EDUCATIONAL PSYCHOLOGY[1]

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Educational psychology is presently changing its character and its outlook on life The upheaval, resulting from many trends, is precipitated somewhat by criticisms voiced by the Policy and Planning Board of the American Psychological Association (1) National meetings, committees, and individual efforts are attempting to define the tasks of educational psychology and to revitalize research and theory in this field (2, 3, 4)

Having broken the bonds which confined it to Thorndikean studies of drill and individual differences, educational psychology has become increasingly concerned with the total socialization of the normal individual Traditionally, educational psychology was oriented toward increasing the "efficiency" of formal education But since learning takes place everywhere, all the social influences impinging on the child are educational forces In view of this, the task of guiding development is seen to be exceedingly complex, and "efficiency" becomes almost indefinable One committee (4) sees educational psychology as a "meeting place of all the studies concerned with the individual" The original concern with learning has been modified to place greater emphasis on meaningful problems, and the content of the field has been further swollen by the flood of findings in child study, mental hygiene, and, most recently, social psychology Contributions from sociology and anthropology are also being woven into educational theory

One price of this broader outlook has been an increasing overlap of educational psychology texts and courses with those in other fields The books have grown huge, and the research extends over so wide and disconnected an expanse that no educational psychologist can be fully competent over the entire area The Planning Board (1) notes that the field has declined in prestige This decline may be the aftermath of the once-held expectation that the problems of education would yield to simple studies and theories That hope having proved illusory, the claims for current work seem pallid by comparison The present studies are limited. and integrative thinking is distinctly lacking The solution of the crucial educational problems is beyond our immediate grasp, and there will be a frustrating delay before sounder theory matures, in the long run, the present plateau may prove to be a highly constructive period

The first four sections of this review deal with studies seeking to clarify the nature and underlying dimensions of the learning process The remaining portions consider work on specific practical problems

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Readiness

Readiness, a concept embracing aptitude, maturation, motivation, and experiential background, now holds a central place in educational theory Two writers see readiness as determined largely by growth rather than experience Courtis (5) reasons from growth curves and limited experiments that "growth, not teaching, is the primary factor which determines when and how much a child learns." Teachers are urged to remove pressures for progress and to permit children to grow at their own rates, this view is applied specifically to reading and spelling Olson (6) takes a similar position. Over a decade, he measured children repeatedly on reading, dentition, intelligence, carpal ossification, etc When reading age, dental age, and so on are plotted, a unique pattern of growth for each individual, common to both physical and behavioral variables, is said to appear Remedial instruction, as in reading, is said to be wasted unless the child's "organismic age" exceeds his level in the subject in question Because this challenges the usually accepted position, the conclusions can only be judged when full technical reports on the evidence are published

Havighurst (7) points to developmental tasks as cultural determiners of readiness In any society, certain learnings are expected of all members at a given age The cultural pressures to acquire these skills and habits are a motivating force, and the tensions that follow failure in a developmental learning interfere with subsequent performance Havighurst lists tasks for age levels from infancy to old age and suggests that the educational program be planned to help learners accomplish the tasks for which they are ready He comments

> There is no developmental task of children or adolescents which the school can completely ignore, for the reason that the tasks are so closely interrelated that difficulty in one task, which may show in the school, is often tied up with difficulty in another task for which the school has little responsibility For instance, failure in academic work may be due to failure in some other developmental task

Social background as a factor in readiness is considered by Davis and associates (8) They compared the performance of middle-class and lower-class children on intelligence test items Lowers were less successful particularly on verbal items and certain informational items Davis does not consider this evidence that the lowers are less ready to learn, he considers the tests unfair, in that they stress middle-class experiences and values Tyler (9) draws from this and other studies the strong inference that lower-class children have untapped resources He argues that the "biased" intelligence tests are effective predictors only because the schools also have a middle-class bias The schools, he says, overstress verbal abilities, employ motivations that impress only the middle-class child, and base instruction on concepts meaningful only from the white-collar frame of reference There is no evidence at present to demonstrate

that the schools can be changed to have more influence on lower-class children, but the challenge by Davis and Tyler should stimulate important experiments

Whereas educational theory once stressed the necessity of waiting for nature to produce maturation before introducing topics, the above reports stress the role of experience in developing needs and understandings Harlow (10) provides an experimental demonstration that readiness is learned Children who learn one discrimination problem also learn much that shortens the learning time (facilitates "insight") on succeeding problems The gain is presumably in learning sets, awareness of what cues to attend to, and other generalized habits Davis' argument may be analyzed in these terms, essentially, he believes that lower-class children acquire different learning sets than middle-class children

Moser (11) indicates that readiness may be present at an earlier age than is usually recognized Teaching of fractions has been placed in later grades because of the belief that higher mental age is required for this topic Moser taught fractions successfully to second-graders, by explaining the concepts in terms of experiences they had had Not only did they learn to manipulate fractions correctly, but they continued to gain in skill even after the training had terminated, according to results of a retention test A group of the same age, taught by a drill method, was unsuccessful Brownell & Moser (12) also provide evidence that readiness in arithmetic depends on previous training Readiness is evidently an interrelation between biological development, experience, and method of instruction

Social Class and Social Experience

Studies of the development of interests, character, and social skills are being extended to determine the influence of the child's social class on this learning MacDonald, McGuire & Havighurst (13) obtained a diary report from preadolescents in a Chicago community Activities outside the school hours showed marked differences between the social classes. The highest status group was more often found in scouting, family activities, and "cultural" activities such as homework, music lessons, and reading. The neighborhood club and evening play outside were conspicuously lower-class activities, and more of these children attended movies than was true of the highest status group The lowest status group rarely participated in Boy Scouts or took music lessons While most children participate in activities which teach the values of their social class, a minority in each class are learning, through leisure-time activities, attitudes which may help them to be mobile upwards

Stendler (14) studied children's concepts and attitudes about social class Children in grades 1, 4, 6, and 8 of a New England community were class-typed, tested, and interviewed in several ways. A striking difference was found between sociometric choices for in-school and out-of-school

situations Within school, 35 to 41 per cent of first graders chose friends from their own class, but out-of-school the percentage was from 76 to 89 Similar differences were found for higher grades The inference is drawn that the school has an important opportunity to promote friendly relations among children of different classes, a type of learning which is less likely in out-of-school contacts A second technique was to present pictures of homes, men working, etc , and to request the children to tell whether they thought the picture related to wealth and high status or to poverty and low status Thirdly, the children were asked to classify themselves and some of their schoolmates as to social status Finally, a guess-who test was administered Stendler concludes that awareness of social-class symbols develops gradually over a period of years and that in the early stages social status is not perceived separately from other desirable aspects of personality Such "good" words as rich and nice go together At the highest level of development, there is awareness that personality is an attribute of the individual, rather than a stereotyped attribute of class members To some extent, however, stereotyped thinking was encouraged by the form of question Stendler employed

Havighurst & Taba (15), with collaborators, studied the character of all 16-year-olds in Prairie City In 27 chapters, they describe procedures, problems, findings, and inferences regarding the forging of adolescent character The data came from extensive observation and testing of the pupils and the community. Integrated case studies demonstrated that character cannot be attributed to any single force Correlation of reputation on moral traits with self-reported adjustment was 0 16; with social status, 0 32, IQ, 0 49, and achievement, 0 74 In this group, reputation appeared to be closely associated with the sort of conformity that is shown in good school achievement Several personality types were identified, the same character may have different meanings in different personalities If a person is basically submissive, he may show good conduct in the school, but shift to less desirable attitudes when he falls under another influence. A self-directing person will often accept moral principles and hold them regardless of his environment. Character formation is too complex for any single procedure such as indoctrination, religious education, or improvement of mental hygiene to be relied upon. The authors recommend that the school re-examine its practices, since the present system necessarily frustrates some pupils even if they adopt good conduct, and so pushes them to undesirable behavior. This is further illustrated by Robinson & Brady (16), who describe school activities and classroom situations through which children learn attitudes toward themselves and their peers

Emotional Factors in Learning

Learning theories were once developed independently of work on emotions and personality, but much current work is attempting to link these areas Recent insights in psychotherapy are being applied to classroom

methods In some cases, when a primary objective of teaching is the reorientation of attitude, converting the classroom into a group-therapy session has been found useful Smith & McGrath (17) illustrate this in a class in child study for parents The teacher employed "nondirective" procedures to encourage self-exploration of emotional attitudes, together with the usual development of concepts and principles Favorable results were reported Many writers have suggested that Rogers' methods (78) could be applied to the classroom, but these proposals seem premature The suggestions outlined appear to be caricatures of proper nondirective counseling, even though in preliminary and inadequately controlled studies (18, 19) favorable evidence has been obtained While use of the class hour for self-expression and self-consideration by the student may well be an important technique, a sound procedure will probably be developed only when some investigator applies concepts from therapy and derives a new technique for the classroom, rather than trying to transfer the precise techniques used by the counselor into the school

Bills (20) finds that play therapy, given to retarded readers, produces marked and permanent gains in reading skill Psychodrama has also been tried, and Grambs (21) reports on the theory and procedures underlying its use in instruction Considerable research will be warranted to determine the proper place of therapeutic techniques as a supplement to conventional methods

Disciplinary methods are discussed in terms of therapeutic concepts Mowrer (22), who has been developing a theory of therapy which departs from those of Freud and Rogers (78), stresses the need for discipline in socialization, if the person is to be well adjusted Surrogates for society, particularly the parent and teacher, must impose the values of society on growing children This learning necessarily involves frustrating many of the child's wishes Mowrer's recommendation is based on his experience with neurotics, who have not learned to "be good," he says, and so fear social disapproval If conscience can be effectively instilled, it will promote later emotional adjustment Imposed punishment instills a desire for social approval, so that the later adult will be sensitive to social pressures, but harsh, capricious, and unsympathetic discipline are certain to be unsuccessful Mowrer's theory serves as a warning that excessively permissive methods may have as damaging consequences as excessive restriction There is little clear evidence for Mowrer's theory as yet, and its emphasis on imposition is not in keeping with currently popular doctrines in education The position is open to question if, by indoctrinating people with present social values, we make them less capable of thinking critically about social practices which need changing, and less capable of thinking independently Perhaps the recommended technique makes for "adjusted" conformers Kris (23) considers similar problems from a psychoanalytic standpoint and criticizes excessive indulgence Indulgence reduces tension, but it stresses dependence and identification with the adult. "While indulgence and deprivation may both create unwanted effects,

both meet with some of the child's needs, the question is one of modality and timing "

In this connection, Grace (24) found that children react differently to reward and punishment. Using Peterson's rational learning problem (79), she confirmed the usual finding that praise produces greatest gains, and reproof produces more learning than neutral statements The more suggestive portion of the study divides children into six groups according to their response to each condition Each child had experienced each condition in turn One group, for example, included those who did best with reproof, next best with praise, and least well with neutral comments On Pintner's (80) and Rogers' (81) self-report tests of personality, Grace found suggestive group differences, although the groups were too small to yield significant differences Children most stimulated by criticism were relatively submissive and conforming or were insecure and socially maladjusted Extravert leaders seemed to respond best to praise Although the study should be repeated with more cases, it demonstrates the need for considering what motivation is most suitable for particular individuals, and for determining why children of certain types respond to one control more than another

Baldwin (25) studied the effect of control techniques in the home The undemocratic, controlling home led to conformity with passivity and constriction in the preschool years, the democratic home led more to aggressiveness, fearlessness, and leadership But, in contrast to the position often taken in discussing democracy, Baldwin found that different democratic atmospheres produced different effects The general activity level of the home is highly significant, some democratic homes produce far more spontaneity and independence than others

The child's relationship to authority is a central problem in socialization In addition to the findings and theories reviewed above, the same problem appears in other guise in the studies of Havighurst and Taba (15), Symonds (82), and Frenkel-Brunswik (46) discussed elsewhere in this review The problem is to find a way to produce citizens who are willing to control themselves according to accepted principles, without producing an unstable adaptation based on fear and dependence Despite conflicts on points of doctrine, there is a large core of agreement among clinical and educational psychologists. The methods of the teacher and therapist have much in common The teacher must identify goals and ensure reinforcement of desirable attitudes, and so also must the therapist (even the nondirective one) Differences regarding procedures, use of praise or blame, reliance on group processes, etc , are differences in preferred means, not ends

Learning as a Group Process

Whereas education was once conceived as interaction between pupil and subject matter, or between pupil, teacher, and subject matter, atten-

tion is now also being given to the learning that takes place through the interaction of group members One aspect of interaction is its effect upon social learnings Brady (26) points out that all classroom situations provide opportunities for children to develop skills required in group living She denies that leadership is something one has or does not have and discusses methods by which the schools may develop the potentiality of all children for group membership and group leadership Thelen (27), attempting to apply to education the principles of "group dynamics," takes a similar position He examines the proper organization of classroom groups and states the hypothesis that "the size of the group should be the smallest group in which it is possible to have represented at a functional level all the socialization and achievement skills required for the particular learning activity at hand" He outlines pitfalls in organizing classroom group activity and suggests ways of avoiding them This and other articles by those interested in group dynamics are full of fresh suggestions for school practice, but evidence on the propositions is almost entirely lacking

An approach potentially useful for research in group learning situations is suggested by a group of college instructors (28) These writers develop a continuum to represent the extent to which the instructor in discussion imposes his points of view on the student At one end of the continuum is the expository method, at the other end, the discussion is a group problem-solving activity This scheme of analysis deals with the classroom discussion as an intellectual interchange, with relatively little attention to emotional factors

Research Methods in Educational Psychology

The hope that learning theory would lead in the near future to significant insights into education has dimmed considerably Hilgard (29, pp 357–58) surveyed the area and, after speaking of "the sterility of contemporary learning theories," concluded that while educators should look to learning studies for what help they can get, there are many educational problems which cannot be solved on the basis of present principles

> An adequate research program in the applied psychology of learning would rest in part upon the findings in the experimental studies of learning, but it would consist in much more than the making of suggestions on the basis of general principles There must finally be experimental testing in the school, or on the playground, or in the shop

Anderson (30) and Brownell (31) similarly point out the futility of attempting to base school practice on any contemporary learning theory. The school situation involves interaction of many factors, and so does not follow the simple model of the laboratory experiment Brownell stresses that educational psychology is not an attempt to apply psychological learning theory to education, rather, research must develop educational

principles out of studies of real school problems in their natural complex setting. McConnell (32, pp. 1–8) makes a similar point, criticizing those who once considered studies of nonsense learning a proper basis for recommendations to the school

Research methodology is undergoing severe and disturbing examination The classical two-group method, which is still used in many of the studies summarized below, has serious inadequacies Such studies attempt to hold all factors constant save one, yet any experimental procedure will probably have its maximum effectiveness when all of the procedures in the classroom are simultaneously altered to harmonize with it For example, a professor using the lecture method raises the question as to whether having two texts is more effective than just one. The proposed procedure is to teach parallel sections, carefully controlling the class presentation to say exactly the same things in both groups, but one of the real reasons for considering two texts is that by contrasting their viewpoints the class presentation can lead to deeper understanding The "controlled" experiment deals with an artificial teaching situation More complex designs are needed so that educational theory can recognize the interaction between materials of instruction, form of presentation, frequency and method of evaluation, and individual differences

Solomon (33) finds that the two-group method ignores important sources of differences He introduces a second control group, the third group allowing for the possibility that experience in the pretest alone may account for gains observed In a small study, 10 children were taught a list of spelling words and given a pretest and post-test, 10 more children were used as a control group, taking both tests but no training, the third group took the training and posttest, but no pretest The groups taking the pretest in this case were handicapped in learning the spelling, i e., the conventional experimental design underestimated the effectiveness of the training A four-group design is suggested to improve experiments wherein growth or the passage of events may alter the behavior being measured Several studies in the present review illustrate other possible ways to improve design Brownell & Moser (12) found somewhat different results when they replicated their experiment in three different schools. Anderson (32) compares different teaching methods, and by the Neyman-Johnson (87) technique found that whereas one method works best for some children, other methods are significantly superior for others in the same classes Heidgerken (34) demonstrates effective use of the Latin Square design in education.

Bartlett (35) criticizes usual methods for measuring gains in skill learning He urges that outcomes of training be measured, not only in terms of the total achievement or product, but also in terms of key elements in the performance. He supports this view with illustrations from wartime work on aviation in England In any skill, the performer must make discriminations among certain sensory cues Specially designed dis-

crimination tests for the key elements show which of them have been mastered. Key elements in the effector process can be studied only through observation Even when two men have the same over-all achievement score, the perfection of their performance in terms of key elements may be quite different Such differences in process are reflected in differences in retention, ability to perform under adverse conditions, and ability to transfer the skill to new materials A similar recommendation for research is made by Thorndike (36) He urges measurement of method of performance, rather than altitude alone, in studies of ability

Brownell (37) points out that inadequate criteria have distorted the findings of experimental comparisons of teaching methods He echoes Bartlett's concern with the process of performance, rather than amount immediately recalled alone Brownell suggests that in many experiments wherein two methods led to equal amounts of skill at the end of training, one may have presented the learning in such a way that it transferred more readily, resulting in savings of time in learning to respond to new situations A third index of effectiveness which Brownell feels should be considered is the amount of the initial learning that is retained over a long interval

The foregoing discussions indicate, and several of the current studies prove, that a good deal of previous educational research had led to false or inadequate conclusions The reviewer is particularly impressed with the need to measure a learning experience in terms of its effect on readiness for subsequent learning (transfer value) and the importance of analyzing individual differences in response to treatments Unfortunately, all of the suggestions point toward increasing the complexity of educational studies, and no one of the best present studies avoids all of the pitfalls identified above In view of the limited usefulness of sheerly empirical generalizations, no matter how huge the samples on which they are based, we may look for greater emphasis on intensive studies, perhaps with small samples, which will yield understanding about changes in behavior rather than isolated facts about scores

In this context, attention may be drawn to general discussions of test methodology Buros' newest yearbook (38) includes reviews of instruments of all types, including 22 achievement batteries and numerous tests for particular school subjects, vocational guidance, and intellectual and personality development Many of the reviews incorporate challenging viewpoints regarding evaluation. Mackenzie, for example, comments (83)

> Every possible hindrance to curriculum change should be removed The use of standardized tests should be limited to individual pupils rather than total class groups, and their use should be optional on the part of teachers

Another example is Davis' comment on a particular reading test (84)

> Rate of reading is an almost meaningless concept because an individual's rate of reading depends upon his immediate purpose and the difficulty of what he is

reading In the ——— Tests, the directions for the rate of comprehension tests say, " Read the story below very carefully so that you can answer questions about it " The testee has no idea what kind of questions Some testees will rush through and take a chance with the questions Others will play it safe and digest what comes along Much more definite instructions would have to be provided in order to standardize the pupil's purposes

An essay by Sims (39) stresses current weaknesses in evaluation, particularly the failure to test the meaningfulness of learnings

Investigations of Meaningful Learning

In contrast with the foregoing studies, which are concerned chiefly with general theory and methodology, numerous investigations have dealt directly with practical educational problems These studies are largely independent and isolated comparisons of methods, with little development of theoretical implications, but a set of studies of meaningful learning in the classroom is an exception Laboratory studies and the rise of field theory convinced most educators that meaningful learning was superior to rote learning, but there have been few studies of meaningful methods in the classroom There is even some lingering doubt whether meaning is helpful, as shown in a study by Michael (40) He compared 15 classes which were taught algebra by one of two methods Method A involved work with meaningful problems. Pupils were expected to discover generalizations without help or discussion of the algebraic principles, and then were given an opportunity to practice on further problems In method B, the teacher stated a principle and then provided drill but did not explain why the principle worked Method A yielded better attitudes toward algebra, and Method B yielded better scores on tests requiring application of generalizations Michael believes that his results cast doubt on the advantage of meaningful procedures, but method A is so much a parody of a reasonable meaningful procedure that his results carry no weight

Brownell & Moser (12) studied the process of subtraction, wherein earlier research had seemed to show that the "equal additions" (EA) technique is superior to "decomposition" (D) Most of this research had been done on older subjects, and the teaching had principally involved drill. Among third-graders, just beginning to subtract, some groups were taught each technique, and each technique was taught in some groups meaningfully, and in other groups as a rote process Results were evaluated by various criteria including tests of retention and transfer to new types of problems. Interviews were used to determine how thoroughly pupils understood the methods In general, the D method, taught meaningfully, gave better results than any of the other three approaches. With rote learning, children did not discover explanations for themselves, except for a group of children who previously had been taught arithmetic meaningfully It was difficult to introduce rational teaching to classes

which had formerly learned mechanically The meaningful method was consistently more successful with decomposition, but not with EA where the meanings could not be put over to the children

Anderson (32) taught arithmetic to fourth-graders by meaning and drill methods Many criterion measures were used including a transfer test, and the findings are complex Anderson summarizes results for the tests of understanding as follows drill procedures were superior for those pupils who ranked below the average in intelligence, especially if they also were above average in previous school attainment, the meaning methods were advantageous with pupils above average in general ability, especially if previous arithmetic achievement had been below average In another study, Swenson (32) tested many hypotheses about transfer of training and retroactive inhibition, by teaching second-graders the addition facts under meaningful and drill conditions The method stressing generalizations was much superior, even when some meaning was used in the drill groups Under school conditions, retroactive inhibition was not troublesome, although the drill groups were more susceptible than the generalization groups

The combination of the above impressive and extensive studies leaves little doubt that meaningful methods are of great value But the studies did not prove that meaningful methods are always best, instead, they showed that previous research and theory, seeking a simple generalization, overlooked important complex relations

Other Studies of General Methods

Jones (41) determines whether individualized methods, which have been widely advocated, can be used practically Teachers of several fourth-grade classes worked out individual programs for their pupils When compared with conventional classes, these experimental classes showed consistently greater gains in reading, arithmetic, and spelling, the advantage being marked for children with IQ's below 90 The controls appear to have been loose, and it may be that the experimental teachers sacrificed some outcomes in order to devote more time to the skills tested Even so, the evidence shows that individual work, suited to pupil needs, is practicable in typical schools

Wartime use of training aids drew widespread attention, and led to strong claims for their effectiveness Current research leads away from the uncritical belief that introducing films or apparatus always increases learning Heidgerken (34) compared motion pictures, slidefilms, and motion pictures plus slidefilms in a course in Nursing Arts None of the methods was more effective than teaching without the aids Dudek & Glaser (42) produced one of the many careful studies of military trainers appearing in the aviation psychology program reports A ground trainer for navigators simulated dead-reckoning conditions by means of a student booth equipped with aircraft instruments The experiment was so

designed as to counterbalance differences between the trainer group and a group given similar problems by means of a blackboard. Analysis of variance was applied to measures of subsequent performance on criterion problems in actual flight. No significant advantage was held by the trainer group. Practical suggestions were made for improving the trainer and for utilizing the trainer and the classroom to supplement each other, rather than considering them as alternative methods It is apparent that research must increasingly concentrate on defining the particular objectives and situations for which any technique is helpful, and on developing methods of utilizing learning aids effectively The technical excellence of the Dudek-Glaser study makes it a model for needed studies in civilian education

Methods in Particular Fields

Problems of teaching in particular subjects receive continuing attention, with particular interest in reading, arithmetic, and speech These studies are too varied to be concisely reviewed

Numerous articles have dealt with intercultural or intergroup attitudes The bulk of these publications are arguments for or descriptions of school programs Williams' opinion regarding the inadequacy of research in the field of intergroup education applies to nearly all the publications of the current year (43, p 8, p 78)

> Over most of the field it remains true that the administrator, student, or interested citizen who wishes to gauge the comparative effectiveness of given programs or techniques can find little scientific evidence to guide him The number of relatively trivial studies which give static descriptions of unimportant phenomena concerning restricted and atypical populations is already more than sufficient This is especially true of some types of attitude or opinion studies

Williams points out that certain assumptions have been made implicitly in all current programs and that research to justify these assumptions is absent or incomplete Among the points of view he isolates are those which attempt to remedy only single factors (e g , factual knowledge, economic conditions, or personality structure), overemphasis on either changing of attitudes or modifying tension-provoking social situations, the theory that contact alone promotes friendliness, and the assumption that special activities, such as interracial camps, will transfer into improved attitudes in all activities Williams gives extensive suggestions for research Sociometry as a technique for exploring intergroup attitudes is suggested in a monograph by Jennings (44), who illustrates how sociometric data are used to improve programs in schools. A preliminary study by Rothney & Hansen (45) evaluated a weekly radio broadcast designed to stimulate thinking about intergroup problems. The study illustrates the possibility of intensive field analysis of educational materials

Frenkel-Brunswik (46) compared prejudiced and unprejudiced adolescents According to the clinical evidence, the ethnocentric children tended

to think in terms of their own needs, admired power, were inflexible toward ambiguities, and saw the world as threatening Their attitudes indicated ambivalence—a need to conform, but lack of security in relations with parents and teachers This article suggests that intergroup attitudes are closely related to the mental health and social adjustment of the child The suggestion is made that planned democratic participation in school and in family activities is an important means of effective socialization which might inhibit the spread of intergroup tensions

Interest in foreign-language teaching was revived by wartime programs of intensive training for soldiers The apparent merit of the intensive methods led to civilian applications, and to careful evaluation of the results Agard & Dunkel (47) found that intensive work on speech did not lead to fluent speaking Aural comprehension was learned to some degree but conventional programs produced greater reading proficiency than the newer method A companion volume by Dunkel (48) examines the entire problem of language teaching, reviewing the educational psychology involved and pointing to unsettled issues He suggests methods of designing standardized basic text materials which will conform to known psychological laws

Among the interesting miscellaneous studies is Hahn's report (49) on children's speech The quality of speech in a primary child varies, but is optimal when the speaker is thinking of the audience, the audience asks meaningful questions, and the teacher stays out of the discussion Individual mannerisms such as garrulousness and poise appear even at this level Hahn suggests that unfavorable habits become ingrained because the elementary school has no program to promote good speaking.

Evaluation

Developments in evaluation have been concentrated particularly in the field of English Two major reviews in this area have appeared Travers (50) outlines the total range of objectives in English and points out that measurement of learning in English can rarely be accomplished solely by pencil-and-paper tests He emphasizes the utility of procedures for identifying reading interests, and he reviews little-known work on children's ability to create poetry He points out that ability to state an idea literally is a different writing skill from ability to express it aesthetically The schools have given little attention to developing the latter Studies of oral composition and aural comprehension are also urged Harris (51) considers the evaluation of literary comprehension He recognizes four operations in comprehension translating the writer's symbols into more comprehensible ones, summarizing ideas or characterizations, inferring the tone, mood, and intent of the passage from more or less obscure cues, and relating technique and meaning, particularly in figurative style Harris then develops recognition tests of seven aspects of comprehension, using 14 literary passages A factor analysis of the resulting tests

indicates that, despite the logical differences among the various types of items, one general factor is sufficient to account for virtually all of the test variance Even when materials as different as prose and poetry are read, there appears to be only one major factor Evidently, even careful logical analysis of objectives may lead to a categorization of behaviors which does not correspond to the organization of individual differences, measured empirically Harris (52) also reports a factor analysis of tests of language expression The results, based on tests in two Indian tribes, are too complex to be summarized here, they indicate that a test which means one thing for one group may measure different elements in another group, because the students have come to the English language through different experiences

The validity of the United States Armed Forces Institute (USAFI) English test was investigated by White (53) Unusual procedures included analysis of performance of classes on specific types of items in view of known objectives of the curricula they had followed, and anecdotal studies of individuals Several instruments of use in the humanities are described in the report of the Cooperative Study in General Education (54, 55) An inventory of satisfactions found in reading fiction, and in other devices, was used to appraise students' goals in the humanities and as a core around which a program of general education could be constructed

In a broad evaluation of nursing education, Nahm (56) examined beliefs of students A high proportion of the students of nursing held authoritarian beliefs, although this varied markedly from school to school Among other conclusions, she noted that a fairly high proportion seemed not to have a highly developed sense of social responsibility Moreover, the students showed a general lack of psychological understanding Nahm is adversely critical of the nursing school for its failure to develop more democratic attitudes in its students

Guidance Programs in the School

Although counseling and testing are dealt with in other chapters of this volume, attention here will be devoted to studies having specific relevance to educational planning In the area of aptitudes and prognosis, several investigators reported correlations of the customary size between aptitude tests and school or college marks In several studies, long lists of personality items or questions on study habits were tried, to determine which items discriminate achievers from underachievers None of the resulting scoring keys promises substantial improvement of prediction on fresh samples Of unusual interest is Rausch's report (57) on the importance of variability in prognosis. Freshmen at Indiana University were grouped according to the variability of their part-scores on placement tests and ratings The members of the least variable group were consistently superior in achievement to more variable students who had the same average score

Smith (58) studied the usefulness of spatial tests as school predictors With Otis score held constant, his spatial score correlated 0 36 with marks in drawing, 0 66, with engineering drawing, 0 35, with art; and 0 34, with practical geometry Wing (59) produced a significant new series of tests for musical aptitude He criticizes Seashore's sensory type of test (85) and requires instead that the student judge, for example, the better of two harmonizations of a melody For his seven tests, he found high validity, using the teacher's estimate of musical ability as the criterion Even though the tests require previous musical training of a sort more common in England than America, they seem likely to be useful

Implications for guidance and vocational training will emerge from Flanagan's refined technique of job analysis (60) Developed in wartime studies of aircrews, the "critical requirements" technique assumes that there are crucial characteristics that separate successful from the unsuccessful practitioners Flanagan identifies the requirements for any task by observing workers and by obtaining anecdotal reports on failure or outstanding success in the task These data are codified, and the resulting list of objectively-defined skills and habits is used for making a rating scale for evaluating training, for planning tests of aptitude, and for establishing educational objectives The technique has been applied in one or more of these ways to airline pilots, Air Force officers, and scientists

The value of guidance has been assessed in two studies Lauck (61) compared adult delinquents and nondelinquents Making allowance for inadequate controls and subjective methods, she concludes that vocational dissatisfaction is one concomitant of adult delinquency and that guidance in school reduces delinquency Serious consideration must be given to the findings of Stone (62), who evaluated the University of Minnesota program for vocational orientation Some freshmen took a course in career information, while others took elective courses Those studying occupations acquired more knowledge about jobs than the controls, but both groups developed less favorable attitudes to many vital occupations The trained group adjusted their vocational plans to more suitable levels, but their specific career choices were no better for them Sounder career choices were made only by the group which was given individual counseling as well as the course The group taking the informational course, with laboratory experiences but no counseling, actually shifted to less advisable choices Considering that gains in other directions were probably made by the controls as a result of their other courses, the verdict is quite unfavorable to courses which provide vocational information but no counseling

Mentally Handicapped Children

Skeels & Harms (63) report on the intelligence quotients of children whose parents had low ability and who were placed in foster homes in infancy. The authors conclude that these children, during the early school

years, were somewhat superior to a random sample of the total population. The earlier and more dramatic report by Schmidt (77), who claimed to raise IQ's by remedial education, is placed under suspicion by Kirk (64), who attempted unsuccessfully to verify salient facts in the Schmidt report Hill (65) performed an analysis similar to Schmidt's for another group of children given similar training and found no appreciable general gain in IQ Shotwell (66) found that 42 per cent of institutionalized adolescent girls, with Binet IQ's between 60 and 69, could be rehabilitated and discharged Shotwell recommends psychotherapy at this level Evidently, changes in performance occur in some cases as a concomitant of improved adjustment, but there is little hope of increasing the ability of feeble-minded children generally McIntosh (67) demonstrated that many mentally handicapped children have excellent potentiality for adjustment Following 1,000 pupils who had been enrolled in a special trade school, he found that, as adults, one-fifth of them were as well off financially as the average industrial worker Of those even with adult MA's around 8 years. three-fourths were self-supporting

Teacher Personnel

Barr (68) reviewed work on prediction of teacher efficiency He points to serious limitations of previous research, but declares that in well-designed studies "multiple *R*'s in the 70's and 80's are not uncommon " The research he reviews does not provide an adequate guide for selecting teachers He stresses the need for research on predicting success in particular duties and types of teaching, rather than in teaching-in-general.

Bowers (69) criticizes Barr's earlier studies in this area, but takes a position with which Barr's latest article evidently agrees "There is not one kind of success in teaching, but hundreds. The quest for an overall criterion of teaching success is an utterly futile one " In developing an aptitude test of his own, Bowers used subtests which measure personality, together with previous school marks His test yielded correlations around 0 70 with performance in practice teaching. which he used as a partial criterion

Barker (70) gathered unusually extensive data on teacher adjustment by means of an interview of the psychiatric type The interview summary was rated by judges as to the degree of adjustment in various areas The criterion rating of teaching efficiency had substantial correlations with work adjustment, and negligible correlations with adjustment in such areas as family and sex Unfortunately, the only data reported are correlations corrected for attenuation, and since this process may involve unsound assumptions, the meaning of the findings is unclear. In view of the careful interviewing, however, the study appears to disprove the simple hypothesis that maladjusted persons make poor teachers. Gladstone (71) takes the position that maladjusted teachers need not create maladjusted children, disagreeing with an earlier review by Snyder (86). Gladstone

reasons that the effect of maladjustment depends upon the situation and the mechanism by which the teacher handles her conflicts Evidently, assessment of teachers must be approached with hypotheses more complex than the correlational approach previously used

Other Summaries

Several reviews of topics in educational psychology have appeared Recent issues of the *Review of Educational Research* deal with school plant, guidance and counseling, learning and the curriculum, subject fields, research and appraisal, psychological research in the armed forces, social framework of education, language and the arts, and teacher personnel Chapters within the recent yearbooks of the National Society for the Study of Education review research on delinquency (72), audio-visual learning (73), and reading (74, 75) A book by Super (76) fills a long-felt need by bringing together all of the research on the validity of tests in vocational guidance

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