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ABSTRACT

This paper is a working draft of a study which has examined the accumulated research on child growth and development. The draft is designed as an input paper to enable the Marin Social Studies Project to refine its rationale and criteria for a recommended K-12 social studies program of curriculum options. Identification of the capabilities of maturing students is an aid in determining legitimate curricular guidelines. Related documents are SO 006 450-SO 006 454. (SHM)

child development and social studies curriculum design: toward a rationale

MARIN SOCIAL STUDIES PROJECT

CHILD DEVELOPMENT AND SOCIAL STUDIES CURRICULUM DESIGN: TOWARD A RATIONALE

by

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CHILD DEVELOPMENT AND SOCIAL STUDIES CURRICULUM DESIGN: TOWARD A RATIONALE

This paper is a working draft of a study which has examined the accumulated research on child growth and development. The draft is designed as an input paper to enable the Marin Social Studies Project to refine its rationale and criteria for a recommended K-12 social studies program of curricular options. By identifying the capabilities of maturing students we can begin to determine some legitimate curricular guidelines.

Professional literature is full of recommendations that human growth and development research be vigorously applied to curriculum design. In fact, some writers say these factors are essential for any systematic, comprehensive curriculum design. Unfortunately, the findings of this research have not been translated into practical guidelines for designing curricula.

We live in a world which is changing at a seemingly incomprehensible rate. Our ability to keep up with the changes continues to decrease. Bridging the gap between what is known and what is practiced is rapidly becoming an impossible task. It is recognition of the impending survival crisis, about which so much has been written, that has forced a belated re-examination of social studies curricula.

Designers of new curricula are faced with the nearly impossible task of doing today what should have been done twenty years ago.

To provide a solution to this crucial problem, we must set out to organize our curriculum so that it will, as Hilda Taba declared, provide for "an application of all we know about the nature of knowledge, about child growth and development, and about learning." We must view "curriculum planning as a kind of educational engineering" which will allow us "to sort out, to consolidate, and to apply the principles of learning. . . " (1:290)

At first blush, the sad thing about our effectiveness in current education mis-engineering is that:

> a considerable proportion of the students (54.6 percent) are intellectually capable of doing work at a higher level. The majority of students are working at a level at least four grades below that at which they could be working. (1:117, latter italics added)

Viewed differently, however, this is a hopeful statistic. Our resource---the child--has potential far beyond that yet realized. And so we find ourselves at an intersection of unprecedented promise and impending disaster.

This challenge requires new perspectives on teaching. The role played by teachers twenty years ago is simply insufficient to the task which lies ahead. In contrast to yesterday's pedagogues, today's teachers must begin to:

> empathize with the mental processes of young children, to deal without anxiety with the ambiguity necessarily associated with exploration--

search patterns rather than right-wrong paradigms, to deal with variations not in rate of mastery but in cognitive style, and thus to carry a multiple series of evaluative criteria by which to judge when learning or teaching is being productive for different children. (49:120)

Identifying broad guidelines for teachers to understand their students and then help them assimilate and accommodate to the world is an important aspect of child growth and development's contribution to social studies curriculum design. It is the responsibility of teachers to understand and facilitate the development of the cognitive skills of children.

Jean Piaget is one of the foremost researchers of the intellectual development of the child. This study relies heavily, though not exclusively, upon the findings of Piaget, his collaborators and disciples. Some general considerations of his theory are therefore necessary. He has identified a series of developmental processes which each child goes through as he matures. Summarized briefly, one consideration is that:

> each stage of the child's functioning is a necessary result of the previous one (with the exception of the first. . .) and prepares the following one (with the exception of the last. . .). Second, each stage characterizes all his new conduct at that stage (and not by a simple dominant property). Third, the organization of the child's functional structures at each stage integrates the structures that prepared him for the new stage. Finally, the succession of the stages must be universal, although the tempo may differ from individual to individual. (22:8)

The first developmental period normally lasts until the second or third year of a child's life and is dominated by sensory-motor perceptions and constructs.

Between ages two and seven the child functions in the "preoperational" or "representative" stage. At this time "the individual takes his first relatively unorganized and fumbling attempts to come to grips with the new and strange world of symbols." After acquiring that structure he approaches the stage of operational or concrete operations. This usually occurs between ages seven and eleven.

> Here, the child's conceptual organization of the surrounding environment slowly takes on stability and coherence by virtue of the formation of a series of cognitive structures called groupings. In this subperiod particularly the child first begins to 'look' rational and well-organized in his adaptations; he appears to have a fairly stable and orderly conceptual framework which he systematically brings to bear on the world of objects around him. (43:86-87)

The summit of intellectual development has been variously called the conceptual, reflective, or formal thought stage. It begins to form around

> the eleventh year of life. During this period a new and final reorganization takes place. . . In brief, the adolescent can deal effectively not only with the reality before him. . . but also the world of pure possibility, the world of abstract, propositional statements, the world of 'as if.' This kind of cognition. . . is adult thought in the sense that these are the structures within which adults operate when they are at their cognitive best. . . (43:86-87)

It is important to note that with the child's development his earlier structures are subsumed by yet higher levels. (59:2)

Piaget's general theory centers on the conclusion that children make "a gradual transformation of overt actions into mental operations." This has critical implications for education.

> The teacher should assist this internalization and schematization process in the classroom by getting the student to perform the requisite action with progressively less and less direct support from the external givens. (43:368)

It behooves the teacher to provide proper experiences. Therefore, the teacher must know what is most productive and use those techniques which will allow for the maximization of the learning experience. Almy declares that

> Piaget's theory does not propose that a child should never be confronted with a problem that may be beyond his comprehension. But it does argue strongly that to permit him to learn an appropriate answer without making certain that he can retrace his steps, or arrive at the same result in another way, is to encourage the erection of a verbal superstructure that may crumble under even minimal cognitive stress. (16:132)

Thus, a proper learning experience is one in which the upper levels of Bloom result; that is, the child can do more than regurgitate the experience. Therefore, the need for the implementation of the developmental sequence is inextricably meshed with teaching activities, whether these be the last five minutes of an eighth grade U. S. History Friday afternoon class, or survival education writ large. The evidence is clear that efforts in the developmental field can pay off handsomely. The problem today is that we remain on the periphery of developmental contributions. We have just begun to examine the matter.

> Taba: If failure at one developmental task creates complications about the next one, it is possible that a great many problems of school achievment are created by a failure or only partial success at some task of growing up. . . (1:98)

> Phenix: The combination of maturation and earlier learning determines what a person is capable of learning at any given time. . . The ideal order of studies is one in which each experience is introduced at the most propitious time in the person's development. . . The best curriculum for any student is one that makes each learning experience available to him as soon as he is ready for it. (38:291)

> Havighurst: When the body is ripe, and society requires, and the self is ready to achieve a certain task, the teachable moment has come. Efforts at teaching which would have been largely wasted if they had come earlier give gratifying results when they come at the teachable moment. (46:109)
>
> Sigel: That development proceeds in an orderly invariant sequence is. . . relevant for the educator. Knowledge of the sequence of stages and their behavioral indices as expressed in language and thought provide the educator with the criteria upon which to gauge the "readiness" of the child to assimilate material. The sequence is the crucial consideration here, not the particular age at which particular cognitive behaviors appear. (50:470-471)

Thus, developmental sequences have focused clearly upon a much needed concern with thinking processes. As Irving Morrissett has observed,

> the child is ready for certain things when he can perform the prerequisite intellectual operations. . . Readiness. . . is a function of operations that the child is already able to perform, and he is ready provided he has acquired the prerequisite skills for new experiences. (42:81-82)

The late Hilda Taba expressed the potential of development research when she observed that, "Thinking as a behavior has a developmental sequence, and, therefore, a developmental plan is needed to learn effectively." She went on to note that too little is

> yet known about the nature of the sequence. . .: which skills and processes can be mastered at which age level, which aspects must precede which other, what type of generalizations and what level of abstraction young children can master in contrast to high school students. (1:219)

Evidence is accumulating that would allay some of her frustrations. These now allow us to make some specific judgments. Scholars continue to express hope for the design of a developmental sequence for the thinking processes. (50:486, 49:94)

The field is not united, however, in seeing child growth and development findings as having immediate utility in the classroom. These critics do not deny the

importance of knowing and applying the efforts of development research. Their concerns center upon the application rather than the legitimacy of the studies and the conclusions which have been reached. (17:17; 4:285; 1:89,94; 38:292-293; 46:338; 1:89; 21:268) Their message is clear; this paper directs itself to their concern. They assert that there is no universally identifiable developmental structure which will hold for every child under all circumstances.

Teachers and curriculum developers must not be inflexible by taking any aspect of development as dogma. We realize that humans are not machines, moving down an assembly line at the same rate of speed. Curriculum decisions must not be over-simplified as though the complexities of human development could be avoided. For a variety of genetic and experiential reasons every child differs from every other, in cognitive and psychological as well as external characteristics.

> In some social environments the stages are accelerated, whereas in others they are more or less systematically retarded. This differential development shows that stages are not purely a question of the maturation of the nervous system but are dependent upon interaction with the social environment and with experience in general. The order, however, remains constant. (59:7)

The valid use of child growth and development research findings, at least at this stage of the game, is to gain an understanding of the sequence of human development. Any fixed age attachment can only be used as an approximate guideline. To put it to use as absolute criterion is to cause inexcusable harm. The danger of putting a sequence on paper is that the user more often than not will tie rigidly particular

characteristics to the grade and age descriptions, rather than adhere to the sequence developmental stages.

Frazier argues that

> By accepting a developmental point of view, we have seemed to regard differences among. . . groups in rate and range of learning as innate and inalterable, organic or genetic, rather than something over which we could have some control if we cared to exercise it. (11:3)

To accept the premise that because one person has not developed as far as his peers, or to contend that because one subcultural group is behind a national norm and consequently is forever relegated to inferior status is to deny the evidence which developmentalists have uncovered. The implications are clear that education is a continuing process and curriculum designers, including the classroom teacher, must be prepared to pick up students where they are and help them move from that point.

The main body of this paper is a grade by grade breakdown of the hypothetical developmental patterns which researchers have identified over the past couple of decades. Again the warning should be clear--<u>these are generalized representative patterns which may have limited validity</u> for a given student, and should therefore be used cautiously.

This information can be used, however, to indicate appropriate teaching and pupil deployment strategies. However, it is quite possible that children will deviate from this pattern two or more grades. Jarolimek says this:

> Successful teaching of social studies skills cannot be achieved until the teacher comes to grips realistically with the problem of the wide range of abilities, interests, and backgrounds which exist among learners. These differences are often obscured by the practice of placing and keeping learners of similar chronological ages together in the same class. As the teacher faces his class, therefore, there is little to remind him that while he may be teaching a skill to a class, the skill is not learned by the class but by individual students within that class. Clearly, he will have to devise ways of helping individual students to learning through the use of group-teaching procedures much of the time. (40:24-25)

The temptation to lump all students in a class is a cop-out to expediency by both the teacher and the system. Teachers must be concerned about each individual with whom they come into contact.

The main implication for the teacher is that if Piaget's theory is valid, and the evidence does support it, then we must be sure that readiness and experience come together systematically in the classroom for each child.

> If there are. . . built-in limitations in thinking at a particular level, then to confront the pupil with problems whose solutions are based on logical operations beyond his comprehension at that level must be to confront him with a meaningless task. If the solution his teacher expects is beyond him, it appears that for the moment at least, he and his teacher are really speaking in different languages. The student can, perhaps, if the teacher demands it, learn a solution by rote memory, but the words he mouths are little more than gibberish so far as real insight is concerned. (60:54)

There are at least two additional dangers inherent in a sequential development study. First, generally, researchers have failed to estimate the potential of the children they studied. Indeed, it is being said today by many scientists and scholars that as human beings we are far from reaching our intellectual potential. Therefore the students which we identify at various stages are there often because the environment,

including the classroom, has not allowed them to develop to a higher level. Several have addressed themselves to this (see 59:7), but as yet the degree of acceleration which may be possible is unknown.

This suggests the second danger of this study. The potential of any child might be more closely and efficiently reached if we sped up the cognitive process. While this is a somewhat tautological claim, it has practical implications. If it were possible for us to identify and program experiences at their optimum point in time, we could probably show startling advancements. Consider the twelve year old boy learning to read for the first time: had he achieved this skill at his optimum age (three to six years?) would he have had a relatively easy time? By twelve years of age he not only has the difficulty of "understanding" how to put letters, syllables, and assorted perceptions together to form words, but he also has to fight off a variety of other difficulties which he did not have six to eight years before. Therefore, he must not only concentrate upon the skill of reading, but deal with puberty, low self-esteem, his social world, increased conflict with parents, the perceptions he has of the opposite sex, his interest in athletics, etc. All of these other developmental tasks crowd him, both intellectually and emotionally. They make it very much harder to learn this particular skill.

Thus it is with some reservation that the following material is presented. We present it to understand where we are and hope that by setting it down it can be used as a starting point to make some dramatic and needed improvements in curriculum design.

The Preschool Child

Curriculum workers become discouraged when realizing that much of what we want to accomplish is achievable long before the child sets foot in the public schools. "Half a child's total capacity for cognitive functioning is developed by or about the age of four. . ."(11:4) A survival curriculum must realize the full implications of this. If this assertion is correct, as well as other research assumptions asserting that there is an optimum point in time when children can reach mastery of developmental interaction with their environment, it follows that not only are we late in beginning the structured learning process, but we also have many perceptual roadblocks to overcome to achieve anything like the self-actualizing individual that a modern rational world demands. Our children may be starting off with at least one strike against them.

The preschooler's cognitive development has been influenced largely through the perceptions and patterns he has acquired from family and peers. As a result, he normally enters formal education with a narrow, protected outlook. (1:134-135)

As but one example:

> The results from. . . studies on racial awareness with preschool children are sobering. It is clear that children as young as three can discriminate racial differences and that negative attitudes towards members of another race may be evidenced as young as five. (19:213)

Some individual constructs have been outlined long before the school becomes a force which can modify these resulting behaviors.

The nursery school age child is in a period of cognitive development which Piagetians term "preoperational representation." It is characterized by symbolic or semiotic functioning on the part of the child. (59:2) The research is extensive, and because an understanding of the developmental sequence can only be adequately realized by a knowledge of previous developmental levels, an extensive examination is in order for the curriculum designer, even though a K-12 curriculum would ordinarily begin with the five year old child. We must know what transpires before the child formally enters school. Research findings summarize the preoperational stage of cognitive development:

> It is the kind of thought that can focus impressionistically and sporadically on this or that momentarily static condition but cannot adequately link a whole set of successive conditions into an integrated totality by taking account of the transformations which unify them and render them logically coherent. (43:157)

> One of the most pronounced characteristics. . . is its tendency to center. . . attention on a single, striking feature of the object of its reasoning to the neglect of other important aspects, and by so doing, to distort the reasoning. (43:157)

> . . . the preoperational child's reasoning is syncretic; a multitude of diverse things are inchoately but intimately co-related within a global, all-encompassing schema. Since almost anything can be "causally" related (by juxtaposition. . . rather than true causality) to almost anything else within the syncretic whole, the child tends, when pressed to do so, to find a reason for anything. . . Since cause-and-effect requirements are so lax for them. . . anything and everything must have an identifiable cause. (43:160-161)

> The. . . child is the child of wonder; his cognition appears to us naive, impression-bound, and poorly organized. There is an essential lawlessness about his world without. . . this fact in any way entering his awareness to inhibit the zest and flights of fancy with which he approaches new situations. Anything is possible because nothing is subject to lawful constraints. (43:211)

The child who has yet to enter school is an observer of a fleeting and transitory world. His perceptions are real; there is no recognition of causality. What is, is! To attempt an integrative examination of that which exists, is to do so only for that object itself. There is no transfer. Concepts and generalizations would fit only the objects directly observable. Cognitive dissonance cannot exist; to the child everything is capable of explanation. His conclusions are at the mercy of his perceptions, which jump from object to object. (62:110)

> During the preschool period, the child's major cognitive task can be regarded as the conquest of the symbol. . . At the beginning of this period, the child fails to differentiate between words and their referents and between his self-created play and dream symbols and reality. Children at this stage believe that the name inheres in the thing and that an object cannot have more than one name. (53:499)

This is crucial to understanding the developmental stage. The thinking processes of the child are, from the adult world, a mixture of reality and obvious fantasy. The realities take on a significance which the adult world fails to comprehend or

appreciate. Beyond these characteristics of the preoperational child's thinking processes are other dimensions of equal, if not more, significance. For example, the preoperational child is incapable of reconstructing what he has reasoned. The young child is unable to think about his own thinking. (43:156) He does not have a stable, enduring or internally consistent cognitive organization. He has "no system-in-equilibrium, with which to order, relate, and make coherent the world around him." (43:158)

The young child who has not yet entered school has not developed a cognitive style. It therefore becomes critical that a useful, intelligent cognitive thinking process be integrated as soon as development will allow. To leave to chance or indifference the acquisition of random thought process styles results in devastating consequences. Studies have shown that the development of an impulsive, concrete, physical behavioral style may forever inhibit later attempts to develop a style which is conducive to "problem-solving, abstract, and verbal behavior." (47:234) If survival is the goal of the modern curriculum the latter type of person must be developed.

Closely related to the above, though it is an observation which takes a somewhat different tack, is an observation from Wallach and Kogan. They suggest that divergent thinking processes have their roots in the preoperational period. (17:312) Since it is divergent thinking processes which are usually associated with creative ability,

these divergent processes appear to be necessary for self-actualizing persons who can cope with the world. Curriculum designers must use this knowledge about cognitive development to help maximize creative processes.

The child approaching school age begins to break down his former impressionistic, unorganized thinking processes. His development requires that he begin to put things together in meaningful, organized ways. This internal push takes years to achieve, but nevertheless the direction has begun. Unfortunately, schools set out to regiment highly structured thinking processes. Evidence is conclusive that the overall effect by schools has been to turn students from the innate, more imaginative processes to almost total attention on convergent processes. Thus Wallach and Kogan are prepared to hypothesize that "the relation between primary process expression and the (divergent) type of creative thinking will increase in magnitude as the age of the child decreases." (17:312) Curriculum designers and classroom teachers must recognize that although the child is undergoing a developmental process which has the net overall effect of pushing his fresh and native imagination to the background, they must be sure to retain that insightful and creative element so that his style can remain open, aware, and imaginative If we do not make use of that capacity, it will most likely be lost forever.

The cognitive style which the preschooler uses is termed transductive thinking--it is described as relating sets of data in nonlogical ways. Transductive thinking sees

the child operating from particular to particular. It is a form of argument by analogy: "A is like B in one respect; therefore, A must be like B in other respects." (62:109) Circumstances must be provided by the environment, particularly the education complex, to allow students to retain and cultivate divergent, transductive thinking processes.

Preschoolers' cognitive development takes on many dimensions. Its implications for concept development are best expressed by Morine.

> It should. . . be noted that categorizing ability is developed gradually in children between the ages of four and eight. Young children will frequently group objects on the basis of color or form, or both, but they are generally unable to form logical categories that take account of hierarchical relationships. For example, a five year old will make piles of blue circles, red circles, blue squares, and red squares and consider each a separate group. An eight year old will note that the blue circles and red circles are subgroups of the larger class of circles. . . true classification occurs only when the child is aware of this hierarchy. (58:26)

This is an important consideration for understanding the formation of social studies concepts by young children. Certainly the perceptions of social studies are generally more abstract and transitory than are manipulatable blue squares and red circles. Concepts which are to be developed must therefore be concepts which are identifiable and can be physically manipulated.

The caution which is raised is that the four to seven year old,

> having inexact relational concepts, reaches conclusions impressionistically. . . When the child at this stage compares objects directly, he makes excellent discriminations by means of unmediated perceptual judgment. . . His judgments are performed directly on sensory experience; he does not hold the information in mind or rearrange it mentally. He cannot think of two aspects of an object at once, nor imagine how it would look from a different angle. . .
>
> The child's concepts do not yet permit him to think ahead or to retrace his processes. (46:330-331)

We have already noted that the child cannot conceive of cause and effect, nor can he develop a legitimate concept of chance or probability. (43:161) Conceptual development must center around concrete, manipulative objects.

Piaget explains this, in part, when he asserts that

> At this stage. . . the child cannot perform operations (since) operations are internalized actions which are reversible, that is, they can be performed in opposite directions." (59:2)

To construct a concept the child must be able to manipulate, reorder, and redo. The young child has not developed this cognitive skill.

Another implication of the child's inability to reorder his perceptions is briefly stated by Flavell. The "child repeatedly demonstrates a relative inability to take the role of another person; that is, to see his own viewpoint as one of many possible and try to coordinate it with these others." (43:156)

There are other implications for social studies curriculum development when we examine the relatively unexplored area of values and attitudes. It has been found that around the age of four or five years, children's

> attitudes and sentiments generally emerge. Attitude development begins after the child's emotions become fairly differentiated. Positive or negative parental remarks about race, religion, authority, and other topics will be picked up by the child, along with corresponding attitudes. Even with minimal instruction or training, preschool children acquire aesthetic, moral, and religious sentiments. These are uncritically accepted in the child's fast-developing value system and act as powerful organizers as well as determinants of behavior. (44:78)

Given that the students use transductive thinking processes, given that they can deal only with concrete materials and images, given that they cannot deal with ideas per se including their own, given that their reasoning is syncretic, given that education will do much to destroy divergent processes which they develop, given that they cannot role play, given that they cannot communicate their own ideas to other persons; what must a social studies curriculum for a modern world optimally expect to achieve from a child who is so oriented?

Developmentally, the time must be spent in working with concrete objects (whether pictures, realia, or fights which take place in the nursery classroom). From the concrete, concepts can be formed. The evidence from the administration of thousands of I.Q. tests, from other studies of conceptual development, from Piaget's research on children's thinking, as well as from psychoanalytic studies of young children, indicates that the young child's learning and his thinking is of an imaginative, manipulative, exploratory kind. (60:49)

Obviously one cannot begin by giving a kid who has no idea about concepts whole generalizations to pursue. This is denying everything his development has allowed him to achieve. His divergence must remain open and be encouraged. To attempt to close it is to impair the whole developmental sequence and the self-actualizing individual.

The Kindergarten Child

Traditionally, American schools operate on the expanding-environment principle of curriculum design. This was instituted years ago when youngsters knew little about the world around them. Today we find most kindergarten programs center on home, school, and neighborhood. Though attempts have been made to expand this very limited setting to include other peoples in the kindergarten social studies curricula much needs to be done. With the advent of television, radio, modern transportation, etc., the horizons of the child have been pushed outward. What was "foreign" to the five year old fifteen years ago may be very common to him today. (26:49)

It is evident that the child who enters school has the need to move around, to manipulate objects and materials, to engage in much physical activity, and to make things. He seems ready to learn to read, to listen to stories, to show objects which are important to him. He may be ready to take part in individual as well as group activities (12:60), though he may be a poor group member. (21:316-318) He is eager to speak, though it is difficult for him to communicate. He asks many questions. "What questions are most frequent, and the number of why and how questions increases later as they gain insight into causal relationships." (12:61) He is a child wondering about the world about him. He is spontaneous in expression and participates

in dramatic play and creative dramatics. (14:68) He is, however, unable to assume the role of another person. (43:156) He is unable to adhere to the logic of reality. (49:149)

The typical kindergarten child is "preoperational." A review of the section on the preschool child's cognitive development may be necessary. Again, stress must be on the sequential nature of development. Grade placement statements may be inappropriate for particular individuals within any classroom.

> The child is continuously developing. By kindergarten he is becoming noticeably more testable in formal experiment. . . He is much more able to address himself to a specified task and to apply intelligence to it rather than simply assimilate it to some egocentric play schema. . . He also becomes capable of reasoning about progressively more complex and extended experimental problems or displays. (43:162-163)

An important caution, however. The child is still unable "to separate his own goals from the means for achieving them. . ., and when he has to make corrections after his attempts to manipulate reality are met with frustration he does so by intuitive regulations rather than operations . . ." (24:xii;60:53)

The observation that very young children operate on this intuitive level has traditionally led the kindergarten teacher (as well as other primary teachers) to conclude that the child does not think. These teachers have overlooked the intellectual skills the child does possess. Indeed it is possible that this conclusion may be responsible for the idea that children must first accumulate knowledge, then at some

later date use that knowledge for thinking purposes. (31:223) The key to gaining access to the cognitive skills of the child is to realize that the kindergartener's thinking is egocentric and his concern is with how to manipulate rather than how to understand the world about him. (14:171)

Therefore, concepts and/or generalizations which the child is expected to acquire "should be correlated with his out-of-school experiences. . . Concepts outside of his experience are difficult. . . to understand." (56:45-46) His concepts must be "rooted in specific, concrete, action-contexts. . ." (22:135)

Sigel examined a problem associated with the preoperational child.

> Knowing "more" in terms of number does not mean the child will know "more" in terms of weight or volume. The problem is not one of vocabulary but rather of conceptual level, since the child has not acquired the mental operations necessary to comprehend the terms. The teacher should be guided by the fact that the child's knowledge may be specific to that context and not necessarily generalized to others. (50:476)

A closely related problem was pursued by Langer when he concluded that "findings support the hypothesis that the meaning of language is not passively acquired from environmental sources, but rather is mentally constructed (assimilated) by the child to accord with his internal schemes." Langer's conclusion was reached after he found that in young children cognitive comprehension takes place faster than cognitive production of that understanding. (22:136)

"Because language is a primary vehicle of learning, there is a greater awareness of the need to clarify the difficult words and concepts that are so often used without meaning in the social studies." (26:21) Children can understand rudimentary concepts. Adults, however, too often use concepts which children fail to understand. Therefore, it is imperative that experiences be provided for students so that they may understand, rather than verbalize, concepts. To do otherwise will lead only to a verbal mastery of the environment, not its understanding. (60:49)

Studies have shown that the child has attained some understandings of the concepts of morality and justice, though these may be very primitive. (61:v) The child is unable to deal effectively with problems concerning time, causality, space, measurement. (43:161) More concretely, he has rather well-developed concepts of common objects in his environment. He knows place concepts, and can deal with command concepts. (15:137-138) These are concrete, experiential concepts which he has internalized. His ability to deal with command concepts becomes the basis for his first moral feelings. Those derived from parental orders somehow enjoy an existence and validity all their own. "Acts are felt to deserve punishment according to how far they depart from what is permitted, without reference to intention or other mitigating circumstances." (62:114)

The child also has misconceptions regarding things with which he has come in direct contact (i.e., home and community, life, property rights), because fact and fancy are often confused. (12:61)

The social development of the child has important considerations for social studies curriculum design. The child is undergoing tremendous growth, both cognitively and socially. In view of this simultaneous development "the teacher should give a great deal of attention to directing the child's emotions as he interacts with peers and provide opportunities for him to learn various forms of social activity." (44:63) Those experiences and activities which will help him solve the problem of social adaptation may prove to gain the most mileage. Indeed, make-believe play is productive and group activities which involve group play is useful because the child's interest is changing from "a self-centered basis to concern with what others are doing." (12:60)

The kindergarten child is at a very crucial period in his life. He is fast approaching the point where peer pressure is to have tremendous impact. Simultaneously he is entering an authoritarian school system which traditionally has molded the mind to think that what one is told is the way things are. We've already said a great deal about this, but a word about the situation is necessary because now the child falls into the reach of the formal school complex.

One dilemma is that the five-year-old child entering kindergarten is beginning to reason about what we commonly term values. (Witness above the fact that typically the child has some notion of the concepts "morality" and "justice.") If the child is indoctrinated with absolute ethical values (that is, generalizations which portend to guide ideal behavior by appeal to authority rather than rational, empirical evidence), then "his readiness to reason will be set back." If he is prevented from examining the assumptions which underlie behavior, then this starts the process which creates closed areas for student inquiry. Cronbach stresses this critical development. "Teaching is never neutral. Either the school from the start encourages independence of thinking, security, and maturity, or it teaches the opposite: irrational dependence and anxiety." (46:649) The choice is clear: the curriculum must provide for rationality.

When devising particular learning activities for the student it is important to provide a supportive atmosphere for autonomous thinking. It is most easily begun at a very early age. The child's cognitive development makes personal experiences the only important learning activity. His thoughts and constructs are his own. Concentration on process instead of subject matter at an early age is a practical strategy because parents do not have strong expectations about the mastery of content. Concentration on process should have little interruption.

The degree of cognitive development is a major result of the supportive atmosphere of the classroom. As Bruner has pointed out,

> children, like adults, need reassurance that it is all right to entertain and express highly subjective ideas, to treat a task as a problem where you invent an answer rather than finding one out there, in the book, or on the blackboard. With children in elementary school, there is often a need to devise emotionally vivid special games, story-making episodes, or construction projects to reestablish in the child's mind his right not only to have his own private ideas but to express them in the public setting of the classroom. (6:533-534)

The curriculum designer must recognize these kinds of learning experiences as getting the greatest potential from students.

It has been further suggested that the imposition of a closed, authoritarian atmosphere when the child enters school may have irreversible consequences for the life of the individual. As one example, Hess and Torney have concluded that

> the readiness to become actively involved (in the political system) must be developed during childhood by teaching attitudes based on trust in the system and compliance to it. (3:70)

Certainly we have done the latter, but failed disasterously at the former. This caused the researchers to conclude that

> Trust in the system motivates attempts at influence, assuring that effort will not be futile. Failure of socialization may foster apathy or it may lead to the emergence of influence techniques which are antisocial or illegal. (3:70)

Therefore a supportive, trustful atmosphere must be developed in the education process, beginning in kindergarten. The danger is that children at an early age take things literally, so care must be taken to see that their predisposition for literalness does

not get in the way of their learning. (65:278)

When devising strategies to achieve concept formation certain guidelines must be followed. The teacher should not attempt to have the child perform "multi-dimensional grouping, because it is still difficult for them at any given moment to see subjects or events as multi-dimensional, or to hold more than one attribute in mind at one time." (8:14) Evidence indicates, however, that the kindergarten teacher must encourage broad and flexible means of classification. Today's schools stress only "correct" or "incorrect" methods. The research shows a clear relationship exists between early exposure to broad means of categorization and original thinking styles. (65:292)

Kindergarten teachers should concentrate on the building of concepts, the sharpening of the child's observation skills, and the stimulation of his expression. (14:68) These must focus on concrete experiences because the developmental sequence dictates such. In this connection it was found

> that with certain classes of material, such as those which can be presented visibly to the child in three-dimensional form, competencies in multiple classification are evident as early as kindergarten. . . This would suggest that procedures to broader styles of categorization could be instituted in the primary grades. Content would have to be selected which could visibly present to the child the possible alternative classification responses; later, use could be made of more symbolic representational material, such as pictures, and eventually, of words. (65:292)

Morine, by taking the Piaget model, has concluded that the appropriate type of lesson for children after they reach the age of four is the open inductive discovery

lesson. Its chief aim is the particular process of inquiry which kindergarten children need: categorization. In this type of lesson there is no particular category or generalization which the teacher expects the children to discover, rather the lesson is designed to help the child learn how to learn. He accomplishes this as he organizes the data. It is obvious "that different category systems serve different purposes or that some categories are discrete and others not." The logicalness of the categories must be related to the development of the individual children. In summary, then,

> the open inductive discovery lesson. . . is one in which the child is relatively free to shape the data in his own way. By doing this, it is hoped that he is learning to observe the world around him and to organize it for his purposes." (58:26)

The First Grade Child

The expanding-environment plan of curricular design is a bugaboo to a survival curriculum. As recently as 1962 Hanna and Hagaman, writing in the thirty-second NCSS yearbook, proclaimed that "content for children in primary grades should emphasize things and people in close proximity." (56:45) If this limits study to the immediate neighborhood, then the ethnocentrism of the child is reinforced. On the other hand, if this is more properly interpreted to mean those experiences which are designed to bring the child into proximity with other persons and other ways of life, then it is an agreeable notion. Analyses of programs show the former to be the practice. Michaelis observed some encouraging trends, however. In the first grade there are

now attempts to foster the development of economic and anthropology concepts. There have been efforts to introduce comparative studies of other ways of life. (12:139) Indeed, first grade children know far more when they come to school than is expected by the teacher. "Children have a broader range of information and. . . a broader range of data to use when discussing social science than has been credited to them." (64:I, 4) Evidence shows that the typical educational program has produced some strange understandings and perceptions of the political system for the child. When political oriented topics are examined in the classroom teachers simply do not allow students the open, supportive atmosphere they need. Rather, the authority of the school is imposed by the teacher as "public school teachers. . . focus upon the importance of authority, obedience to law, and conformity to school regulations. . . Political duties are stressed by teachers, and the rights and powers of citizens are under-emphasized." (10:5) These characteristics were found to hold up from grades one through eight. Compare this with the findings of Hess and Easton who noted that

> it is apparent that the elementary school years, rather than the high school years, present the crucial time for training in citizenship attitudes and the wider range of behavior we have called socialization. (25:55)

This suggests some fundamental problems which the traditional school curriculum and/or teachers must set out to correct.

A related dimension has also been revealed. The child develops his characteristic attitudes toward authority and the political culture, as well as toward persons who are beyond his own group or class, by the time he is in primary school. The school must design its curriculum to allow students to develop realistic, positive attitudes. The verbal expression of attitudes toward "out" groups--usually in the form of prejudice--often becomes commonplace with primary age children. Indeed, "some children openly express a dislike for members of certain groups in ways that have been learned at home." (12:61-62) Miel was sickened by the fact that

> group prejudice. . . evidently takes root early and go deep. Many stereotypes about race and religion cropped up even among the youngest children. Six and seven year olds. . . pictured Negroes as poor, threatening, or inferior. With such early beginnings, any fight against prejudice is bound to be a difficult uphill struggle. (23:13)

Stendler found that first graders tend to use the concept "poor" for those people they dislike and "rich" for themselves and their friends--with no understanding of these concepts. (69) Open, supportive teachers are necessary to deal with these emerging attitudes of first graders. Concepts associated with the common characteristics and needs of all men must be used to counteract this ethnocentrism. Since most first grade children are in the preoperational stage, their topics and experiences must be undertaken, using concrete referents. (28:250)

Related to the concrete referent phenomena is the associated problem of how the child communicates what he perceives. First grade children are unable to communicate

very effectively "principally because they fail to take account of the listener's viewpoint." (18:52) They cannot put themselves in the shoes of the hearer. They think that because they have reached a certain conclusion, everyone else has the same one. Consequently, they leave great gaps about their perceptions when communicating with others.

A special word needs to be said about disadvantaged children. Since their perceptions are vastly different from those of the typical teacher, the ability to communicate runs into serious difficulties. If the teacher fails to understand this perception gap and the inability of the child to adequately communicate, an impossible situation results. Teachers must work to close this communication gap by the constant renewal of warm, supportive, understanding classroom atmospheres. While Michaelis suggests that the school provide compensatory education for the disadvantaged by making special provisions to build social studies vocabulary and concepts (12:62), it seems unreasonable to think that this should not be done for all students. A further implication of his suggestion is that the school attempt to bring students "in line" with social science perceptions. First priority should be given to supportive environments in order that perceptions can be understood before concepts are developed. The alternative may be the authoritarian imposition of a verbal social science truth, which is not what the self-actualizing child needs.

The first grade is a particularly exciting period because the child is in the latter stages of the preoperational period, moving toward the concrete operational stage. It is likely that several children in a classroom will move from one stage to the other. This will be a typical occurrence over the next two or three years. The primary discussion about the concrete stage will be examined in the section on the second grade child.

It is important to recall that the child, though moving from one stage to another, remains capable of performing the kinds of functions he did in the previous stage. Also, though the child may have reached a stage of concrete operations in some things, he may not have accomplished this in all aspects of his cognitive process development. Indeed it seems there is as yet no transfer to even similar kinds of activities.

To understand first grade children we should describe the transitory period when the child moves from preoperational to concrete operational. During this period Piaget found that children have great difficulty in representing or imagining transformations or movements. (59:9).

> Toward the end of the preoperational period, the differentation between symbols and their referents is gradually brought about by the emergence of concrete operations. . . One consequence of concrete operational thought is that it enables the child to deal with two elements, properties, or relations at the same time. . . This ability, to hold two dimensions in mind at the same time, also enables the child to hold both symbol and referent in mind simultaneously, and this distinguishes between them. (53:499-500)

Concurrently with these changes are others. As the typical first grader develops, his

"preoccupation with phantasy subsides, and the child wants to be engaged in real tasks that he can carry through to completion. . ." (5:295) The child continues to classify concrete objects "in terms of his phenomenal experience." Importantly, the child can begin to simultaneously deal with more than one aspect of an activity. His classifications begin to become more sophisticated.

> He begins to distinguish between all and some, and to differentiate a continuous configuration into classes (wholes) and subclasses (parts). Nevertheless, these meanings still fluctuate for him because the relationships between the general concept and the particular exemplar. . . are only understood in an intuitive way. (22:135)

This emerging ability to classify and conceptualize rationally is a very important consideration for the curriculum designer.

Taba suggested that the only way to develop abstract concepts such as multiple causation, interdependence, or democracy was to begin early in elementary school with simple experiences which are illustrative of the concept and then develop these over the course of the child's education so that the more complex and abstract dimensions of these concepts emerge. (1:178) Heidbreder has noted that concepts evolve from concrete objects to spatial forms to abstractions. (70:325) A first grade class can begin to deal with simple, if logically constructed, concepts at a concrete level.

The preoperational child remains unable to conceive of chronology because he cannot distinguish between duration and succession. In fact, time itself is much too abstract. He is unable to conceive of time as the relation between distance and speed.

As they deal with time, most first graders are concerned with an intuitive examination of the objects they are observing and the type of movement they are engaged in. (22:140)

Several authorities in the field have suggested types of learning activities and teaching strategies which are consistent with child growth. A review of Morine's description of the open inductive discovery lesson in the section on the kindergarten child is basic. The further development of the child allows him to structure classifications more logically than before. (58:26)

An appropriate teaching strategy might be to show two rather discrete items which share common properties, as well as differences, and focus upon those similarities and differences. Sigel suggests this because

> it requires the child to discover the attributes relevant for discussion, rather than the teacher supplying them. The multiple labeling and multiple classification are accomplished by the teacher providing the materials and asking the child to discover the relationships. . . Our evidence is sufficiently strong to warrant the generalization that using a discovery-type approach, guided by the teacher, is better than other methods. (65:288)

Free dramatic play is an important form of expression which the social studies curriculum should make use of until the second or third grade. (49:148) Because of the child's desire to pretend and to make believe, free expression helps to make his life more encompassable and endurable. Other related considerations are for the social studies in the first grades to provide for "physical activity, a variety of experiences, and many centers of interest." (56:45)

Biber summarizes an appropriate first grade social studies content. We must put to use

> how much the child already knows about his society and what a fund of impressions and information he has absorbed. . . His intellectual processes are centrifugal, their path is outward from the self, but the self is the prime reality, and self experience is the basis from which other people, or other peoples and societies, become comprehensible. (61:140)

Jarolimek rightfully says that content must consist of "things, places, persons, and processes that are psychologically close to the child. . . Because the child lacks both the maturity and the skills needed to profit. . . from vicarious experiences. . ." (26:19)

The Second Grade Child

In most second grade classes throughout the country, American students learn about some aspect of their community (12:139)--a continuation of the expanding-environment design. One result of this principle is the failure of children to learn fundamental social science concepts, concepts which have tremendous potential cognitive power throughout their lifetimes. Hess and Torney discovered that a second grader's "image of the government is largely confined to persons. . . " (3:40) In view of the preoperational nature of the students' development, this is not surprising. It is the concrete referent "people" which children identify when they hear or see a reference to the government. On the other hand, there are many important concepts centering on government which second graders are capable of internalizing. It is immaterial whether

they are in the preoperational or the concrete operational cognitive development stage.

The child of the preoperational stage and the child of concrete operations have a great deal in common. Transition from one stage to the next very often occurs during the second grade. One characteristic remains fundamental for each stage--the child remains tied to concrete referents in both making judgments and structuring conceptions of the world. Beyond this very significant similarity, the child undergoes some fundamental changes. The preoperational child is one whose structures are rigid, static, and irreversible. These begin to break down. As the child attains the concrete operations level, he becomes more flexible, mobile, and decentered and reversible in his operations. (43:163) Sigel has indicated the importance of this change. Children in preoperations are extremely absolutist in the information they seek, accept, and retain. He contended that if we reach children as this structure is breaking down "they may accommodate some substantial notions of probability and inference." (64:II,4) Thus they will be able to deal with the world more rationally than children before them.

The child, for the first time, constructs classes in hierarchies

> by successively combining elementary classes into supraordinate classes. . .; he can likewise descend the hierarchy, beginning with the higher-order classes and decomposing them into their subordinate classes; and finally. . . he can mentally destroy one classification system in order to impose a new and different one on the same data. (43:91)

Langer describes the consequences of the child gaining flexibility over his cognitive operations.

1. His thought is no longer bound to particular phenomental states of events, but begins to take into account successive transformations.

2. His thought can and does change from egocentrism to perspectivism, and it becomes possible for him to perform multiplicative operations. He begins to coordinate different points of view (his own and others) into a system or logical group of objective reciprocities. He begins to realize that the nature of things is not absolute but relative to the viewpoint for which it is considered. . .

3. He begins to be capable of mentally performing transformational operations upon phenomental configurations. He can mentally isolate the relevant variables of a display and can apply first approximations of reversible operations upon these variables. (22:141-142)

He is a new child, able to engage in problem solving, rather than limited to reliance on direct action. (14:171)

The child undergoes another change as he reaches the concrete operations cognitive level. His

> thought becomes aware of itself, able to justify itself, and in general able to adhere to logical-social norms of non-contradiction, coherence, etc. and that all of these things and more can emerge only from repeated interpersonal interactions (and especially those involving arguments and disagreements) in which the child is actually forced again and again to take cognizance of the role of the other. (46:156-157)

> . . . interpersonal interaction--and most of all bilateral and reciprocal interaction among peers--is an indispensable condition for the very formation of logical grouping structures. . . Through repeated and often frustrating interchanges with his peers, the child has come to cognitive grips with other viewpoints and perspectives which differ from his own. And from such encounters he gradually moves from a static and centrated egocentrism to the multiperspective reversibility which is the hallmark of the grouping structure. (43:201)

We see the emergence of a growing capacity to reason and to question his own perceptions as well as those of others. This allows the child for the first time to engage in genuinely social, nonegocentric communicative behavior. He can, after

reaching the concrete operational stage, develop true role-playing skills. (18:63)

> The child in the period of concrete operations can learn concepts which require the classification of concrete objects and events. In acquiring new concepts he can employ his rudimentary concepts of time, space, number, and logic. His intellectual operations or groupings. . . show the characteristics of closure, associativity, reversibility, and identity. . . It would appear, therefore, that the younger child. . . is not ordinarily capable of engaging in the scientific thought. . . Although teaching can contribute to the development of abstract thought. . . the rigors of abstract thought. . . must be reserved for older children. (47:394-395)

The highest hurdle the child has to overcome before beginning to deal with adult thought processes is a total dependence upon concrete objects. The implications of this condition are great. Foremost is that concrete operation children "think in terms of concepts and symbols related to objects and actions which they have experienced." As long as the learning activities are related to their experiences, children can classify, seriate, set into correspondence, conserve quantities, and anticipate consequences without having learning objects immediately at hand. This is significantly different from the preoperational child because the preoperational child can deal only with the actual objects. Another important difference is the capability of the concrete operational child to reverse initial manipulations and reconstruct on other criteria, if necessary. (12:64; 43:205; 53:500)

> By these means the child greatly enlarges
>
> his ability to organize means independently of the direct impetus toward goal achievement; they are instruments for dealing with the properties of the immediately present object world. (24:xiii)

As the child begins to order and reorder the world about him, he simultaneously begins to make judgments about that world. He begins with an unsettled notion of his surroundings. These surroundings he sees as tentative and unstable. As he develops, his perceptions begin to organize into more or less stable and enduring hierarchies. It is these empirically derived perceptions which foster the growth of moral values, norms of moral conduct and the notion of moral obligation: "the 'ought' of duty begins to seem to him as a priori and compelling. . ." (43:201)

What does the teacher do to devise experiences which will optimize child growth and development?

First, the child reaching the level of concrete operations can keep two facts or purposes in mind simultaneously. (46:334) Therefore experiences he is confronted with may seem to have more than one dimension. The teacher may make use of this new ability, though any confrontations must be direct and concrete--they cannot be vicarious.

Secondly, a warning: children at the operational level tend to be suggestible and therefore are inclined to imitate or copy, instead of to correct, though they are now capable of doing the latter. The teacher must be sure that the learning activities lead to a natural accommodation with the learner's own cognitive structure, rather than a quasi-mechanistic integration with the experience. (50:471)

Third, Taba and others have suggested that the second grade child is capable of mastering the abstract (with particular reference to "if-then" relationships), provided the content which is used to develop these relationships is familiar to the students. (1:118; 53:500) Taba goes on to suggest that this may be achieved only if "the teaching has stressed inductive formulation of generalizations by students themselves." Inhelder and Piaget caution, however, that the concrete operations child is unable to form real hypotheses because, as they put it, the child can "do no more than outline plans for possible actions; they do not consist of imagining what the real situation would be if this or that hypothetical condition were fulfilled. . ." (24:250-251)

Fourth, Sigel has said that it is necessary for the child entering the concrete stage to develop more flexible styles of categorization. To do this the child must be assisted to seek alternative classifications. Initially the teacher should neither limit nor evaluate the resources used, but accept them as equally valid. Subsequently, the teacher can help the child determine which label or classification criteria answer questions or solve problems better than others. "In other words, the criteria for evaluating the quality of the response should be worked out in reference to particular goals." (65:291)

Fifth, the teacher must assist the internalization and schematization process of transforming overt acts into mental operations

> in the classroom by getting the student to perform the requisite action with progressively less and less direct support from the external givens. . . In other words, the developmental process which occurs in the microcosm of the child's daily life should be reproduced in so far as possible in the microcosm of the classroom. (43:368-369)

The most appropriate lesson strategy for second grade, because it is useful for both the preoperational and the concrete operations child, is the open inductive lesson. It was described in the discussion on the kindergarten child. Morine, however, suggests another type of lesson which is appropriate for the concrete operations child. (If the class is predominately preoperational we cannot expect the child to perform at a level beyond his developmental stage.) She calls it the structured inductive discovery lesson. The lesson is designed to allow children to construct a predetermined concept. The key to the success of this lesson is to allow students to classify concrete materials logically. The one characteristic which distinguishes this lesson from others is the importance of the organization of the data. The data must be shaped by the perceptions of the observers. Therefore, the data must be presented and structured in such a way that students will arrive at the preconceived concepts. (58:26-27)

Morine discusses yet another lesson which is appropriate strategy for concrete operations students. She terms it the semi-deductive discovery lesson. It seems most fruitful for mathematics and laboratory science lessons, but may be useful in

certain types of social studies situations. Again the purpose is to have children develop and learn basic concepts which they arrive at inductively through the use of concrete or representational materials. However, the semi-deductive discovery lesson presupposes that within the area examined, the rules are such that the child will be forced to draw the prescribed concepts from the data. By this strategy, students use inductive means to arrive at concepts which were developed in a deductive system of knowledge. (58:28)

The Third Grade Child

By third grade most children have reached the concrete operations stage of development. Their concern is to operate in a now recognized multi-dimensional world. The typical third grader can readily differentiate between reality and fantasy. He extends his horizons well beyond his immediate environment. He has less dependence upon adults but takes active part in group play and discussion. His actions and evaluation become more effective and pointed. He effectively recalls and makes use of past experience (12:61), though there is evidence showing he has little concern with what happened before him. (56:46)

The attainment of the concepts, classes, relations, and numbers seems to be important criteria for judging whether the child has reached the level of concrete operational thought. (62:110-111) The third grade is a time where the child

entrenches in the concrete cognitive stage. Cronbach contends that the more strange the child finds a problem, the more he retreats to earlier more primitive performance to work his way toward understanding. (46:329) As the child is consolidating his cognitive processes, he continues to make use of those which appear to have passed by years before.

Other aspects of the operational stage have implications for the classroom. When the third grader formulates a hypothesis or strategy

> he assumes that this product is imposed by the data rather than derived from his own mental activity. When his position is challenged, he does not change his stance but, on the contrary, reinterprets the data to fit with his assumption. (53:500)

Thus he really doesn't hypothesize since he is unable to follow through and perceive the consequences of his formulations.

However, the third grader is able to perform more sophisticated cognitive performances. He is able to learn concepts related to comparative culture and comparative geography, if curriculum and learning experiences are organized to that end. (1:213) The child begins to be intrinsically concerned about the cause of things. (44:82) Dissonance begins to play a basic motivational role.

Research indicates a distinct change in the child's outlook beginning in third grade. It may be related to the shifting emphasis given to peers vis a vis adults and/or it may be directly related to the ability to now see more than one side of an

object, behavior, or idea. Beginning in the third grade students begin to question adult values, rejecting them if in conflict with peer values. (12:64) When the child is able to classify, he can set his values in a hierarchy the same as he does other concepts. This allows evaluations and motives to be consistent with one another. He sees his moral rules as "conventions, accepted by a social group for the benefit of all, capable of being changed by common consent, and arising out of mutual respect between equals." (62:114-115)

The appropriate teaching strategies remain those discussed for the second grade child. Specifically, these could include the open inductive discovery lesson, the semi-deductive discovery lesson, and the structured inductive discovery lesson.

The Fourth Grade Child

Research shows that traditional social studies programs are in trouble by the time the child reaches the fourth grade. Categorically stated: "children have little interest," "social studies is the most monotonous of the subjects," "the social studies book is usually voluminous," "the 'expanding environment' concept. . . could be responsible for the low interest." (63:159) The fourth grade is where kids begin to turn off. We have damned the expanding-environment concept; in the fourth grade kids revolt against it.

It would seem that the basic problem is that the child's knowledge of the world is so shortchanged by curriculum and teachers that boredom results. Since students have begun to question adult values and are not as compelled to obediently follow the dictates of the teacher as they once did, subject matter is no longer interesting simply because the teacher presents it.

The fourth grader is enthusiastic about collecting data on many things. He likes to discuss problems and argue, and is eager to extend his horizons intellectually. (56:37)

Current teacher strategies and classroom atmospheres destroy that enthusiasm. Fortunately the fourth grade child refuses to accept the nonsense which has been previously passed off as social studies. His ability to deal with the concrete world allows him to synthesize his past experiences, to question authoritarian assertions in relation to his experiences, and to discriminate among alternatives. The typical social studies program, however, continues to deal with children as nonthinking individuals who, at some undisclosed future date, will be able to put all of this tedium together in a comprehensive way. To even consider this practice after third grade is to construct the disaster we have achieved.

An interesting and important tangent to this difficulty is the assertion by Adelson and O'Neil that youngsters are more likely than adolescents to approve of

coercion in public affairs. (55:535) This is an important social studies consideration because of its impact about how the child views the political culture. Their assertion seems to conflict with the view that the concrete operations child has begun to question adult standards. A simple and probably valid reason for this contradiction is that the child can only question those things with which he has direct experience. He cannot imagine political authority to be irrational, presumptuous or whimsical because he has had no personal contact. It is significant that the generalizations which concrete operational children postulate are only those which he directly experiences.

Since the child now judges everything, we must be sure to help him understand and use analytic techniques in forming judgments. (27:226) It is only by the acquisition of analytic techniques that the child can make rational decisions in solving problems which affect him. He is capable of developing critical thinking skills. (14:68) Dissonance is an appropriate dimension for learning activities. The child recognizes the need for disagreement, its resolution, and subsequent consensus. Hess and Torney caution, however, that the dissonance which is introduced must not be such that the learner gets a distorted view of the world. (3:247) They plead that certain areas (i.e., political corruption) may be inappropriate content.

The child is now able to deal with social studies concepts at a more rapid pace--evidence indicates that these are attained in relation to the extent they are stressed

in the curriculum. (12:64) Chronology and historical time remain difficult for students to grasp.

Other significant changes take place in the fourth grade child. He becomes acutely aware of the socio-economic stratification in his community. He may use common stereotypes in assigning status to other students. Importantly for curriculum designers, "Children usually reflect the opinions and prejudices of the adults with whom they live and grow. . ." (56:36-37)

The fourth grader may well face a real crisis because of his development. An analysis of studies indicates that it is very often about the fourth grade that children begin to gain more freedom to make decisions--at home and at school. The previously protected child who has always been directed on what to do and how to do it, or who has been dependent upon adults who do not allow him to try things, may have no basis by which to make choices. One result is for the child to become a bully and attempt to order others around. (56:43) This may be avoided if curriculum is designed to allow children to make decisions on the basis of evidence, in which there is a warm, supportive classroom atmosphere which allows students to grow.

A crucial need for curriculum designers is to recognize that the fourth grade child begins to employ criteria before making choices. To do this, the child must be allowed to have experience in establishing criteria. Therefore, appropriate studies

might engage "opportunities to learn and use certain generally agreed upon criteria, both external and internal, to the message being judged--evidence, summary, generalization, idea, product." (27:226)

The proper teaching strategies must still incorporate those previously discussed (i.e., open inductive discovery lesson, semi-deductive discovery lesson, or structured inductive discovery lesson), though the complexities and level of dissonance must be higher than in previous years.

The Fifth Grade Child

What we have said about fourth grade is equally applicable to fifth grade. Our concern about the sequential nature of child growth and development allows us to generalize: for a period of four years or so the child functions at the concrete operational cognitive stage. During this time, the child's cognitive problems and development do not change dramatically. He remains dependent upon concrete referents, he makes logical judgments on the basis of direct experiences, he is able to deal with conceptual manipulation, and he views data as being inextricably interwoven with the conclusions drawn.

Patrick protests that the expanding-environment curriculum has prevented some very important concepts from being formed. Hess and Torney, however, have evidence that the fifth grader is significantly different from the fourth grade child in the

acquisition of political attitudes. (3:27) On the basis of their research, and the findings of others, fifth grade is found to be crucial in acquiring political understanding. It is a key time in social studies curriculum for the development of citizenship rights and responsibilities. Indeed, significant studies have shown that the impact of the present program demands the placement of citizenship education at the fifth grade.

> Research has indicated that most American children acquire strong, positive, supportive attitudes about their political system and nation at an early age, and that most American adolescents and adults retain this generalized basic loyalty to state and nation, even in the face of contrary influences. (25:64-65)

There are several reasons for demanding a political-oriented structure at the fifth grade. Given concrete referents, the student can form appropriate concepts; the child's reading level is such that he can often begin to deal with more sophisticated areas; and since he is subject to cognitive dissonance, this may be appropriate motivation for understanding how political systems operate.

The appropriate degree of dissonance is examined by Bettelheim:

> It is only very late in the student's public school career, if at all, that he should be asked to make judgments about the correctness or incorrectness of the social system. Asking a ten year old to consider the morality of the war in Vietnam, for example, is not only inane--it is also an excellent way to increase the child's chances of becoming neurotic. What he needs most to understand is what makes for peace and for war in his family, not in world politics. It is his experience with the mutual benefits of a peaceful cooperation within his family which will in later life motivate him to work for peaceful cooperation among nations. (36:82-83)

At his level of development the fifth grader is able to engage in, and enjoy, intellectual activities. He can argue logically and has developed his thought and reasoning patterns perceptibly. His language skills are normally significantly improved. (14:69) Indeed, these descriptive characteristics appear to be a prerequisite to enable the child to develop to the next stage.

Concept development at the fifth grade takes on an interesting dimension. The child still functions effectively only where he has concrete referents. Therefore, concepts which are developed must be taught only on this basis. For example, if history is to be part of the instructional mode, then it must be realized that the child's development of spatial concepts of time is poorly organized. Consequently the child has great difficulty in understanding historical perspective. One solution would be to undertake these studies culturally rather than chronologically. It might therefore be appropriate to "emphasize how people have adjusted to and adapted their environment to meet their needs." (56:46)

While we have already discussed political education and the fifth grader, a word of caution is necessary. Since the concepts government, community, and society are abstractions, it is imperative that these be tied down to concrete referents. These concepts are "invisible networks of obligation and purpose which link people to each other in organized social interaction." We know that the student will fall back on

the only thing he can: persons and the actions of persons who are concretely identified with the concepts if insufficient learning environments occur. (55:524) One way to solve this problem would be to have students participate in organized groups which actually deal with political problems of the government, community, and society in a legitimate, experiential way. (3:248-249)

The child firmly entrenched in the concrete operational period has his hierarchy of values, his perceptions about rules and laws and the proper interactions among peers well articulated. Flavell says that this area of perceptions can be properly termed "extracognitive adaptation" because it is inextricably tied to cognitive development.

Fifth grade teachers should remain dependent on previously developed teaching strategies (open inductive discovery lessons, semi-deductive discovery lessons, and structured inductive discovery lessons). Additionally, free form dramatizing where the children play out a given theme, using factual information they have gathered, is possible. It allows the fifth grader opportunity to reexpress his ideas in a way which is derived more from empathy than from identification. (49:149)

The Sixth Grade Child

By grade six it is apparent to even the casual observer that children have a decided egocentric/ethnocentric orientation. The concrete operational stage, by which

the child dealt only with practical problems and concrete situations which he had to experientially contact, has been fed by the expanding-environment curriculum and the didactic inward-focusing atmosphere of the traditional classroom to help construct this attitude in children. This perspective has shaped the child's behavioral development.

Unfortunately, the move from one cognitive stage to another does not cause the child to lose idiosyncracies and discriminations which he unfortunately developed at the previous stage. He does change his development along dimensions which allow him to look at confrontations in a different way. The confrontations begin to take on a personal meaning.

This self-gratifying orientation is expressed in the complaint by Adelson and O'Neil that they were dumbfounded when interviewing eleven year olds "by their common, pervasive incapacity to speak from a coherent view of the political order. . ." Their analysis of the difficulty seems accurate.

> First, these children are. . . egocentric, in that they cannot transcend a purely personal approach to matters which require a socioeconomic perspective. Second, they treat political issues in a concrete fashion and cannot manage the requisite abstractness of attitude. (55:523-524)

If this observation is true, and there seems no evidence to the contrary, then it has important implications for curriculum modification. It is normally during sixth grade when children begin to restructure cognitive processes and move toward the

"formal operations" stage. Advancement to this stage is an interesting phenomenon. Evidently not all societies need to reach this developmental stage. (24:337) The key change in this stage is acquisition of the ability to both form and act upon hypotheses. Societies which have not made significant changes in their way of life for decades have no need to think hypothetically. Everything in their environment is static and therefore explainable in concrete terms. Piaget gives some insight into why modern societies attain the formal stage:

> . . . the (cognitive development) stages result in a certain number of overall structures which become necessary with development, but are not so at the beginning of life. For example, the formal structures become necessary once the child possesses the concrete operations. As soon as he can perform the concrete operations, sooner or later he will begin to coordinate reversibility by reciprocity and hence construct a classification of all the classifications, and thus he will end up by producing the combinatorial, which is a necessary form of formal thought. (59:8-9)

Therefore, there is no inborn genetically-determined need to advance to the various stages. Rather, it is a combination of the complexity of the society and the learning opportunities which create the need to advance. (This may be a reason for the so-called generation gap today: the elders were really never forced to the formal stage because of the supposed static nature of the society they were raised in, whereas today, kids in sixth grade or younger are forced to operate at the formal level. Because of their development, elders cannot accommodate to the propositions put forth by the younger generation. This, at least, raises some interesting possibilities which are worthy of examination.)

The formal--or conceptual or reflective--period culminates in the acquisition of adult types of thinking. As a consequence of attaining the formal stage

> operations are no longer applied solely to the manipulation of concrete objects, but now cover hypotheses and propositions that the child can use as abstract hypotheses and from which he can reach deductions by formal or logical means. (59:2)

He is now able to deal with abstract concepts, principles, processes, symbolic relationships, and hypothetical possibilities without being limited to first-hand experiences. (14:171; 39:15-16; 12:68) "Conscious manipulation of concepts replaces the intuitive grasp of abstract relationships. A consciousness of form is acquired. . ." (39:15) The child moves from a largely descriptive type of thinking to explanation. He is able to imagine possibilities and has the power to eliminate unsupported alternatives. (52:493)

Indeed, new operational possibilities are opened to the child. These consist of disjunctions, implications, exclusions, etc. In other words, the child can begin to discriminate on the basis of evidence available. In operation

> formal thought starts off with hypothesis. . . instead of limiting itself to a direct organization of perceived data. Thus. . . the essential characteristic of propositional logic is not that it is a verbal logic. First and foremost, it is a logic of all possible combinations, whether these combinations arise in relation to experimental problems or purely verbal questions. . . The real power of propositional logic lies. . . in the combinatorial power which makes it possible for reality to be fed into the set of possible hypotheses compatible with the data. (24:253)

As a result of transformation, the child undergoes a change of attitude which

> consists of 1. certain observational and experimental procedures of verification, and 2. isolation of variables by negation, which allows him to understand that an event observed to occur in some instances does not occur in others. (22:145-146)

One study showed that by the sixth grade, one-sixth of thought expressed in the classroom is on the formal level. (49:170-171) Sharply notable differences are discernible in the child. These along with the onset of puberty, show that a totally different child is emerging. For parents, teachers, and others in positions of authority, he is difficult. He is critical of adults, he resents being told what to do, he rebels at routines, and he will challenge an adult's knowledge. (21:328-330)

In the area of concept formation it now becomes possible, though not necessary, to deal with nonconcrete referent abstractions. For example, the concept democracy becomes capable of being understood. "Although definitions of democracy receive substantial attention in school curriculum starting at grade three" students have been unable to conceptualize the abstraction. Thus, the child has been forced to simplistic generalizations, "typically generalized judgments of good (America and democracy) and bad (communism)." (3:30)

The types of appropriate teaching strategies must be revised:

> The method and aims of instruction should be suited to the learner's development. Topics that are very difficult to understand when treated as a formal system can make sense to an immature learner when they are presented in a more tangible form. The child's performance should be regarded as good if he is showing progress toward the anticipation of conclusions and reversible operations, even if his answers are not

perfect. His formal thought processes should be rewarded when he can derive sound conclusions, even if his verbal formulation is not rigorous. (46:341)

Morine suggests the elimination of the open inductive lesson as an appropriate type. The semi-deductive discovery and the structured inductive discovery lesson remain functional. She suggests the addition of two additional lesson types. These are the simple deductive discovery lesson and the hypothetical-deductive discovery lesson. Each requires the child to think deductively and therefore are not effective before the stage of formal operations. (58:29)

The simple deductive discovery lesson is more commonly known as the Socratic method.

In this type of lesson, the teacher controls the data used by students, since his questions elicit propositions that lead logically to a particular conclusion. The student must think deductively, and the materials are essentially abstract. That is, the student is dealing with relationships among verbal propositions. (58:27)

The hypothetico-deductive discovery lesson generally "involves hypothesizing about causes and relationships or predicting results. Testing of the hypothesis or prediction is an essential aspect." (58:28)

Inhelder and Piaget best summarize the formal stage of development when they state that

in formal thought there is a reversal of the direction of thinking between reality and possibility in the subject's method of approach. Possibility no longer appears merely as an extension of an empirical situation or of actions actually performed. Instead, it is reality that is now secondary to

possibility. Henceforth, they conceive of the given facts as that sector of a set of possible transformations that has actually come about; for they are neither explained nor even regarded as facts until the subject undertakes verifying procedures that pertain to the entire set of possible hypotheses compatible with a given situation. (24:251)

The Seventh and Eighth Grade Child

The discussion and implications of the section on the sixth grade child are important for an understanding of these two years. Once the child has reached the stage of formal operations, it is a matter of gaining facility in this formal structure that is developmentally important.

With his increasing ability to hypothesize and generalize at a purely abstract level, his perceptions of the world undergo some drastic revisions. For example, children begin a process of "de-idealization." They no longer see the President as always wise, benevolent, and just; they see that he makes errors.

> Children grow to differentiate between the Presidential institution and the personal attributes of the incumbent. This allows for criticism. . . without diminishing basic allegiance to government and country. An appreciation develops for Presidential role demands and political expediency. (10:10)

Other changes come about in perceptions of the political world. Until the seventh grade, children rate policemen as being higher in forming laws than other individuals or groups, except the President or labor unions. They are not able to differentiate among the power of big companies, churches, rich people, and the average voter in influencing political decisions. (3:76) By the end of the eighth grade, however,

studies show

> eighth graders distinguish between persons and institutions that are highly knowledgeable and make important decisions (President, government, Supreme Court), and figures who are not noted for either superior knowledge or decision-making (senator, father, policeman)." (3:54)

Beginning in seventh grade the child is capable of becoming a social reformer. Because he operates under hypothetico-deductive procedures he sees the world is being run one of several possible ways. The alternatives he perceives may be viewed as better. He may begin to opt for the best way. (62:112) He is taking the final steps toward complete decentering and reversibility. He is guided by the form of an argument or a situation; he may ignore its content. He is no longer constrained by what is real. (62:112)

The latter is critical. The student is able to handle certain formal operations, but he may be unable to set up an exhaustive method of proof. Therefore, social studies curricula must concern itself with the process by which the child can prove hypotheses. Scholars contend that beginning about eighth grade students become capable of using a truly social science approach to problem solving. (10:15)

The child is also faced with enormous peer group pressure. Within peer groups they "develop shared value standards which define what is true and false, what is to be accepted and adopted, what is good or evil." (1:135) These may come into open conflict with the child's ability to use his reasoning processes.

> Curriculum makers might draw inferences from the concerns of the child himself. Most children. . . are infinitely more concerned about what

their peers think about them than about the war in Vietnam, the Babylonian Empire. . . (36:83)

In summary, we can say of the child of the seventh and eighth grade that his

Intellectual development is characterized by increasing interest in more advanced problems and ideas, rapid concept development, and increasing ability to formulate generalizations. (12:68)

Appropriate teaching strategies include the semi-deductive discovery lesson, the structured inductive discovery lesson, the simple deductive discovery lesson, and the hypothetico-deductive discovery lesson.

The High School Student

By the time the child reaches high school, he is grasping the structure of formal operations. Since this study has a basic sequential nature we must point out that in actual practice some students will have already achieved the new structure, while others may never attain the formal stage during these years--if at all. However, the vast majority of students seem to achieve the multi-dimensional aspects of the formal stage by the end of the tenth grade.

We group the senior high school years together because development doesn't differ substantially between the various grades. The differences are of degree rather than basic structure. In view of the time span of this section a reidentification of important considerations previously discussed is warranted so that there is a clear understanding of the child's development.

Patrick is discussing civics education, but his remarks are appropriate to survival education writ large.

> If the educational system continues to invest sizable resources. . . at the secondary level there must be a radical restructuring of. . . courses in order for them to have any appreciable pay-off. Changes in goals, course content, pedagogical methods, timing of exposure, teacher training, and school environmental factors are all points of leverage. Until such changes come about, one must continue to expect little contribution from the formal. . . curriculum. . . (10:9)

Taba gives a classic example of the problem. (Remember that students in high school are capable of hypothetical and logical reasoning.) She found that the school systems had so stunted the cognitive processes of its students

> that high school and college students alike had difficulties in identifying which facts were relevant or irrelevant to solving certain problems and estimating answers. They had difficulty in discovering generalizations. They were more used to "learning" generalizations than discovering them. They used formalized procedures in solving problems as if following a recipe. (1:115)

This problem screams for a solution. Certainly Patrick's admonitions above are appropriate--we just haven't done the job for a variety of nonsensical reasons. We have failed to take advantage of the resource we insisted is the hope for survival. We must recognize the potential value of the thinking processes that adolescents possess and make maximal use of them--and that demands we make the changes Patrick stresses, as well as many more.

Examine for a moment the statement that students had "difficulties in identifying which facts were relevant or irrelevant to solving certain problems. The student [illegible]able of formal operations is no longer limited by his immediate world but can infer

beyond directly observable evidence. If the child, however, is never allowed to pursue hypotheses and see the need for empirically justifying alternatives, it is no wonder the student is unable to distinguish a good generalization from a bad generalization. We allow nondiscriminatory discourse to happen in the classroom. The classic method of avoiding whether a particular generalization is good or bad is to fall back on "that's just your opinion--this is a democracy--I have a right to mine" device. By this device, valid and invalid generalizations share equal billing.

We have structured the classroom as though the learners were machines. Teachers are generally fearful that students will, if given the opportunity, reach conclusions more valid than those of the teacher. This causes teachers to shut off intellectual dialogues. When we do this, we shut off kids with it. We must recognize that most students, when they reach high school, are capable of pursuing hypothetical conclusions. Consequently, we must 1) force them to enter the pursuit, and 2) require that the conclusions they reach be based on evidence, not prejudice, opinion, or other myths. Piaget strengthens the latter point when he identifies the egocentrism of the adolescent. This egocentrism takes the form of "naive idealism, bent on intemperate proposals for reforming and reshaping reality" and is often coupled with "an immoderate belief in the efficacy of (his) thought" and "a cavalier disregard for the practical obstacles which may face its proposals." (43:224) This is where teachers drop out and fall back

on authority. The sad part is that that technique worsens the problem and allows the student to construct the world in his own image and likeness, regardless of what evidence to the contrary may say. It is in high school that the gulf between what is possible and what is practiced is startlingly apparent. We know many kids can operate at the formal level; we know that this is not done. What potential do high school students have?

> The adolescent has. . . the 7 - 11 year old's zeal for order and pattern coupled with a much more sophisticated version of the younger child's conceptual daring and uninhibitedness. Unlike the (7 - 11 year old) child he can soar; but also unlike the (under 6) child, it is a controlled and planned soaring, solidly grounded in a bedrock of careful analysis and painstaking accommodation to detail. (43:211)

Children always retain the ability to function at their previous developmental structures. However,

> the adolescent differs from the child above all in that he thinks beyond the present. The adolescent is the individual who commits himself to possibilities--although we certainly do not mean to deny that his commitment begins in real-life situations. (24:339)

To fully attain the formal stage the individual must have conquered the concrete world, "that is, object, number, space, time, and causal properties, of events. . ." (22:145) The child then takes the results of the organized cognition of concrete objects and events and

> casts them in the form of propositions, and then proceeds to operate further on them; i.e., make various kinds of logical connections between them. . . Formal operations, then, are really operations performed upon the results of prior (concrete) operations. (43:205)

In operation the formal stage results in the

> adolescent. . . setting up proofs. . . He systematically uses methods of control which require the combinational system; i.e., he varies a single factor at a time and excludes the others ("all other things being equal"), etc. But. . . this structuring of the tools of experimental verification is a direct consequence of the development of formal thought and propositional logic. (24:347)

> The adolescent can construct a theory for a problem situation, arranging and keeping track of complex possibilities. Thought of this kind requires an active exploration of the structure of the situation. (46:336-337)

> The 15 year old. . . neither hesitates nor falters in dealing with the abstract; when he seems to falter it is more likely due to a lack of information or from a weakness in knowing and using general principles. His failures are likely to be in content and in fluency, rather than in abstract quality per se. (55:537)

Allowing this formal structure to operate at its full potential in the social studies classroom would reduce the difficulties identified in much of this paper.

There are additional concerns which may be the result of society's failure to allow youth to pursue its potential. Studies have shown that there is a high negative correlation between maladjusted adolescents and their degree of orientation toward the future. (54:510) This is speculation, but it may be that when we refuse to allow adolescents to develop, by our refusal to facilitate their growth toward the formal cognitive stage, we do this at the expense of their mental health, to say nothing of the aforementioned cognitive process. Indeed, this may serve to destroy for the adolescent his sense of personal identity. This sense of identity is the central problem of the adolescent. He is attempting to clarify "who he is, what his role in society is to be. Is he a child or is he an adult?" (5:296) The schools hide the

In the area of content, designers of school curriculum must recognize that history is not an appropriate subject until all realms of meaning have been conquered. While this conclusion was not the result of a Piagetian approach to development, it does assert that history, and other "synoptic disciples," can only come last developmentally because "History requires a knowledge of symbols, empirical data, dramatic methods, decision making, and moral judgments, to be welded together into a reenactment of the past." (38:281)

> Not until adolescence do most children develop the sense of time which is required for historical perspective. The so-called facts of history--1492, 1776, and all that--can be learned by children but without any real grasp of what life was like in another period or in a different country. Most instruction in ancient, medieval, or even modern history is no more real to children than are fairy tales. (13:5)

Or to yet another area of the social studies,

> When we give problems from geography in which the balance of nature is upset by farming, mining, and building, we find that an awareness of equilibrium as a combination of cancellation and compensation is only fully apparent in the mid and late adolescent. The same is true of his understanding of history. Most events in history seen in treaties, declarations of war, concessions to groups, etc., contain the same principles of balance. . . Often a balanced judgment is not forthcoming until 14-15 years of age. (52:495)

Thus research has shown some areas of the social studies which are more appropriate at times other than when they are practiced in the present curricula.

During adolescence students often have difficulties in social interaction which has importance for curriculum design. Not only in terms of the social atmosphere which results, but in its relationship to the cognitive process

> formal operational thought not only enables the adolescent to conceptualize his thought, it also permits him to conceptualize the thought of other people. It is this capacity to take account of other people's thought, however, which is the crux of adolescent egocentrism. This egocentrism emerges because, while the adolescent can now cognize the thoughts of others, he fails to differentiate between the objects toward which the thoughts of others are directed and those which are the focus of his own concern. Now, it is well known that the young adolescent, because of the physiological metamorphosis he is undergoing, is primarily concerned with himself. Accordingly, since he fails to differentiate between what others are thinking about and his own mental preoccupations, he assumes that other people are as obsessed with his behavior and appearance as he is himself. (53:502)

This egocentrism continues until the child becomes truly decentered, allowing him to begin formal adult work. (24:343)

This has important considerations for the classroom teacher and the type of strategy and topics which might be covered. The adolescent wishes privacy and is often reluctant to reveal himself. He sees himself constantly being scrutinized. (53:502) If the formal operations cognitive process is to be developed in the school in a controlled environment suited to that purpose, the school must offer the same warm, supportive atmosphere stressed in the primary grades discussions. If this does not occur, students retreat to protect their egos and we have done little to improve the quality of social studies education.

The social environment therefore plays a significant role in the development of the cognitive processes. Inhelder and Piaget examined the interrelationship between physiological, psychological, environmental, cultural, educational, and related dimensions of human existence and found that

> far from being a source of fully elaborated "innate ideas," the maturation of the nervous system can do no more than determine the totality of possibilities and impossibilities at a given stage. A particular social environment remains indispensable for the realization of these possibilities. It follows that their realization can be accelerated or retarded as a function of cultural and educational conditions. (24:337)

The teaching strategies previously cited remain appropriate for the social studies classroom. The specific type of lesson is subject to the intended outcome. Since each lesson type has a different objective, the use depends upon the behavioral objectives of the teacher. The structured inductive discovery lesson has as its aim the attainment of a particular concept, which is achieved by having the material so organized in presentation that the student has to "discover" the particular concept. Similar to this, yet very different, is the semi-deductive discovery lesson. It has the objective of having the student develop and learn basic concepts, and again these are attained through the use or concrete or representational materials. However, in this type of lesson the student is free to choose the specific material or data to use. Because of the nature of the lesson, the material is manipulated in such a way that the student will develop and learn the concept.

The simple deductive discovery method is the Socratic method by which the teacher controls the data through the questions asked. The student deals with the relationships among verbal propositions. The hypothetico-deductive discovery lesson has the student utilize deductive thought as he hypothesizes about causes and relationships or predicition of results. The testing of hypothesis or prediction is the essential outcome of the strategy.

A fifth appropriate lesson at the formal stage is the transductive discovery lesson. While it seems more appropriate for the so-called creative arts, it may be useful in certain types of social studies lessons. The students are encouraged to use transductive thinking which allows them to control their use of this particular mode of reasoning. (58:29)

A last comment on teaching methods, regardless of the specific strategy employed. As human beings

> formal and informal teaching by the use of language. . . is fundamental and necessary and is very powerful in adolescence, when language is well developed, but like the other elements not by itself sufficient. . . The child can receive real information by such means 'only if he is in a state where he can understand this information.' The (developmental) stage requires that the new information is presented in a form demanding not more than the structure of action which the child has already formed. The child will make of the information what he can by virtue of his particular level of development--but this may not be what the adult intends. Hence, the discrepancy between language and thought. (52:494)

The essence of child growth and development's impact upon curriculum design is to close that gap so that verbiage, actions, and cognitive processes coincide.

Conclusions and Recommendations

This paper set out to identify guidelines for making judgments about social studies curriculum so that it can be most properly modified. The paper has centered on developmental studies of numerous scholars.

We set out to examine a number of dimensions upon which various developmental studies focus. The emphasis of this is on cognitive processes.

Some specific conclusions and recommendations have resulted from this study. We had hoped to show that there were fundamental reasons for specifying certain social science concepts at specific grade levels. This is an impossible task because the research on this matter is inconclusive. Although our studies fail to show the importance of particular concepts, we do find that it is necessary to structure learning experiences so that the selected concepts, whichever concepts are decided upon, will be developed according to the natural cognitive development sequence of the child. In all cases--K-12--it is appropriate, and advisable, to develop concepts which have their bases in some form of demonstrable physical manipulation. This condition is mandatory when dealing with the "preoperational" and the "concrete operational" child. To do otherwise, at least for most elementary school children, is to preclude conceptualization.

On the other hand there are some concepts which, because of their abstractness, are extremely difficult to learn at points early in the curriculum. While these abstract concepts are capable of being developed, teaching them is an inefficient allocation of learning time. Therefore, concepts such as chronology, cause and effect, and others of equal abstractness are inappropriate until the child has a firm handle on "formal operations" development.

Since concept formation is largely dependent upon concrete referents, it is evident that the social studies curriculum must make far better use of media than it presently does. To confine social studies to the two-dimensional limitations of the printed page is to continue to depend upon an increasingly antiquated method of gaining perceptions.

Great concern has been expressed about the expanding-environment scheme for curriculum design. There is reason to believe that this scheme encourages ethnocentricity. It is essential that in designing curricula we take the student from where he is (in the primary school this means his family, neighborhood, and community). When we get beyond this level--to the "concrete operational" stage--we need to organize the curriculum on other criteria in order to determine settings for social studies content.

Curricula should be built upon the processes which are part of the learner's cognitive development. A curriculum should function in a conceptual framework. Sequentially, the curriculum must build on the conceptual understandings previously developed: the curriculum must be spiral in organization. The specific concepts and their degree of completeness can be limited only by the thinking processes learners develop.

Therefore, sequence in the social studies can be most effectively achieved by organizing the curriculum around concepts which will give the most mileage to the

students as learners in understanding themselves and social phenomena about them. There is little evidence to support the claim that one discipline is any better as a core for social studies curriculum than any other (with the exception of history which is clearly the poorest).

We must examine appropriate teaching strategies. Grade by grade lesson types were outlined in the body of the paper. It may be helpful, however, to view this area from an entirely different perspective. Heretofore the major concern of the traditional social studies has been the content presented. Its method of presentation was straightforward and absolute. (There's no discovery in it; its prime function is to force the receivers of lectures to regurgitate the same materials in a subsequent examination.)

However, a variety of forces (Sputnik, Piaget, student demonstrators, knowledge explosion, etc.) came together and have forced us to question what the sum of all those lectures which had been tediously prepared in the nation's social studies classrooms for these many decades amounted to. The answer, stated generally, is a surprisingly small sum. The new social studies thus has set out to develop citizens who are rational decision makers. The form of this takes many shapes. Essentially, however, it is resolved in a very simple formula: dissonance x data x organizers = learning.

The old social studies was full of data: data ad nauseam. But the kids weren't turned on to its significance, and even in those cases where they were there was no way for them to organize the content in a meaningful way for subsequent usage.

Today's strategies set out to (1) turn the kids on to the content of the lessons, and (2) use knowledge about cognitive processes to organize this content most effectively. The bulk of this paper has focused on the latter. Those are the means and methods by which we can facilitate the development of conceptual frameworks. Concepts seem to be the most effectual curriculum organizer until at least junior high school age. After the child reaches the "formal operations" stage of development it is possible for him to use acquired concepts as a social scientist might. That is, he can form hypotheses and begin to use the methods of the scholars to solve problems. But until about age twelve, the organizers must be the concepts themselves.

The third factor in the formula is dissonance. Before third grade, dissonance is an inappropriate device. In the "preoperational" stage the child is naturally inquisitive and will examine things simply because they exist. But when the child advances to the stage of "concrete operations" he loses this natural urge to inquire. Thus authors refer to "dissonance," "confrontations," "openers," "grabbers," as ways of getting kids interested in the subject matter.

By selecting the content on the basis of its relevance, by using cognitive tools which provide the most efficient ways of organizing social studies data, and,

by using techniques which are designed to involve learners in the activities, we may be able to employ the resource of the learner to ward off the crisis of survival. If we are successful it will be because we brought theory and practice together.

Another area of discussion is the proper role and function of values. Values are an essential part of the curriculum. Traditionally, we have either tried to exclude values from the classroom or treated them as affective, rather than cognitive, matters. Exclusion of values from social science/studies is impossible--it simply cannot be done. And treating them as affective matters ignores entirely the epistemological aspect of value claims. Value claims can be properly subjected to empirical examination--that treating value claims in this way increases the student's ability to analyze--an ability essential to the student's survival.

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