university course in American

Ghatala, E. S., Sorenson, J. S., & Frayer, D. A. Individual conferences in
and Development Center for Cognitive Learning, University of Wisconsin,
Madison, 1969.

Glaser, R. Adapting the elementary school curriculum to individual per-

Grinder, R. E. Flexibility and sequence: Educational psychology and the

Guettow, H., Kelly, E., & McKeachie, W. J. An experimental comparison of
recitation, discussion, and tutorial methods in college teaching.
Journal of Educational Psychology, 1954, 45, 193-207.

Haigh, G. V., & Schmidt, W. The learning of subject matter in teacher-
centered and group-centered classes. Journal of Educational Psychology,
1956, 47, 295-301.

Hopkins, K. D., Oldridge, O. A., & Williamson, M. An empirical comparison
of pupil achievement and other variables in graded and ungraded classes.

Howes, V. M. Individualizing instruction in reading and social studies:


Kennedy, B. J. Motivational effects of individual conferences and goal setting on performance and attitudes in arithmetic. Technical Report No. 61, Wisconsin Research and Development Center for Cognitive Learning, University of Wisconsin, Madison, 1968.


Spence, R. B. Lecture and class discussion in teaching educational psychology. Journal of Educational Psychology, 1928, 19, 454-463.


Stolurow, L. M. Model the master teacher or master the teaching model. In J. D. Krumboltz (Ed.), Learning and the educational process. Chicago: Rand-McNally, 1965.


VI
MISCELLANEOUS


Campbell, D. C. Teacher-pupil personal value discrepancy as a prediction of course achievement. Mimeo, Harvard University, 1967.


Guilford, J. P., & Hoepfner, R. *Structure of intellect factors and their tests*. Reports from the Psychological Laboratory of the University of Southern California, No. 36, 1966.


National Evaluation Committee

Helen Bain
Immediate Past President
National Education Association
Lyle E. Bourne, Jr.
Institute for the Study of Intellectual Behavior
University of Colorado
Jeanne S. Chall
Graduate School of Education
Harvard University
Francis S. Chase
Department of Education
University of Chicago
George E. Dickson
College of Education
University of Toledo
Hugh J. Scott
Superintendent of Public Schools
District of Columbia
H. Craig Sipe
Department of Instruction
State University of New York
G. Wesley Sowards
Dean of Education
Florida International University
Benton J. Underwood
Department of Psychology
Northwestern University
Robert J. Wiener
Mathematics Department
New Mexico State University

Executive Committee

William R. Bush
Director of Program Planning and Management
and Deputy Director, R & D Center
Herbert J. Klausmeier, Committee Chairman
Director, R & D Center
Wayne Otto
Principal Investigator
R & D Center
Robert G. Petzold
Professor of Music
University of Wisconsin
Richard A. Rossmiller
Professor of Educational Administration
University of Wisconsin
James E. Walter
Coordinator of Program Planning
R & D Center
Russell S. Way, ex officio
Program Administrator, Title III ESEA
Wisconsin Department of Public Instruction

Faculty of Principal Investigators

Vernon L. Allen
Professor of Psychology
Frank H. Farley
Associate Professor
Educational Psychology
Marvin J. Fruth
Associate Professor
Educational Administration
John G. Harvey
Associate Professor
Mathematics
Frank H. Hooper
Associate Professor
Child Development
Herbert J. Klausmeier
Center Director
V. A. C. Henmon Professor
Educational Psychology
Stephen J. Knezewich
Professor
Educational Administration
Joc R. Levin
Associate Professor
Educational Psychology

L. Joseph Lins
Professor
Institutional Studies
Wayne Otto
Professor
Curriculum and Instruction
Thomas A. Romberg
Associate Professor
Curriculum and Instruction
Peter A. Schreiber
Assistant Professor
English
Richard L. Venezy
Associate Professor
Computer Science
Alan M. Voelker
Assistant Professor
Curriculum and Instruction
Larry M. Wilder
Assistant Professor
Communication Arts