

From time to time new insights into the nature of man bring increased attention to man's greatness, his potential for newness, his capacity for production, his quest for the unusual and the original, and his intriguing disposition toward an interplay of the serious and the playful. Recently the area of creativity, a term that has been defined in a variety of ways, has received rather widespread interest. Possibly this emphasis results because inquiry into the many dimensions of the creative process now reveals facets of man's being to which inadequate attention has been given.

Among the individuals who have been involved in research on creativity are Jacob W. Getzels and Philip W. Jackson, educational psychologists at the University of Chicago, and E. Paul Torrance, Director of the Bureau of Educational Research at the University of Minnesota. Undoubtedly the research findings of these three scholars are among recent major contributions to the field. Hence, to have accounts of their work readily available is a real boon.

Creativity and Intelligence: Explorations with Gifted Students, by Getzels and Jackson, and Guiding Creative Talent, by Torrance, contain several common elements. The next part of this discussion deals with a few of these parallels, followed by brief summaries of the separate books and suggested uses of the works.

What are the common elements in the books? First, the three authors are concerned about the inadequacy of the present IQ tests in assessing the many dimensions of man's higher mental processes. More specifically, the writers indicate that processes or traits related to creative thinking are not measured by the traditional intelligence tests. These researchers, therefore, sensing the need for the development and refining of tests designed to measure creative thinking, have made important strides in pushing back the boundaries in an area which has highly significant implications.

Second, a large percentage of the research reported by Getzels and Jackson, and that by Torrance, involved school-aged children and youth. Getzels and Jackson report one study in detail; Torrance uses his work and the research studies of others as a basis for recommendations regarding the assessing and guiding of creative ability.

Third, the three authors indicate a wide knowledge about previous research and theory in the area of creativity. They
credit, however, several of the instruments developed and used in their research and many of their theoretical concepts to J. P. Guilford's notion of "divergent thinking" elaborated upon in his "Structure of Intellect." In addition, the authors of both books have incorporated ideas on creativity stemming from groups working on the area in various parts of the country. Built into the books are ideas of researchers at the Institute of Personality Assessment and Research at the University of California, the University of Utah, and the University of Buffalo. The work of Getzels, Jackson, and Torrance can be classified with those individuals concerned with creativity as process involving certain kinds of intellectual functioning. The focus of these researchers is not primarily upon the aesthetic fitness or potential usefulness of creative production.

Fourth, the books supplement each other, in that the detailed study of Getzels and Jackson is often referred to by Torrance as support for some of his theoretical considerations. Furthermore, Torrance reports eight partial replications of the Getzels and Jackson study. These partial replications showed indications of validation of the Getzels-Jackson study.

Fifth, both books have lengthy appendices which contain procedures and instruments for assessing creativity. Torrance's book includes the Minnesota Tests of Creative Thinking, directions for administration and general directions for scoring. Getzels and Jackson describe and give examples of the instruments used in their work. The appendices of both books are extremely valuable in giving an indication of the present status of means of assessing creative ability.

Sixth, all authors are concerned about factors in our society which serve to repress and stifle creative development. Sanctions against divergency, the overemphasis on sex norms, the trend toward developing well-roundedness are among the repressing elements discussed by Torrance. Torrance points out that teachers prefer children high in intellectual achievement to those high in creative ability. Getzels and Jackson discuss certain parental attitudes which may have a bearing upon creativity in children and youth.

Many other instances of overlap of ideas could be cited, but possibly enough has been said to indicate that the books are indeed companion volumes.

In Creativity and Intelligence: Explorations with Gifted Students, Getzels and Jackson report a detailed study conducted in a private school whose population was composed of gifted children and youth. Average IQ of the subjects reported in the study was 132, with a

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standard deviation of 15. All students enrolled in the sixth through the twelfth grades (292 boys; 241 girls) participated in the major testing phase related to the project. The sources of data used in the study were approximately 40 test scores for each student, school records, parent questionnaires and parent interviews. The experimental groups were composed of students (245 boys; 204 girls) for whom relatively complete data were available. No significant differences existed between the sample and the general population.

Based on scores derived from intelligence and creativity tests two experimental groups were formed—"one high in intelligence but not concomitantly high in creativity, the other high in creativity but not concomitantly high in intelligence" (p. 16). These two groups of students were studied in three contexts:

(1) as students, that is, what is their performance in school, how do teachers perceive them, what is their motivation for achievement; (2) as individuals, that is, what are their personal values and attitudes, what is the nature of their fantasy life, what are their ultimate career aspirations; (3) as members of their family group, that is, what is the character of the family and home environments in which these adolescents were born, developed, and are presently interacting (p. 22).

To report accurately the findings of the researchers in the limited space of this article is not possible. Two findings, however, which were striking and highly significant in their implications for educators were these: (a) at the IQ level of the subjects a relatively low relationship between IQ scores and creativity scores existed; and (b) despite the fact that the subjects in the high IQ group had a 23 point higher IQ than the high creative group, both groups did equally well in scholastic performance as measured by standardized tests. Other findings are also provocative—at times startling—and are well worth the reading.

Torrance, in Guiding Creative Talent, shares with the reader his tremendous knowledge of the current status of research and theory in creativity. Much of the research reported was conducted by him and his associates. Hoping that writing in the first person will enable him to communicate his ideas "more clearly, honestly and powerfully" (p. vii), Torrance interweaves his concerns about creativity with research findings and illustrations.

Among the topics he discusses are the traditional concerns for creative talent such as "mental health, fully functioning personalities, educational achievement, vocational success, and social welfare" (p. 15). He reviews some of the work that has been done in assessing creative thinking abilities and describes the development of the Minnesota Tests of Creative Thinking. Attention is then given to a survey of work done in identifying the creative personality and creative development at different age levels. Using stories written by children to amplify his points, Torrance identifies problems which creative individuals may encounter. Because "the originator of a new idea is in the beginning a minority of one" (p. 140), he may experience difficulty if he attempts to maintain his creativity or if he seeks to repress it.

Suggestions are offered to teachers, counselors, administrators and others who wish to guide creative talent. Goals, talents, roles and qualifications which have a bearing in relationships with creative individuals are treated in some detail. In general, Torrance's insights into the qualities and problems of the "divergent" thinker should provide help for...
those wishing to give sympathetic guidance to creative children and youth.

In conclusion, what is the significance of the work of Getzels and Jackson and Torrance for education? Undoubtedly the implications of the research considered in this article are far-reaching. We can but mention a few areas for which the ideas of these men seem especially pertinent.

Testing. The work of Getzels, Jackson and Torrance causes an awareness of certain facets of the mind previously neglected. That “divergent” thinking skills as well as “convergent” skills should be measured in tests of mental ability as well as in other kinds of testing situations has been emphasized. The researchers have shared a wealth of material concerning means of assessing creative ability. Although results are oftentimes difficult to score, and the tests have not yet been standardized, the pioneer work done by these investigators warrants further study if educators are to give planned consideration to developing the many qualities of the mind.

Curriculum development. The highly provocative findings reported by these three researchers must be brought together into carefully conceived conceptual frameworks, rooted in a view of man which takes into account his creative strivings, formulated into theories capable of withstanding the rigorous consideration of the critics, and brought down to the operational level so that theory and practice come together. The books present a challenge to public school and university personnel to combine efforts to develop balanced curriculums encompassing current understandings.

Teacher education. If teachers are to foster creativity, they must have some knowledge about it. These books should be helpful to teachers both at the preservice and in-service levels in informing them of some of the current research and thinking in creativity. In addition, those responsible for the education of teachers have cause to be concerned about Torrance’s report of teachers’ perceptions of the “ideal pupil.” Attention needs to be given to ways of improving teacher effectiveness with pupils of all kinds.

Pioneering efforts, such as those reported by Getzels and Jackson and Torrance, merit further clarification and extension of ideas as well as the scrutiny of criticism. As educators delve more deeply into the phenomenon of creativity, perhaps the term itself will take on increased precision so that persons can communicate more powerfully about its components. Meanwhile, these two books are extremely important reading for all educators interested in developing learning opportunities conducive to optimum growth of all facets of human personality.

—Reviewed by Louise Berman, Assistant Professor of Education, University of Wisconsin-Milwaukee.


Since these two publications in a sense supplement each other, it seems appropriate to discuss them together rather than separately. The first deals with reading specifically from kindergarten through grade 12; the second defines the scope of treatment of the reading proc-
cess, from “preschool prelude,” as Dr. Strang labels it, through adolescence. Both have essentially the same philosophy and point of view with emphasis upon child development and concern for the individual. Both stress the importance of the child’s own self concept as a factor in success or failure in reading at any level. However, each book is directed to a different audience, and in that sense they complement, as well as supplement, each other.

The first is directed to students in reading methods courses, presumably undergraduates, and to teachers in service as well. The second is written to parents of the children and young people who are in the schools today. The Carter-McGinnis volume uses extended descriptions or “life histories” of seven children and young people in terms of their abilities, problems and accomplishments in reading, as a basis for helping teachers to analyze the needs of children presently in school. Dr. Strang illustrates her presentation of the reading levels from “preschool prelude” through primary, intermediate, and adolescent years, by means of descriptions of, or quotations from, children and young people themselves.

There is little essentially new in either volume. Rather it is the nature of the presentation in each case which gives character and quality to the discussion. The authors in both instances define reading as a total process, a process in which meaning is the important element. In the first instance, specific suggestions are made for helping the reader to define the search for meaning as: to identify, interpret, and evaluate.

The writers point out consistently that the development of abilities and skills as such must be thought of as cumulative, not accumulative; as separate yet mutually dependent and operating as a unit in any reading situation. Both call attention to the problems of the slow reader, but the first states that “a too rapid reading rate can be wasteful and even disastrous.” Recognized is the need for many books and appropriate books at all ages and stages. In order to sharpen the highlights for discussion both books make use of questions at the end of each chapter, in the one case to be used as assignments, in the other to provide a springboard for answers from the broad experience of the author.

Especially helpful in both volumes is the discussion of phonics: (a) relation to phonetics; (b) timing, place and function in beginning reading and later; (c) recognition of the current controversy but in general supporting the point of view presented in the recent Conant report.

A full discussion of debatable issues in teaching procedures is not presented in either book. The first describes the McCracken plan for use in beginning reading. Dr. Strang summarizes the Omar Moore experiment with young children at Yale, for which she provides an evaluation.

The Carter-McGinnis treatment of the development of reading abilities, skills, and teaching techniques is down to earth and provides practical suggestions to prospective teachers, and to teachers on the job. The authors constantly raise for themselves the question, “But how do you do it?” Whether the problem is one of providing for each child as an individual, developing challenging and interesting ways of working with words, outlining, notetaking, getting the gist of a chapter, an article or a book; or teaching children and young people to differentiate between fact and opinion, reality and fantasy, the authors of both volumes
have specific suggestions to offer. They propose a wide range of activities in which children can engage in order to clarify meanings, become acquainted with new skills in using reading content for a specific purpose, and enjoy reading for the sense of personal satisfaction it can bring.

Dr. Strang has many suggestions, such as the following, that parents may use to encourage children's reading progress: "In school, some teachers are encouraging children to think aloud as they solve a problem or carry on an activity. At first the teacher may demonstrate the process by vocalizing what she is doing and thinking at each step. Then all the children think aloud in like manner." (But not all at the same time.) "This helps them to talk intelligently, to perceive accurately, and to carry out a process more purposively."

Dr. Strang's "Summary of Reading Achievements in the Primary Grades and How They Are Acquired" provides a helpful point of reference for teachers working with children at this level.

In the chapter on vocabulary building, the authors of Teaching Individuals To Read list, discuss and illustrate six contextual clues; provide an extended list of common prefixes, common roots, and common suffixes; present a set of principles for syllabication with examples; and illustrate the processes involved in phonetic analysis. Similar steps are developed under the headings of reading for meaning, finding and organizing information, effective use of books, and developing thinking skills.

It is reassuring to find that both volumes give attention to the reading of books for pleasure and enjoyment as well as for securing information. In the renewed stress upon the importance of subject matter content in science and mathematics, some teachers may have neglected to use literature both old and new. All those who work with children need to strive for balance between the two major types of reading. Dr. Strang provides in Appendix B several types of lists under the general heading of "Children's Reading Materials."

The two books reviewed here, both published in 1962, have specific contributions to make to the professional materials already in the field. Teaching Individuals To Read may well be used as a handbook by the classroom teacher who needs help in spelling out reading objectives in terms of meaningful experiences for children. To those parents bombarded by books, magazine articles, and newspaper feature stories written largely by persons who have had no teaching experience in grades kindergarten through twelve, Helping Your Child Improve His Reading represents an objective analysis of the big job involved in teaching children to read in the year 1962.

sacrificing the values and functions distinctive to the American way of life.” The book is addressed to a wide audience, prospective teachers, experienced educators, and lay citizens.

The authors write from wide experience in the educational community. They have spoken most effectively to the novice teacher, although trained schoolmen will find much to broaden their view. The lay citizen, if he will read a 513-page book, will gain respect and understanding of the educative process.

The opening chapters amplify the present critical requirements of secondary education within the structure of society and its corporate commitment to public education. While the authors emphasize by chapter status the population explosion, the teacher-to-be would find more constructive a deeper probe of learning and curriculum principles.

In chapters dealing with the growth of public education and the functions of the secondary school, there are redundancies, particularly historical. But the impact is forceful. Much irresponsible criticism, much lay indifference are traceable to ignorance of what society has created in its educational edifice. The teacher is a vital spokesman for the worth of this endeavor—the account fortifies his pride and knowledge.

The authors develop by chapters the functions of secondary education—to strengthen the common heritage, lay the foundations for scholarship, discover and develop talent, and develop values. The analysis relates the historical perspective to current views of what the school should be. It is good that future teachers be grounded in the interrelationships between education and democratic realization. In-service personnel may well ponder these chapters also.

Terms such as talent search and schol-
arship, used frequently, underscore the view that the intellectually endowed are “our best investments in instructional time and skill.” A separate chapter describes procedures for serving the gifted. Perhaps the surprising research on creativity deserves equal time. The authors, of course, discuss the commitment of the secondary school to all youth, the slow, the handicapped, the culturally disadvantaged. And thus it must always be in a democratic society.

Organization and program are surveyed in less depth than other sections. Perhaps the preservice teacher needs these dimensions presented from several vantage points. Certainly the challenge of unit teaching, teacher-pupil planning, and independent study could catch up the beginner in the magnitude of the educative process.

Leadership, by the teacher, administrator, and team, is viewed as an essential component in the changing posture of the secondary school. The vista of growth opportunities is clearly visible. This chapter and the one dealing with school-community relations indicate the cooperative and wide base upon which school developments should take place. The future teacher is shown an identifiable role in creating the school for the future.

To devote an entire chapter to the nonpublic school reveals again the authors’ belief that if school personnel are to steer a wise course, they must understand the services and character of other institutions. This assumption seems evident in the last chapter, “Competition from Abroad.” The point is clearly made that to learn from others is not synonymous with wholesale adoption of an educational structure. These two chapters should be digested by members of all professional and lay groups.

The authors make interesting choices in recommending additional references. Although many stalwarts are present, by and large the listings are recent and deal with alternative approaches. Secondary Education in the United States is an excellent preservice reference. It has a message also for the experienced schoolman.

Principles and Practices of Secondary Education is a fascinating book. Anderson and Gruhn primarily address the preservice education student. The insightful principles and precise statement of issues which highlight each chapter are of equal significance to the experienced educator.

One would expect the authors to deal with the foundations of secondary education. This they do most effectively. History, the ideals of democracy, the cultural setting, and the adolescent are treated in an arresting, nonrepetitive fashion. The paucity of footnotes and the rather informal yet substantial descriptive passages create stimulating reading. Since these qualities are often missing in education texts, it is small wonder that undergraduates sometimes label education courses as dull, the references as redundant.

In examining concepts of the curriculum, the authors identify the primary consideration in evaluating the subject-centered vs. experience-centered polarity to be how subject matter is utilized and which experiences to include. This cutting through to the heart of the issue is standard operating procedure for Anderson and Gruhn.

The authors believe that “the teacher is the one who largely determines the curriculum of the pupils with whom he works.” Thus a variety of practices and programs are described to spark eagerness to try one’s wings. In the telling, the importance of the individual and the
need for a curriculum which promotes the integrating of experiences are stressed. The authors see as expressions of these principles the core curriculum and many team-teaching programs which, incidentally, they view as a possible new framework for core concepts.

Perhaps the greatest strength of American education comes from teachers prepared to open the tight construction of subject-matter lines and infuse learning situations with discovery and creativity. In discussing instructional practices and content, the writers reflect this premise. In later sections the teacher’s role in individual and group guidance is highlighted. In dealing with issues and procedures for teaching the talented, it is held that “... academic talents are not the only special abilities that a democracy prizes. Leadership in human relations, social skills, and political inventiveness are crying needs.” Thus the authors place concern for the national interest and the gifted in a more humane focus.

The problem-solving method is reflected in the organizational format. Principles, common practices, and implementations of principles and/or issues and problems are the main chapter divisions. The fledgling teacher is not presented with static educational philosophy but asked to examine, evaluate and judge. The education of a teacher, as of the student, must involve the reflective processes.

The final section deals with organization and leadership, further revealing to the novice the exciting educational community. The continuity of education is illustrated in a review of those levels surrounding the secondary school. The teacher in high school cannot remain hazy about the total educative effort.

The concluding chapter is a hope for the future—that education will place at the center of its efforts individual learning—that the commitment to research and experimentation will be honored. This provocative book contributes greatly to this hope.

These two volumes make ideal companions for a beginning education course. The latter reveals the vision and spirit of education, the former the informational detail undergirding its organization and structure.

—Reviewed by Jean V. Marani, Curriculum Director, Riverview High School, Sarasota, Florida.


Even four years after its publication, this book, in the opinion of the reviewer, well merits a critical evaluation here. Our only regret lies in the fact that such an estimate was not carried much sooner.

This tiny volume represents the William H. Burton Lecture for 1958, presented by Lawrence K. Frank at the Graduate School of Education, Harvard University.

Dr. Frank opens the volume with a challenge that the school “... be regarded as our chief agent for renewing our culture” (p. 1). He holds that only an agency as flexible and as capable of intellectual discipline as is the school will be able to assist in the superseding of those elements in our culture which are “obsolete, anachronistic—even archaic” with the new concepts and insights which are ours to use—if we will.

The author defines culture as “a design for living ... persistently sought by a people, but never fully attained” (p. 2). Further, “Every culture is a product of creative imagination: what the poets, artists, prophets, and, more recently, sci-
entists, have formulated artistically and conceptually as patterns for perceiving the world and for transforming nature and organic existence into a symbolic world for human living and purposive striving toward the enduring goals which a people cherish" (p. 3).

The author states that the central goal of Western man is that of finding "a social order that is capable of self-correction, self-repair, without resort to force and violence or surrender to authoritarian leadership and coercive controls" (p. 4). "For this process of self-correction and self-repair, scientific imagination and critical thinking are our most dependable resource" (p. 5). Dr. Frank regards the school as the agency of society most capable of leading in "a prolonged struggle to emancipate intelligence" (p. 5).

Dr. Frank calls attention to the fact that a basic reorientation has occurred in scientific thinking in recent years. He states that "contemporary science is man's greatest resource for guiding his culture and reorienting his social order" (p. 10). He denies, however, that scientists are materialistic or mechanistic; rather "science is genuinely humane, focused on man and his capacity to create imaginatively a coherent and credible concept of nature and human nature by the exercise of creative imagination disciplined by science" (p. 11).

How can the school, and especially the elementary school, live up to its responsibility for providing a fundamental re-orientation of the young to the new concepts and insights needed by all our students for living in a world that gives primary recognition to the function of cultural renewal? Dr. Frank rejects the older proposals of a method that amounted to indoctrination. In place of this he proposes that a methodology should be incorporated in elementary school that will induct children more quickly and more directly into "our new scientific concepts and ways of thinking" (p. 16).

He states that "what is here proposed is that the elementary school undertake to communicate the meaning of modern science, the new ways of conceiving events, the unprecedented ways of thinking about the world" (p. 17). The need is to help children at an early age understand how our social order "is being transformed by scientific thinking and its application in technology" (p. 18).

Dr. Frank then makes a strong plea for the need for the school to facilitate "un-learning" or "re-learning." He further defines this process as "maturation by supersEDURE" (p. 21). This process, he holds, is necessitated by the fact that the broad culture in which we and our children live has so many concepts, ideas, beliefs which are widely accepted and yet which in fact are anachronistic and seriously outmoded.

How is the school to accomplish its great task? Dr. Frank places much reliance in new developments in communication theory. He also defines in careful terms new accomplishments in the area of psychology. He refers to the two basic processes in learning—the analogical and the digital. He holds that "the child's initial orientation to the world is apparently analogical. He begins to learn, not bit by bit, by analysis of events, by fractionating wholes into parts and trying to understand the relation of two variables, as in our analytically oriented scientific studies; but rather he grasps wholes, approaches the world in patterns that enable him to relate himself cognitively and transactionally to his environment" (p. 32).

Dr. Frank holds that too early intro-
duction of the child to use of strange symbols (letters, words, figures) may tend to weaken his ability to relate new learnings to his own life experience. He indicates that "the digital processes, in machines and in humans, are governed by the analogical processes which we take for granted and so often overlook" (p. 33).

This volume in a certain sense may be regarded as a sequel or companion to an earlier, and equally significant, book by Charles Percy Snow, *The Two Cultures and the Scientific Revolution*. In the latter publication, a strong case is made for regarding society as consisting of an older (and controlling) culture, closely related to the humanities and of a newer and emerging "scientific" culture. Dr. Frank’s volume suggests a means by which the great benefits and potentialities of the scientific advances can be incorporated in our primary culture. His reliance upon the school in this role, utilizing the best that is now known of logical and psychological methodology, poses a great challenge for all persons connected with instruction.

—Reviewed by Robert R. Leeper, *Editor, Educational Leadership*.

**Literature**

_(Continued from page 233)_

material that has lost its significance."¹ On occasion the literature teacher must, for the very survival of the curriculum, turn to books that do not fall into the categories of safe, wholesome or noncontroversial. The fact is that many students now read "controversial" books and periodicals outside of school—why not discuss such materials openly and objectively in the classroom? Failure to recognize and to act on what we know about our students’ reading habits and social behavior will perpetuate an unreal and sterile curriculum.

Literature must keep alive the sparks of idealism, human decency, hope, belief in a better world, and dedication to the goodness of mankind. . . . Let our students be trained in commas, and mathematical formulas, and chemical analyses, and historical understandings. But above that vocational training, let them be shown that sensible idealism is more needed today than ever. Let them meet in their teachers people who are not afraid to affirm the great humanist values, for I believe that it is upon those values that we will build a strong society.*


* James A. Michener, *op. cit.*, p. 5.