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ABSTRACT

This report discusses the relationship between the fields of early childhood education and developmental psychology. A historical overview focuses on the early influence of Freud's psychoanalytical principles on early childhood education. Developmental psychologists became involved with ECE on a large scale in the 1960's, encouraged largely by the formation of Project Head Start. The works of Benjamin Bloom, Basil Bernstein, J. McV. Hunt, and Burton White are mentioned because of their impact on educational practices. Jean Piaget has been a major contributor to developmental theory. Although his work dominated the field by 1960, the implications of his theory for education were uncertain. Piaget's stage theory is reviewed with emphasis on the aspects that are most relevant to instructional methods. An example of an American preschool based on Piagetian principles, the Ypsilanti Early Education Program, is described; and the influence of the "open classroom" in English education is noted. Alternative educational approaches, not based on Piaget's theory, are discussed, represented by the Bereiter-Engelmann curriculum. Finally, the paper reviews the topic of moral development, focusing on the cognitive-developmental approach of Kohlberg. Arguments for developmentally based moral education are presented. (DP)

DEVELOPMENTAL PSYCHOLOGY

AND

EARLY CHILDHOOD EDUCATION[1]

by

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William Fowler began a speech at a 1966 conference on Preschool Education by citing Plato. Some 2,000 years ago, it turns out, Plato included in his sketch for a great society the following proposition: young children should be removed from the untutored care of parents to institutions staffed with trained personnel.

Taking kids away from parents is not how most educators would define early childhood education today, but Plato's proposition shows that the notion of schooling for young children has been around for some time. Other philosophers who have thought about childhood and the impoverished lot of much of mankind have come to the same conclusion as Plato: education is the cure for society's ills, and the earlier, the better.

Early education in America has a short history. In the space of 50 years, however, it has undergone many dramatic changes. A variety of interacting forces has contributed to these changes, and among these forces is developmental psychology. From the beginning, the thinking and research of students of child development has had a major impact upon what happens in school before six. This may not seem surprising. It seems eminently logical that what psychologists know (at least think they know) about how children develop should influence how children are educated. But as many an early childhood educator will tell you, "It ain't necessarily so." Developmental psychology has made hardly a dent in the American elementary school, which is a more conservative social institution than the preschool

probably simply because it is older and involves many more of the society's members.

The focal point of this talk will be the contemporary educational impact of developmental psychology, but I'd like to start with a brief historical sketch of how things got where they are today.

Sylvia Brody, a child psychoanalyst, marks the beginning of child study in this country at the turn of the century with the work of G. Stanley Hall. Hall persuaded Freud to come to America in 1909 to lecture on psychoanalysis, and in particular on the role of biological instincts in determining human behavior. Freud's view of human functioning, if valid, raised important questions about education. To what extent could educational training affect instinct? Should training begin very early in life, before instinctive patterns became fixed? Did instinct naturally guarantee certain environmental adaptions and therefore make training superfluous?

Independently of this debate, Americans reportedly became worried about their educational system in light of the poor performance of the common soldier during World War II. Studies of mental development began in earnest and soon reached the preschool age level. Special institutes for research in child development were set up within universities all over the country -- at Yale, Harvard, Denver, Fels, and Stanford -- all of which are still operating. The 10 - 15 year period after the war produced many of the basic normative studies of growth rate (e.g., those of McGraw, Shirley, Terman, Thorndike, and others). They also produced mental tests such as the Stanford-Binet, the Merrill-Palmer, and the Gesell Developmental Schedules.

The new developmental institutes at the universities in the 20's indluded the operation of nursery schools for research purposes. The curriculum of these schools consisted primarily of promoting good health and training "good habits" of dressing, washing, eating, etc. Not much in the way of profound developmental theory is reflected there.

The growing number of private nursery schools at this time, however, bore the clear stamp of Freud's theory of early childhood, which loosely qualifies as a developmental theory. These private schools reflected the psychoanalytic emphasis on the child's "inner" motivations and conflicts -- an emphasis nurtured by the child guidance clinics in America and the research of European analysts on the wishes and fears of normal and neurotic children. The psychodynamically based nursery schools translated Freud into a highly permissive curriculum, stressing individual freedom and the opportunity to work out emotional conflicts through fantasy, play, and the creative arts. Freudians concede now that in practice, permissiveness often meant leaving the child to make decisions he couldn't make, causing him to feel he had to solve all his problems alone, and condoning socially undesirable actions as emotionally healthy outlets. Children so treated, Sylvia Brody says, often became anxious, learned to rationalize their social misconduct, and were unable to cope with any kind of frustration. Analysts now say that Freud was grossly misrepresented by permissive education. The current position is that schools should sublimate all those instinctual impulses, and one should be permissive only with regard to feelings, never with regard to actions.[2]

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2 I am indebted for this analysis of psychoanalytic influence on nursery education to Sylvia Brody's article, "Theory and Research in Child Development," Journal of Nursery Education (1959).

The Federal government first got involved in nursery schools during the Depression in the 30's as a way of providing jobs for unemployed mothers. During World War II the government provided funds for day care centers for the many mothers working in war industries. By this time, Freud's emphasis on the child's emotional life had spread from the private schools to the public centers. This emphasis was reinforced by children's emotional problems at the time that apparently stemmed from the mother's wartime employment and the father's absence. Nursery schools took on the function of both diagnostic and preventitive psychiatry. If a child's disturbance in sexual identity, stress tolerance, peer relations, or drive level could be detected in the nursery, later pathology in childhood or adulthood could be prevented.

The 40's and the 50's brought a greater emphasis on the development of social skills as well as emotional adjustment, but no major changes in the substance or scope of early education. The real drama in early childhood education came in the 60's. Celia Lavatelli has called the 60's the "decade of early childhood education". It began with America's rediscovery of the poor, and the damaging effects of poverty on the development of the child. For reasons beyond its control, the family as a social institution was failing to meet the needs of millions of poor American children. In 1965, the Office of Economic Opportunity launched Operation Head Start. Head Start was conceived as a multidisciplinary enterprise, serving over half-a-million children and including education, medical-dental care, nutrition, social services, psychological services, parent education, and involvement of community volunteers. A principal goal was to prevent school failures among children from lower-lower class families.

Urie Bronfenbrenner, who played a key role in the conception and planning of Head Start, says that he and other psychologists wanted to go slow at first. They argued for a small-scale experiment, carefully planned, executed,and evaluated, from which a model for a more widespread national effort could grow. OEO's boss, Sargeant Schriver, said no, he wanted Head Start writ large on the face of America. Once it was a going concern, he said, you psychologists can make it work.

Enter the developmental psychologists.

Developmental psychology was ripe for involvement. In 1964, Benjamin Bloom published his longitudinal data showing that the rate of intellectual development is fastest during the preschool years. Bloom also found that 50% of a child's final intelligence is predictable from measures of his intelligence before elementary school. Bloom concluded that environment, during the period from 1 to 6, fixed the rate of intellectual growth. He advanced the general hypothesis, widely accepted, that environmental intervention would affect growth variables most during their period of most rapid acceleration. The logical conclusion: intervene during the preschool years.

At around the same time (1961) the English sociologist, Basil Bernstein, directed the attention of developmentalists to basic social-class differences in the "linguistic codes" to which children are exposed. Lower-class families, Bernstein found, use only a "restricted code" of speech, one which is simple, condensed, and lacking in specificity or detail.. It is a kind of shorthand conversation. Middle-class families, in addition to using the restricted code, also make much use of an "elaborated code," which is more

syntactically complex, precise, and differentiated. Bernstein's hypothesis was that the absence of exposure to the elaborated code contributes to the lower-class child's poor performance on many intellectual tasks.

Bernstein's structural analysis of social-class language differences dovetailed nicely with a new approach to children's language development stimulated by the psycholinguist Noam Chomsky. Using the methods of the structual linguist, Chomsky portrayed the young child as actively generating his language from a core of grammatical principles rather than just accumulating vocabulary through association. Fresh psychological insights into the growth of language coincided with a clear social need. Poorly developed language skills were among the most salient deficits of the disadvantaged child.

The groundwork for interventionism in developmental psychology was also laid by J. McV. Hunt's seminal book in the early sixties, Intelligence and Experience (1961). Hunt's book marshalled all the available evidence for the view that early human development is highly plastic, capable of being altered in significant ways. Hunt's view, now axiomatic, that heredity and environment interact to determine development changed thinking about the concept of educational readiness. Teachers no longer had to wait for a child's readiness to maturationally unfold; readiness could be developed through experience. Development could be accelerated.

At the same time, an increased estimate of children's capacity for early learning came from a shift in psychological theorizing about motivation. Hunt, and Robert White before him, argued that the child's intrinsic motivation to explore and master accounted for much more

learning and development than external rewards and punishments or reduction of biologically based drives. White speculated that underlying the motivation to develop "competence" was the desire to feel effective in dealing with the environment. Psychologists and educators began attending to the impressive feats of learning that the child performs largely on his own and well before school, such as solving the mystery of language.

The portrait of the child as the chief architect of his own mental growth, however, pre-dates Hunt and White. It is largely the legacy of Jean Piaget. Piaget's 40 years of theorizing and research on child development took a long time to penetrate American psychological circles. But by the 1960's, it had come to dominate developmental psychology. At a time when early childhood education needed a systematic framework for conceptualizing cognitive development, Piaget was on the scene with the only body of knowledge in existence which deals with the evolution of intelligence from infancy to adolescence along a variety of school-related dimensions.

The field of early childhood education is now studded with developmental psychologists, almost all of them reflecting the influence of Piaget in one way or another. Burton White, Lawrence Kohlberg, Urie Bronfenbrenner, Ira Gordon, Irving Sigel, Betty Caldwell, William Fowler, J. McV. Hunt, Millie Almy, Robert Hess, Eleanor Maccoby, Sheldon White, and Jerome Bruner are some of the people who have sought to close the gap between scientific knowledge of human development and what goes on in the classroom. This is not to imply that developmental psychologists are the only bridge-builders. Educational psychologists, some Piagetian in orientation and some not, have by trade been involved

in translating psychology into educational practice for a long time. I don't wish to suggest, either, that there is anything resembling agreement about the implications of Piaget's theory for education, or that a teacher can read Piaget and find 10 easy steps to successful early childhood teaching. Eighty years ago William James told an audience of Cambridge teachers that "You make a very great mistake if you think that psychology, being the science of the mind's laws, is something from which you can deduce definite programmes and schemes and methods of instruction for immediate classroom use. Psychology is a science," James continued, "and teaching is an art; and sciences never generate arts directly out of themselves."

An original, inventive mind, James said, must apply the science. The role of the science is to lay down the guidelines which the art must follow. This leaves room for a variety of specific teaching styles, as long as they respect the science's basis laws.

With Piaget's theory, however, there is not even a consensus that it is a source of basic guidelines for education. At one pole is Carl Bereiter, a Professor of Applied Psychology at the Ontario Institute for Studies in Education. He argues that Piaget is irrelevant to education since he describes concepts that develop naturally. If they develop naturally, Bereiter says, why bother to teach them? At the other pole is the position, expressed by Joe Frost, editor of Early Childhood Education Rediscovered, that no educator ought to make a move without consulting Piaget, who holds out the best hope for a workable theory of instruction. In between the polar extremes are lots of people who caution that Piaget does not address himself to educational problems and who maintain that the educational applications of his theory are uncertain.

It is actually not true that Piaget says nothing about education. He has recently written a book about pedagogy, and as far back as 1932, in his book on moral judgment, he said that schools should promote social and intellectual cooperation by encouraging children to freely experiment together and discuss their discoveries. In an interview with Psychology Today last May, Piaget repeated his long-standing argument that "You cannot teach concepts verbally; you must use a method founded on the child's activity."

Elizabeth Hall, the interviewer, asked what changes Piaget would make in the school curriculum if he had the power to do so. Piaget replied, directing his suggestions at the elementary school level, "We spend too much time teaching things that don't have to be taught. Teaching spelling, for example, is a waste of time. One learns to spell much better just by reading."

On history, Piaget said: "We should reduce the amount of time we spend making people disgusted with history. We should concentrate on giving them a taste for reading history -- which is not the same thing at all." As an addition to the school curriculum, Piaget recommended that children be taught the experimental method as a way of checking their hypotheses -- something which, he says, is not taught in any school that he knows of. Piaget has consistently argued that a major goal of education should be to develop students who "can learn early to tell what is verifiable and what is simply the first idea to come to them."

The interviewer then asked what Piaget himself has called "the American question": is it possible to speed up the development of important concepts such as conservation? If Piaget has shied away

from Americans' attempts to get him to prescribe educational techniques, it is probably because he suspects them of wanting to accelerate development as fast as they can. Piaget's position on the acceleration issue is that there is probably an optimum rate of development. He concedes that this optimum rate may well be above the average speed at which children develop, but he warns, "Blindly to accelerate the learning of conservation concepts could be even worse than doing nothing."

Piaget believes that the child who learns too fast does not learn well. He does not fully assimilate the new learning in a way that allows him to generalize it to a variety of situations.

Piaget's caveat about the hazards of acceleration has been used by traditional nursery school educators to defend their allegiance to self-paced learning and free creative play, with an emphasis on helping the child to enjoy his life as a young child. This maturationally oriented traditional approach, which reflects the thought of Freud and Gesell, has come under heavy fire during the last few years for missing important oppotunities for cognitive development. It has been criticized as totally inappropriate for disadvantaged children, who need more structure in an educational environment in order to develop basic cognitive habits such as attending and task persistence. Leading the attack on the traditional approach and armed with evidence, are the big guns in Educational Psychology such as Bereiter and Engelmann. In a recent speech, Bereiter characterized traditional nursery education as "just a kindof high quality custodial care, involving a very low frequency of teaching acts of any kind." Bereiter could find support for his assessment in Jerome Bruner's

lament that "Traditional nursery programs are, alas, too often like undifferentiated love."

The Bereiter-Engelmann approach to early education is the polar opposite of the Freudian-Gesell maturational view and is also fundamentally different from a Piagetian view. Kohlberg calls it the "cultural training" approach. It sees the job of education as one of directly instructing the child in the skills and knowledge that the culture considers important. In the case of the disadvantaged child, typically one year behind his peers by age four, this instruction must be done with all deliberate speed. To catch up by age 5, the child's rate of learning must be doubled. This permits no time for luxuries like free play. The Bereiter-Engelmann program selects language as the highest priority and used old-fashioned teacher-dominated drill with lots of repetition by the child to develop clearly specified languge skills -- particularly the ability to use words that are important in logic and relations: or, and, not, if-then, on, in, under, between.

What's especially interesting is that Bereiter and Engelmann, sharply criticized by advocates of freedom in the nursery, have defended their highly controversial program with a popular developmental rationale. The child needs basic congitive equipment, they say, in order to pursue self-development and in order to develop the self-esteem that traditional programs emphasize. Learning produces self-confidence, not the other way around. Support for this interpretation comes from a longitudinal study begun in 1962 by the Perry-Preschool Project under David Weikart. Following successive groups of graduates from a cognitively-oriented preschool program,

Weikart found that:

(1) the initial superiority of experimental Ss in measured intelligence washes out by the end of the second grade -- the often-replicated "tempo spurt" phenomenon;

(2) Preschool children, however, show significantly higher overall academic achievement in the primary grades than the control Ss;

(3) Preschool children show some superiority on teacher ratings of social-emotional adjustment and academic motivation, but not until the later primary grades. The superior academic achievement of the preschool Ss precedes their social-motivational superiority. Nothing succeeds like success.

The whole question of the permanence of preschool gains highlights a basic difference in educational goals between a Piaget-based program and a Bereiter-type program. Piaget conceptualizes cognitive development not as information acquisition, but as movement through structurally different stages of thinking. If acceleration is accepted as a legitimate goal of early education, then the objective of a Piagetian program would be to speed up cognitive structural change. An example of this kind of change would be a movement from the stage of non-conservation to the ability to understand constancy in the face of apparent change. The research on training Piagetian concepts suggests that this sort of structural change is more difficult to achieve than specific content learnings,

such as naming and discriminating animals. At the same time, however, structural learning promises a greater long-range payoff. Naming and discriminating animals,as Kohlberg points out, may lead to a temporary rise in IQ owing to transfer of training to the intelligence test. But specific learnings such as these are not likely to lead to higher "general intelligence" in later years. By this time children will have spontaneously picked up the labels and discriminations involved. Learning conservation, on the other hand, might lead to an accelerated general development of arithmetical and classificatory operations -- operations which conservation is supposed to underlie.[3]

The basic rationale for trying to produce structural change in children's thinking is simple: stimulating advance in one step in an invariant sequence prepares the child for an advance in the next step. Kohlberg has speculated that facilitating the development of concrete operations may increase the probability that the child will ultimately master formal operational thought, which involves the ability to reason systematically on an abstract plane, to hypothesize and explore possibilities. Kohlberg's research indicates that many persons, even by adulthood, do not acieve facility at this most mature stage in Piaget's theory of intellectual development.

Since Piaget's theory is a stage theory, it also implies that an essential task of teaching is to provide an appropriate relationship between what is to be learned, the way it is to be learned, and the child's present stage of development. The teacher has to find the

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3 These points and several which follow have been taken from Lawrence Kohlberg's article, "Early Education: A Cognitive-Developmental View" (1968).

appropriate "mismatch" -- the experience which is neither too familiar nor too novel or complex. The ideal environmental stimulus will be familiar enough to activate the child's existing conceptual structures, but new enough to create the kind of mental disequilibrium that Piaget views as forcing the child to revise his structures and advance to the next developmental level.

Starting with the notion of the optimal match, Kohlberg has suggested a straightforward curriculum guideline: if a skill can be learned easily, teach it early. Consider reading and writing as an example. Kohlberg points out that learning to read and write in the elementary school is a tedious task for the 6 - 8 year-old. Since reading and writing are basically low-level sensorimotor skills, acquiring them poses no cognitive challenge to the older child. His time in school could be better spent. For 3 - 4 year-olds, however, the identification and production of letters and words can be challenging and fun. Sesame Street put to use what had already been demonstrated in a number of successful preschool reading programs. Little kids like letters.

At this point, I am tempted to say that there are other educational implications of Piaget's theory too numerous to mention, but I would like to quickly list just three more. The first is that the child must arrive at his own conclusions, since knowledge is acquired through a process of actively constructing reality. The child must be convinced of something by his own mental or physical actions on the world. The teacher's role, therefore, is to stimulate and guide efforts to know, not to supply the answers.

Second, children must be allowed to go from one stage to another of being <u>wrong</u>. Piaget's theory includes a new concept of error.

Error on a Piaget task can represent an incomplete step toward the right solution. For example, the young child may judge that a quantity of liquid increases when poured into a taller glass because the new water level is higher. Although he has reached the wrong conclusion, the child is taking into account one of the factors that are pertinent to the judgment of quantities, namely height. This wrong judgment based on height alone is a step forward compared to judgments based on the attractiveness of the container or the color of the liquid. The next step will involve coordinating the height of the glass with its width and realizing that an increase in one is compensated for by a decrease in the other. The quantity of liquid therefore does not change.

The third and last implication I want to mention is that even in an educational utopia, one would not need a different curriculum for each individual child. This is because all children pass through the same stage sequences. What varies is their rate of progress, not the order of the stages.[4]

The most systematic, thoroughgoing application of Piaget's theory at the preschool level has been made by Constance Kamii in the Ypsilanti Early Education Project. Kamii writes that the function of the preschool from a Piagetiam viewpoint is to facilitate the transition from sensory-motor intelligence to logical operational intelligence. The preschool period coincides with what Piaget has called the preoperational period.

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4 These last two implications are drawn from the writing of Constance Kamii, particularly her article, "Some Implications of Piaget's Theory for Teaching Young Children" (1970).

This is a time when the young child begins to systematize his physical and social knowledge, to construct logical structures, and to reconstruct on a thinking level the "action knowledge" he acquired during sensory-motor development in the first two years of life.

Kamii has developed a curriculum around three comprehensive classes of objectives: social-emotional, perceptual-motor, and cognitive. Language development is incorporated into all three classes. The following are the objectives in the cognitive domain, as summarized by Evans (1971, pp. 237-238).

A. The Development of Physical Knowledge: Learning about the nature of matter:

   1. Knowledge of the properties of objects which are encountered in the environment (such as weight, form, texture).

   2. Development of a repertoire of actions which can be performed appropriately on objects when unfamiliar materials are explored (such as squeezing, folding, shaking, tearing).

B. The Development of Social Knowledge: Structuralizing the effects of social action and accomodating to social convention.

   1. Knowledge of social information (for example, social or occupational roles).

   2. Knowledge of norms for social conduct (for example, table etiquette, cooperative play).

C. The Development of Logical Knowledge: Logico-mathematical and spatio-temporal operations.

   1. Classification: the ability to group objects together through a coordination of their quantitive and qualitive aspects (colors, forms, animals, plants, and so on). Preclassification relationships are stressed for preoperational children, including grouping according to "sameness" (perceptual criteria), and "going-togetherness" (conceptual criteria).

2. Seriation: The ability to compare and arrange objects along a particular dimension (for example, the coordination of transitive relationships with reference to length, color, temperature). Preoccupational ordering activities (pre-seriation) would include quantity (such as "a lot" and "a little"), size (such as "large" and "small"), and quality (such as "cold" and "hot").

3. Number: The ability to arrange objects on the basis of one-to-one correspondence (groups of cups and saucers, pencils and erasers, toy cars and trucks, and so on).

4. Space: The ability to structure topological space out of which develops the concepts of Euclidean space (for example, "here-there," "front-back," "over-under;" reproductions of object placement in proximity relationships such as copying a bead-string design' spatial transformations such as disarranging a coordinated multi-block design and correctly rearrang ing it; and the structuring of representational space, such as copying shapes suing paper and crayon).

5. Time: The ability to develop representationally temporal sequences based upon causal and means-ends relationships (for example, before the rain it is dry, after the rain it is wet; to buy a gum ball from a machine the penny is inserted first, the handle is pulled next, and the gum ball is taken out last; if you drop the glass on the cement, then it will break).

D. Representation: Learning symbolization to make language meaningful.

1. Symbolization through imitation, using the body to represent objects,(as in pretend activities), make-believe (using objects to represent still other objects, as in using a box of sand to represent a cake), onomatopeia (producing sounds to represent objects, as in "buzz-buzz" to represent a bee), three-dimensional models (for example, constructing a block house or building a clay animal), and two-dimensional representations (drawing pictures and identifying objects and action events portrayed graphically). It is in the representational area that Kamii and her colleagues attribute great significance to sociodramatic play, particularly imitation, as such play establishes "the bridge between sensorimotor intelligence, and representational intelligence" (Kamii, 1968, p. 16).

In this connection Kamii has drawn heavily upon the work of Smilansky (1968).

2. Language Representation: The ability to represent through language the objects in one's enviroment and physical, social, and logical knowlege. This includes assisting the child to induce the syntactical and morphological rule structure of his language and to gain skill in the use of synonyms, antonyms, and homonyms. (Recall Piaget's thesis that non-verbal representations, as in imitation, facilitate language representation).

Kamii points out that "literally anything" in a child's natural enviroment can be used to teach Piagetian concepts and representations. A household object like a glass, for example, can be known "socially" (it's for drinking milk, not soup); physically (it breaks, rolls, is transparent); and logically (glasses can be classified with other objects, seriated according to size, and quantified so that everyone in the class will have a glass). A glass can also be known spatially in terms of "top-bottom", "in-out", "round-straight", etc. An example of knowing a glass in a temporal sense is knowing the sequence of washing it, drying it, and putting it away.[5]

A commercial Piaget curriculum package, for use with 4 - 6 year-olds, is currently marketed by American Science and Engineering. Developed by Celia Stendler Lavatelli, the kit provides 22 sets of materials and a detailed teacher's guide for sequenced learning experiences in classification, number, measurement, space, conservation, and seriation. It sells for about $240.. Piaget is becoming big business.. but can be

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5. Kamii, (1971) .

duplicated with assorted junk from any home or dime store. Lavatelli's kit, unlike Kamii's program, is not designed as a total curriculum. It is intended to provide short structured sessions conducted with 5 or 6 children several times a week. These short sessions can be integrated into any kind of a total program. One of the major objectives of the kit is to sensitize the teacher to opportunities for promoting cognitive learning during the child's free play periods. There's also a strong emphasis on asking questions, providing appropriate language models, and giving each child extensive feedback. Having pilot tested some of the Lavatelli materials with groups of 2 - 4 Campus School preschoolers, I can testify that the teacher's assignment is no mean task.

I've focused until now on Piaget's impact on preschool education, but his greatest influence is not there, but at the early primary level, and not here, but in England. The English seem to have been reading Piaget for a longer time than Americans. The famous government Plowden Report of 1967 leans heavily on Piaget's theory as a rationale for the informal or open classroom. Open education in one or another form now characterizes close to half of the schools for England's 5 - 8 year-old children, and is beginning to take root in American soil as well. Piaget's influence on the British classroom is especially evident in the new mathematics curriculum, with its great emphasis on all kinds of concrete materials for counting, measuring, and weighing and for use in creating and solving a variety of practical problems. Open

educators have done the most to make education consistent with Piaget's proposition that the child is, and should be encouraged to be, the principal agent in his own mental growth. From Piaget's perspective, it is the child's own active efforts to assimilate experiences and accomodate his thinking to them that revise and extend his mental model of the world.

Piaget's general theoretical framework is also applicable to the thorny issue of the child's moral education during the primary school years. In 1932 Piaget published a book called The Moral Judgment of the Child. He reported there that his research on children's moral reasoning revealed successive three stages, which he believed to be universal, in the development of moral thought. These are:

(1) A morality of constraint - based on a unilateral respect for authority. The child believes that what the adult says is right. Rules can't be changed. Punishment always follows transgression. What's wrong is what's forbidden and punished. Moral responsibility is to be judged in terms of the consequences of an act, not its intent.

(2) An intermediate stage - in which the child internalizes rules and believes, for example, that you shouldn't lie even if you could always get away with it. The child still hasn't developed the rule for himself, however. Its source remains external.

(3) A morality of cooperation - based on mutual respect among

social equals. Rules are social contracts and can be changed by common agreement to better serve human needs. Moral rules derive from the nature of social relationships. It's wrong to lie or cheat, for example, because dishonesty undermines the mutual trust necessary for reciprocal social relationships. A person's intentions are more important than the consequences of his actions in determining moral culpability.

No one that I know of has tried to apply Piaget's moral judment theory to education. Educational applications of a cognitive stage-theory approach to moral development have, however, come from the work of Harvard's Lawrence Kohlberg. Kohlberg field-tested Piaget's moral judgment theory, and found that it needed a good deal of refinement and elaboration to match the actual sequences in children's moral thought. Kohlberg came up with six stages, the first three of which correspond roughly to the primary school years. These stages are as follows:

Stage 1: What's punished is bad, what's rewarded is good. You be good to stay out of trouble. A Stage 1 child would say, for example, that it's wrong to steal a precious drug that you can't afford to save your dying wife because the cops will arrest you. Or he might say that you should steal it, because if the wife dies, her brother will come and beat you up. The content of the judgment is not what Kohlberg classifies; it's the structure of the reasoning used to justify the judgment. Structure, not content, is what shows the consistent developmental changes.

Stage 2: Right action is whatever satisfies one's needs. The needs

of others are considered, but only on a "you-scratch-my-back-I'll-scratch-yours" basis. Steal the drug, because if your wife dies, who will cook your meals or wash your clothes? On the other hand, if you want to marry somebody better-looking, you could let her die.

Stage 3: Kohlberg calls this the nice boy/girl stage. What's good is what's nice - what maintains the approval of others. Part of being nice means considering people's intentions -- "he means well". A Stage 3 child might say, don't steal the drug because people don't like thieves and there's a law against it. Or he might say that you should steal it, because what will people think of you if you let your wife die?

These are the three stages that children move through during the primary school years. The next three stages are more characteristic of adolesence and adulthood. Stage 4 is a "law and order" stage; one should not only conform to the existing social order but should actively maintain it--for its own sake. Stage 5 defines morality much more flexibly, in terms of social contracts that can be revised through the democratic process of reaching consensus.

The highest stage is Stage 6, which only 5 - 10% of the adult population reaches. Stage 6 is characterized by self-chosen ethical principals, believed by the person who holds them to have universal validity. These are principals of justice, of the reciprocity and equality of human rights, and of respect for the dignity of human beings as persons. Subjects Kohlberg has interviewed who are Stage 6 on other moral dilemmas always say that the husband should steal the drug to save his wife's life. The right to life always transcends the right to property.

Kohlberg has solidly documented the universality of these stages through cross-cultural research all over the world. He has established the invariant sequence of the stages by a longitudinal study of the same boys over 15 years and by experimental training research -- both showing that children all go through the same sequence and never skip a stage. Recently I've had the opportunity to work with him on developing a commercial moral education film strip for use with 5 -9 year-old schoolchildren. The technique is essentially the same as that which he and his colleaques have used in their experimental research. Present the child with a moral dilemma that precipates cognitive conflict, and then expose him to the developmental stage one above his own. This can be done in a variety of ways... through informal discussion with more advanced peers, for example (here's another rationale for multi-aging). You can also expose the child to his own stage, or one stage below, or two or three above... it won't matter. The research indicates he'll change only toward the level one above his own. And the changes, like all cognitive structural changes, are irreversible. The child never "forgets" them. Pilot testing of the new filmstrip stories, incidentally, shows that even first and second graders vigorously debate the moral dilemmas and are eager for more.

Morals in the schools is, of course, a hot issue. Kohlberg has three lines of defense for his moral education programs. 1) His stages are developmental realities. He didn't make them up. Kids naturally go through them. The job of the teacher is to stimulate interest in moral issues and expose children to various levels of moral reasoning.. This will keep children from "freezing" at a given stage,

which many children do.

2) The teacher does not impose any values on the child. She can, if she wants to, leave the discussion of a moral problem entirely to the children. The individual child is free to choose the mode of reasoning he prefers.

3) This kind of moral education is constitutional and is, in fact, the only kind of moral education in the schools that is constitutional. It is constitutional because progress through these stages of moral reasoning represents progress toward an understanding of the principles of justice, equality, and individual rights upon which the constitution is founded.

This speech is long, and the time is short. I haven't said anything about Project Change, the effort I'm involved in at the College to design a new teacher training program for early childhood teachers and a curriculum for young children that draws upon much of what I've talked about today. Our Piaget-based experimental model classroom in the Campus School and our teacher training program will both be operational this July. Project Change was launched as a 3-year Federal Project, so we have the promise of funding for two more years.

The teacher training program will be based on many of the same principles that we think hold true for children's education. Teachers will be very much the agents of their own education. They will be helping in the design of the graduate program and will be actively working with children in a wide range of settings throughout their training experience. A major objective is to closely correlate practicum teaching experiences with all course work in order to foster constant interplay between theory and practice.

This is easier said than done, of course, and we're looking for all the help we can get. We're inviting people from all departments in the college to lend a hand by giving workshops focused on their special interest as it relates to the needs of early childhood teachers.

Let me close by saying that I think that both developmental psychology and early childhood education are in a state of exciting and accelerated development. The call is being sounded for preschool education for all children, not just for disadvantaged, and infants as well as 3 - 5 yearolds are now the target of early stimulation programs. The mutual enrichment of developmental psychology and early childhood education is only just beginning, and is, I think, the start of something big.

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