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**A theoretical paradigm for a developmentally based
kindergarten through twelfth-grade writing program**

Shipman, Sandra Rosa, D.A.

Middle Tennessee State University, 1992

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A Theoretical Paradigm for a Developmentally Based
Kindergarten through Twelfth Grade
Writing Program

Sandra Shipman

A dissertation presented to the
Graduate Faculty of Middle Tennessee State University
in partial fulfillment of the requirements
for the degree Doctor of Arts
December 1992

A Theoretical Paradigm for a Developmentally Based
Kindergarten through Twelfth Grade
Writing Program

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Abstract

A Theoretical Paradigm for a Developmentally Based Kindergarten through Twelfth Grade Writing Program

by Sandra Shipman

While elementary and secondary language arts teachers are charged with the responsibility of teaching writing, few of these teachers are part of a school system which has developed and implemented a comprehensive kindergarten through twelfth grade writing program. If, on the other hand, such a comprehensive program has been implemented, it is highly unlikely that it is based on developmental theory. The present study suggests such a program.

The study begins with reviews of both human growth and language development, focusing on the cognitive theory of Jean Piaget, the social learning theory of Robert Sears, the affective learning theory of Erik Erikson, and the language development theories of Lev Vygotsky and Noam Chomsky. The developmental theory then forms a foundation for presenting a theoretical paradigm for a developmentally based kindergarten through twelfth grade writing program. While the writing program is divided into four self-contained

Sandra Shipman

segments (kindergarten through third grade, fourth and fifth grades, sixth through eighth grades, and ninth through twelfth grades), it is intended that educators familiarize themselves with the entire program so that they may understand how each segment contributes to the comprehensive program. Also included is a table outlining the developmental continuum, with cognitive, social, and affective descriptors; language descriptors; writing descriptors; and writing process descriptors.

The study concludes with a call for a transformation in the way writing is perceived and taught. This transformation can occur only by dramatic changes in teacher education programs, both at the university and school system levels, and by teacher commitment to a new writing paradigm which is consistent with developmental theory. Educators can do no less, and students, surely, deserve no less.

Acknowledgments

No work of such magnitude as a dissertation could ever be accomplished without the encouragement, support, and even sacrifice of many people. To Dr. Larry Mapp, my major professor, I express my deepest gratitude for his unwavering patience, constant reassurance, and scholarly insight into developmental theory. To Dr. Ayne Cantrell, my second reader, I offer sincere appreciation for her diligence and time in helping to shape the manuscript.

To my parents, Mr. and Mrs. Ernest Vogt, who first taught me to value education and to believe in myself; to my children and their spouses, Cynthia and Keith Rosenblum, Connie and Thomas Schultz, Anthony and Kami Shipman, who offered constant moral support; to my precious grandchildren, Brittany, Brett, and Savannah, who lifted my heart with joy; and to my husband, David, who lovingly and patiently sacrificed his time to walk beside me every step of the way, I give my love and heart-felt gratitude.

To my professors at the University of Alabama in Huntsville (and particularly to Dr. Robert Welker, Dr. Herb Francis, Dr. Eleanor Hutchens, and Dr. Frances Roberts) who nurtured my love for literature and learning and helped prepare me for advanced study; to my colleagues, who gently nudged me onward; to my faithful friend, Avis Satterfield,

who shared my dream, my frustrations and triumphs; and to my typists Connie Bates and Nancy Neal, who provided word processing expertise, patience, and good humor, I express a very special thank you.

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Chapter 1

Introduction

While writing has long been linked with reading as a requisite to literacy, the writing component in many language arts programs is, nevertheless, grossly neglected and frequently misunderstood by instructional staff. This negligence occurs for various reasons: teachers' lack of professional preparation for the teaching of writing; the dependence upon textbooks which have been oriented toward form and the product of writing to the detriment of fluency, process, and context of composition; the lack of insight into children's intellectual development and language acquisition capabilities; and the absence of a systematic, comprehensive approach to the formal instructional process. The problem is so pervasive in most school systems that teachers are left without direction and confused about purpose, and students receive cursory, disjunctive writing instruction.

A theoretical paradigm for a developmentally based, sequential writing program, which draws upon the research of developmental psychologists and presents a kindergarten through twelfth grade comprehensive vision, will provide a framework for bringing cohesion to language arts instruction. Such a model will aid curriculum specialists and classroom teachers in designing specific writing assignments

that are not only developmentally sound but also creative and functional. Students pursuing such a properly implemented curriculum will benefit from the aggregate of appropriate, sequential instructional assignments.

The theoretical paradigm presented in the ensuing chapters is a synthesis and application of extensive reading of the research conducted both by developmental psychologists into the nature of human intellectual motivation and language acquisition and by numerous educational scholars and practitioners into the nature of the composing process and the methods of fostering literacy. Developmental psychologists have done exhaustive studies of children from their infancy, when they are totally subject to their environments, through adolescence, when they are capable of independent, logical thought. They conclude that intellectual growth is a gradual progression through stages which occur in identifiable, fixed, sequential order for all individuals. Given that this is true, these developmental stages provide the basis from which appropriate writing expectations may be extrapolated. In turn, this extrapolation becomes the matrix of a theoretical model for a kindergarten through twelfth grade writing program.

This theoretical model of a comprehensive writing program will be presented in five chapters. The first chapter will introduce the study; chapter two will present a summary of the research in developmental learning; chapter

three will present an integration of the three major theories of child development; chapter four will focus on the application of developmental theory and writing theory; and chapter five will conclude the study. These chapter divisions will be most useful for an explication of the relevant research, for development and publication of curriculum guides, and for the organization of staff development workshops. A comprehensive approach to a writing continuum will prove beneficial to both students and all grade-level teachers: Students will build upon their abilities and acquired writing skills, and teachers will direct their instruction to fit the comprehensive program. These benefits are possible only when teachers understand both what precedes and follows their own instruction.

Chapter 2

Overview of Research in Developmental Learning

Developmental learning is that field of inquiry that focuses on the theoretical bases of changes in children's thinking and behavior. The term "developmental" implies that such a study not only records a child's particular behavior in response to a particular stimulus at a particular time but also notes the change in behavior over a period of time and explains this change as a process. A developmentally based program of any kind, then, subscribes to the idea that children have biological clocks which signal readiness for various functions whether the function is sitting, standing, walking, or reading and writing. Furthermore, this readiness, which is a temporal, progressive process, cannot be arbitrarily imposed; it may, however, be facilitated to some degree (Zelazo, Zelazo, and Kalb 314-15).

Educators have unique and important roles as learning facilitators. They are perceived as professionals who are trained to recognize and provide appropriate learning experiences in a supportive environment at the optimal moment of a child's readiness. While no rational adult, educator or other, would expect kindergarten children to research and write a documented essay, many adults would be pressed to decide what would constitute appropriate writing

expectations for these children. Some would say that no expectation is appropriate; others, writing the alphabet and individual names; others, whatever the children can verbalize. These seemingly disparate views are ironically reconcilable when writing expectations are based upon developmental principles because it is likely that a given class of kindergarten children will have a one year variance in chronological age; hence their corresponding biological clocks will indicate varied levels of readiness. The concepts of children's developmental processes and learning readiness are supported by the research of distinguished psychologists and educators. A review of the cognitive, social, and affective theories of child development will show that while there are differences in what the various developmental learning "schools" perceive as primary stimuli for learning, all agree that this learning is an orderly, progressive process.

The Cognitive Theory of Child Development

The cognitive theory of child development examines the patterns of intellectual behavior which occur in a child's perception or conception of experiences and explains these learning patterns as the function or result of human development. To the cognitive theorist, then, knowledge, or learning, is dependent upon human development. The most universally recognized proponent of this theory is Jean

Piaget, Swiss philosopher, biologist, psychologist, and theorist, who spent nearly a half century researching and publishing his theory of human development.

Piaget's life's work was devoted to studying the development of knowledge. As Henry W. Maier notes, "Piaget did not set out to study cognitive development of individuals but rather the development of cognition" (90). In his research, Piaget used the empirical method of investigation, for he intensely studied a limited sample and generalized his data. He hypothesized that his own children, the children of Geneva, Switzerland, and all children around the world are identical in their thinking patterns and cognitive development. Subsequent research substantiates Piaget's hypothesis (Almy, Chittenden, and Miller 33).

According to Piaget, human development is an inherent, sequential process which may be classified into five major phases occurring within relatively predictable time frames: sensorimotor, birth to two years of age; preconceptual, two to four years of age; intuitive thought, four to seven years of age; concrete operations, seven to eleven years of age; and formal operations, eleven to fourteen years onward. While each phase is distinctive and has sequential subphases, or stages, each succeeding phase or subphase subsumes and builds upon the preceding one in a hierarchical progression to form a developmental continuum.

I. The Sensorimotor Phase

While the origin of the developmental continuum occurs prenatally in the reflexive behavior of the unborn baby, Piaget begins his study with the neonate's learning to coordinate his sensorimotor activities. This sensorimotor phase covers the span from birth to the age of about two years and is characterized by the child's progressing from the exercise of basic reflexes to the beginning of thought. Maier observes:

The major developmental tasks of this period are the coordination of his [child's] actions or motor activities, and his perception or sensory perception into a tenuous "whole." In other words, the new organism must find himself an active part of his environment and must be able to perceive his environment within the horizon of his immediate experience. (103)

Piaget divides the sensorimotor phase into six sub-phases:

1. Random and reflex action

This phase occurs from birth to about one month and is characterized by the infant's autism and his undifferentiated exercising of the basic reflexes of sucking, grasping, crying, and body movement. Toward the end of this period, the infant begins differentiation. For example, at one month he is

able to distinguish between objects such that he will not suck any object which touches his lips but only those which, if hungry, will satisfy his need (Boyle 34).

2. Primary circular reaction

This phase occurs from one to four months and is marked by the infant's attempt to reproduce an activity which had initially been produced accidentally. The infant in exercising his arms has accidentally moved his hands across his field of vision. This body movement has brought a satisfying or interesting effect so the infant repeats the behavior. Toward the end of this phase, the infant moves from the primary, or body-centered activity, to an interest in his environment (McNally 16).

3. Secondary circular reactions

From four to eight months of age, the infant is capable of coordinating what were previously accidental activities and of directing his activity toward objects in his immediate environment. He will reach for and shake objects which interest him and will make a rudimentary search for an object removed from his field of vision. Also, importantly, the infant begins the imitation of adult activity (Maier 108-09).

4. Coordination of secondary schemas (structures)

From eight to twelve months, the infant's sense of perception develops such that his understanding of simple means-end organization emerges (McNally 16). He will purposefully direct his activity to achieve a desired effect, moving obstacles which come between him and his reaching for a desired object, and will show disappointment if his expectations are unfulfilled, crying if juice habitually taken from a given cup is not present (Boyle 37).

5. Tertiary circular reactions

From twelve to eighteen months, the child "actively 'experiments' in order to investigate the properties of objects and events whereas primary circular reactions were concerned with the action of the infant's own body and secondary circular reactions with direct actions on the environment" (McNally 17). In this phase, the child will vary his actions rather than simply repeat previous ones. Piaget sees this behavior as the "roots of rational judgement and, ultimately, intellectual reasoning" (Maier 112). In Piaget's words:

It involves an application of familiar means to new situations or the invention of new means constitute, from the same functional point of view, actual reasonings since, as we have already emphasized, the scheme used in the

capacity of means . . . is subsumed under the scheme characterizing the final end in the same way that judgements are put into a state of mutual implication in the framework of the conclusion. (Origin of Intelligence 268)

6. Invention of new means through mental combination

Whereas the tertiary circular reactions in subphase 5 marked "the peak of the purely sensorimotor adaptations of the infant's development," subphase 6 "marks the beginning of cognitive representation" (Baldwin 178).

At this time [18 to 24 months], children can picture events to themselves and to some degree follow them through mentally. Thus, they can discover solutions to problems without overt trial and error and can imitate actions after the model has disappeared--deferred imitation. They can also fill in invisible portions of an objects' trajectory and, thus, anticipate its final location. The ability to represent events internally requires, of course, some intuitive understanding of the nature of objects, the relationships between different paths in space, and some understanding of causality. (Baldwin 178)

The sensorimotor phase, in summary, consists of six subphases during which a child progresses from the reflex activity of the newborn; to the primary, secondary, and tertiary circular reactions where the child's activities move from body-centered, to environmental, to intentional, to intentional variations of activities; and finally, to the possibility of mental representation. In the last subphase the child has a clear understanding of the permanence of objects and of the cause and effect relationship. This understanding permits the child to internalize actions, thus solving problems much more rapidly than through active experimentation. In other words, he has begun the thinking process.

II. The Preconceptual or Symbolic Phase

The preconceptual phase is the second of Piaget's five major phases and occurs in the young child between the ages of two and four years. This phase receives its name from the child's inability to form concepts because of his dependence upon his perception of individual situations. Whereas an older child or an adult is capable of deductive and inductive reasoning, the two to four year old uses what Piaget calls "transduction," the linking of one particular to another particular. Piaget illustrates this point by presenting a three year old with a box of multi-colored, multi-shaped wooden blocks. He then asks the child to give

him some blocks which are alike. The child hands him in order a blue circle, a blue triangle, and a red triangle (McNally 27). The child has obviously linked the first two by color, ignoring shape, and the last two by shape, ignoring color. Had the child been asked for a fourth block, he would have selected either a red one of any shape or a triangle of any color. His linking of particular to particular prevents his seeing any inconsistency within the set and prevents his "forming true concepts because he cannot cope with general classes" (McNally 26).

The preconceptual phase is also noted by the child's egocentrism. This egocentrism is seen as a transitory phase between the autistic behavior of the sensorimotor phase and socialized behavior of the intuitive thought phase. Egocentrism differs from autism as the latter is directed solely toward self-satisfying behavior whereas the former is directed toward an interest in environment but an interest which is limited to and interpreted in terms of the child's previous experiences. In other words, "the child behaves and talks as if all points of view were identical to his own" (Boyle 125). An example of the child's egocentrism distorting his thinking is given by McNally who relates the incident of a child wanting to go to the corner grocery store to buy a lollipop after the store is closed for the day. Regardless of his mother's insistence that the store is closed, the child maintains it is open. A few minutes

later the child runs into the house and says, "The grocer's shop is open because the grocer just walked past our house" (26). The child's egocentric desire for candy controls his thinking to the extent that he ignores both the direction the grocer is walking and the time of day.

In this preconceptual phase the child continuously engages in investigation through play and imitation. Both symbolic play (pretending) and playful repetition of actual events are essential functions for the child's social adaptation. Through play and imitation he learns to accommodate himself to frustrations and conflicts, for in the world of play he can adjust "to reality by interpreting it in [his] own terms and thereby provide an essential instrument for the maintenance of emotional stability" (McNally 23).

In addition to symbolic play in the two to four year old child's world is his beginning acquisition of another symbolic system which will ultimately free him from the constraints of objects, time, and space. This symbolic system is, of course, language which will enable him to express what is known, but is not physically present, as well as what is an immediate desire or behavior, which is present. Language, along with the symbolic functions of play, imitation, and drawing, "serves to detach thought from action and this symbolic function as a whole becomes the source of representation" (McNally 25). McNally notes that "language plays a particularly important role among the

symbolic functions because it brings with it a socially elaborated system of classification, relations, meanings, etc. for use in the service of thought" (25).

While it is true that the child begins verbal constructs in the sensorimotor phase, these constructs are one to two word sentences with indefinite, personal meanings not shared by society. However, by the end of the preconceptual or symbolic phase, the four year old child has a rapidly expanding vocabulary with more socially shared meanings and a growing mastery of syntax.

The preconceptual phase, then, is an important one because of the addition of the symbolic function which serves the child's needs to transform reality through play so that he may cope with frustrations. His thinking is "pre" conceptual because reality is distorted to his point of view, a distortion which continues in the succeeding intuitive or perceptual phase.

III. The Intuitive or Perceptual Phase

The intuitive or perceptual phase, which extends from about four to seven years of age, is marked, as its name implies, by the child's view of reality. Since his "thinking is dominated by immediate perceptions," his "judgments suffer from the variability typical of perception" (Beard 57). While his perception is subjective and egocentric, his widening social relationships expose him

to other people's points of view so that he must begin to coordinate diverse perspectives.

During this phase the child imitates older children and adults and behaves "as if he knew intuitively what life were all about" (Maier 125). His thoughts, however, are "restricted in quality and effectiveness by two things," immediate perceptions and centering (McNally 27). These two restrictions are illustrated in a frequently used example of a six year old child who is presented with two equivalent balls of plasticine. After the child agrees that they are equivalent, one is rolled into a sausage shape, and the child is asked whether there is more, less, or the same plasticine in the sausage-shaped specimen as in the ball. The child now may say that there is more plasticine in the sausage-shaped specimen because it is longer than the ball, or he may say there is less in the specimen because it is thinner than the ball. He draws these conclusions because he centers on one aspect of the experiment, the shape of the specimen, seeing either the length or the width of the sausage; he is unable to consider both simultaneously. He "bases his judgement on what seems to be, on intuition" (McNally 31). The intuitive child has not reached the stage of development in which he understands transformation and reversibility so that he can comprehend the conservation of matter. When he is able to move mentally back and forth between the two specimens, comparing the samples of

plasticine, to apply logic "to compensate for the biasing distortions of perception," and to conclude that the specimens are equivalent regardless of their shape, then he advances to the concrete operations phase. (McNally 33).

Typical also of children in the intuitive phase is their inability to understand the relationship of a whole with its parts, or a class with its subclasses. One of Piaget's experiments which has been related many times illustrates this point. A child is shown a box with brown and white wooden beads in it. The child agrees that all of the beads are wooden and that some are brown, some white. He is then asked whether there are more wooden beads or brown beads. He replies there are more brown beads than wooden beads "because there are so few white ones" (Baldwin 203). The idea that the brown and white beads are subclasses or parts of the class or group of wooden beads is too complex for this developmental stage. A. L. Baldwin explains children's inability to consider classes and subclasses simultaneously before the age of seven:

Before that time, they cannot maintain one cognitive system in which both the brown beads and the white beads are included in the class of wooden beads and, therefore, cannot compare the brown beads to the wooden; all they can do is to compare them to the white, a class that is distinct from the brown. (203-04)

Social interaction intensifies during this developmental stage. In play, games call for collective rules; and traditional pastimes, such as hide and seek, tag, and "play like," are favorites. The child's "play like" imitation of adults is his way of assuming their status and values, and any noncompliance to adult authority and values is seen as just cause for automatic punishment, regardless of motive or circumstances (Maier 132-35).

Although more social, the intuitive phase child does not yet use language as a means of exchanging ideas and messages. Language for him is more of a "thinking aloud" activity which aids intuitive thought, furthers introspection, and affirms opinion. He equates words with fact and readily cries if someone calls him an undersirable name (Maier 131). His language, however, will shift dramatically from the egocentric utterances which comprise 45 percent of the six year old's verbalization to only 28 percent egocentric speech in the seven year old (Boyle 125).

The intuitive or perceptual phase, then, revolves around the child's point of view--how he sees reality. The biases inherent in perception combined with the centering phenomenon result in disjunctive, or partial, reasoning. The ability to decenter, to consider varying perspectives, to compare and transform elements, and to form mental images marks the transition from intuitive to operational thought.

IV. The Concrete Operations Phase

The concrete operations phase and the succeeding formal operations phase, which culminates Piaget's theory of child development, are characterized by the child's "new level of thought; namely, operational thought. Operational thought refers to the mental capacity to order and relate experience to an organized whole" (Maier 136). Piaget divides operational thought into two phases, concrete and formal, with the former defined by the seven to eleven year old child's dependence upon his ability to perceive concretely the logic of a mental experiment and his ability to examine multiple perspectives. When the youngster no longer relies solely upon reality or concrete objects for his understanding but rather relies upon symbolism and hypothesis, then he moves to the second operational phase, formal operations.

An extremely important aspect of concrete operations, which was not present in previous developmental phases, is the child's awareness of reversibility, "the permanent possibility of returning to the starting point of the operation in question" (Piaget, Growth of Logical Thinking 272). Maier explains reversibility:

In other words, reversibility is the capacity of relating an event or thought to a total system of interrelated parts in order to conceive the event or thought from its beginning to its end or from its end to its beginning. Reversibility is

achieved either by canceling an operation (inversion or negation) or by reciprocity (reciprocal operation as an equivalent). (136)

This awareness of reversibility has a profound effect on the child's thinking because he can now consider multiple approaches to a problem, rejecting or accepting solutions while knowing that he can always return to his original viewpoint.

Inherent in the practice of reversibility is the youngster's ordering concrete data by classification. He distinguishes parts and recognizes their relationship to the whole, and he establishes a hierarchical system of classification which incorporates nesting, "classifying an internal relationship between smaller parts and their all-inclusive whole," and lattices, "classifying by a focus on the connective link and the parts which are linked together" (Maier 137).

According to Piaget, the concept of grouping is significant for intellectual operations; therefore, the theorist spent considerable time forming a logically consistent system to explain children's recognition of various organizational relationships. In Classes, Numbers, and Relationships, Piaget records his conclusions and describes a set of nine groupings. Of the nine, one is seen as a grouping of equivalence; four are seen as grouping of logical classes; and four as groupings of relations (Boyle 59).

The first grouping of equivalence or identity has been called a "preliminary" grouping by A. L. Baldwin. He uses this term because an understanding of equalities is central to comprehending the other groupings. Children, then, exhibit an understanding of this relatively simple property of grouping before they advance to the more complex groupings (213). It is worth noting that "the mental capacities for concrete operations evolve one by one, and proceed from the very simple, to the ordinary, and eventually to the more removed experience" (Maier 139).

Between the four groupings of logical classes and the four groupings of relations, there is a recognizable parallel (as noted in Table 1 below):

Table 1

Groupings of Classes and Relations in Concrete Operations

Groupings of Classes		Groupings of Relations	
I.	Primary addition of classes	V.	Addition of asymmetrical relations
II.	Secondary addition of classes (vicariations or equivalences)	VI.	Addition of symmetrical relations
III.	Co-univocal (one-to-many) multiplication of classes	VII.	Co-univocal (one-to-many) multiplication of relations
IV.	Bi-univocal (one-to-one) multiplication of classes	VIII.	Bi-univocal (one-to-one) multiplication of relations

Source: D. G. Boyle, A Student's Guide to Piaget (London: Pergamon, 1969) 64.

These eight groupings are explained by Piaget in a complicated logico-mathematical narrative which is condensed and simplified as much as possible by such writers as Boyle and Baldwin. For our purpose, it is adequate to note that the seven to eleven year old concrete operational phase child is capable of recognizing a wide range of groupings as long as the groupings concern the actual.

Also during this phase of development, the youngster continues using language as the verbalization of thought, the thinking aloud about concrete actions. He is, however, expanding his usage to include language as a means of conveying messages and of interpreting his physical and social worlds. Maier explains:

Again, thoughts and words follow the potential action phase. Verbal thinking remains marginal to real thinking which, even though verbalized, remains centered upon actions until about eleven to twelve years of age. Similarly, a child's evaluation of stories lags behind his evaluation of life, because the content of such stories usually deals with events which are more removed from their everyday experience. Experiences more distant are understood later. (142)

The child's socialization becomes less egocentric and less parentally dominated now. His widening social experiences provide him with an expanding catalog of role models

and peers whose varying perspectives guide him toward the development of mutual respect. This social reciprocity leads him to abide by the collective rules of the group and to practice objectivity in the meting out of justice. The child sees the failure to compensate justly for misdeeds as the "worst crime" (Maier 146).

The concrete operation phase is characterized by the child's understanding of groupings. While "this understanding is oriented toward the actual observation of concrete events in the child's environment" (Baldwin 247), this phase, nevertheless, is a decidedly major progression in the child's development.

V. The Formal Operations Phase

The culminating phase of intellectual development occurs between the ages of eleven and fifteen when, according to Piaget, the adolescent becomes "an individual who thinks beyond the present and forms theories about everything, delighting especially in considerations of that which is not" (Psychology of Intelligence 148). Delighting in the possible and its relationship to the actual allows the adolescent to transcend the realistic world and to enter the ideational realm where he can use symbols, reason by hypothesis, and systematically exercise logic.

In Logic and Psychology, Piaget says that systematic ordering and reasoning by hypothesis, which are

characteristics of formal operations, are an attempt by the adolescent to conceive all possible relationships implied by the problem or data at hand and to test these conceptions until he can logically verify or reject each possibility.

The psychologist states:

The consequences of this new attitude are as follows. In the first place thought no longer proceeds from the actual to the theoretical, but starts from theory so as to establish or verify actual relationships between things. Instead of just coordinating facts about the actual world, hypothetico-deductive reasoning draws out the implications of possible statements and thus gives rise to a unique synthesis of the possible and necessary. (19)

This new hypothetico-deductive mode of thought changes the way the adolescent forms relationships. Whereas prior to this phase of formal operations the child had conducted his thinking on a "horizontal plane," verifying thought through the horizontal relationships of parts to parts and parts to whole, the adolescent now conducts his thinking on a "vertical plane," forming impressions, ideas, and concepts about everything from the past into the future. He is capable of "applying symbols of thinking" such that "he develops concepts of concepts" (Maier 150).

In the social realm, the adolescent relinquishes

egocentrism in favor of cooperation and submits to social norms. He begins planning his future role in society, when he will assume his rights and duties of participatory citizenship, and modifies his moral values, which hitherto had been imitative of significant adults. His moral values now are predicated upon a sense of fairness and relativity:

In the domain of retributive justice, equity consists in determining what are the attenuating circumstances In the domain of distributive justice, equity consists of taking account of age, of previous services rendered, etc., in short, in establishing shades of equity. (Piaget, Moral Judgment 284).

The adolescent's language also reflects his increased cognitive development. He tends to give both exhaustive and general definitions and descriptions of objects, experiences, and thought. In doing so, he makes full use of similes, metaphors, allusions, and logical assertions (Beard 103). Small group discussions, which lend themselves to the free expression of thought, observation, evaluation, questioning, etc., are not only favorite classroom activities for adolescents but also sound methods of instruction (Beard 117).

The phase of formal operations ends with the adolescent reaching physical and rational maturity. He is in many respects like an adult except that he lacks multiple

experiences which enhance the probability of sound judgment. This culminating developmental phase is most notable for the advancement in thinking so that combinatorial and propositional operations occur.

Jean Piaget's life was spent in deciphering the development of knowledge. In his cognitive theory of child development, he hypothesized that intellectual development is sequential and consistent for all human beings. Table 2 (page 26) presents a graphic summary, while Maier gives a narrative summary of this developmental pattern:

1. All development proceeds in a unitary direction.
2. Developmental progressions are in order and can readily be described by criteria marking five distinct developmental phases.
3. There are distinct organizational differences between childhood and adult behavior in all areas of human functioning.
4. All mature aspects of behavior have their beginnings in infant behavior and evolve through all subsequent patterns of development.
5. All developmental trends are interrelated and interdependent; developmental maturity means the final and total integration of all the developmental trends. (154)

Table 2

The Continuum of Cognitive Development

MODALITY OF INTELLIGENCE	PHASES	STAGES	APPROXIMATE CHRONOLOGICAL AGE
I. Sensorimotor Intelligence	Sensorimotor Phase	1. Use of reflexes	0 to 1 month
		2. First habits and "primary" circular reactions	1 to 4 1/2 months
		3. Coordination of vision and prehension, "secondary" circular reactions	4 1/2 to 9 months
		4. Coordination of secondary schemata and their application to new situation	9 to 12 months
		5. Differentiation of action schemata through "tertiary" circular reactions, discovery of new means	12 to 18 months
		6. First internalization of schemata and solution of some problems by deduction	18 to 24 months
II. Representative Intelligence by Means of Concrete Operations	Preconceptual Phase	1. Appearance of symbolic function and the beginning of internalized actions accompanied by representation	2 to 4 years
	Intuitive Thought Phase	2. Representational organizations based on either static configurations or on assimilation to one's own action	4 to 5 1/2 years
		3. Articulated representational regulations	5 1/2 to 7 years
	Concrete-Operational Phase	1. Simple operations (classifications, seriations, term-by-term correspondences, etc.)	7 to 9 years
		2. Whole systems (Euclidian Coordinates, projective concepts, simultaneity)	9 to 11 years
	III. Representative Intelligence by Means of Formal Operations	Formal Operational Phase	1. Hypothetico-deductive logic and combinatorial operations
2. Structure of "lattice" and the group of 4 transformations			14 years - on

Source: From Piaget's paper "Les Stades du Developpement intellectuel de l'Enfant et de l'Adolescent" (1956, 37 ff.). Adapted to this paper from Table 3.1, "The Cognitive Theory of Jean Piaget," in Henry W. Maier, Three Theories of Child Development, rev. ed. (New York: Harper & Row, 1969) 155.

Additionally, Piaget recognizes a number of pertinent characteristics of human development which go beyond all developmental processes:

1. All development proceeds in identical sequence. At the beginning of life there is a kind of metamorphic transposition of organic processes into volitional ones.
2. All developmental phenomena reflect a natural trend of change from a simple to an ever-increasing complexity.
3. Each developmental aspect begins with concrete ordinary experiences or problems. Only after complete mastery of a concrete experience does development proceed toward the mastery of its corresponding abstraction.
4. Personality development proceeds from experience with the physical world to the social and finally to the ideational world. Every new dimension is first experienced by its physical realities before social and, later, ideational considerations can be absorbed.
5. Personality development starts with an egocentric orientation, moves through a period of pure objective appraisal, and a sense of relativity emerges while moving toward maturity.

6. Intellectual behavior evolves descriptively from activity without thought to thought with less emphasis on activity. In other words, cognitive behavior evolves from doing to doing knowingly, and finally, to conceptualization.
7. An object is first known for its use, then for its permanency, its representative symbol, its place in space, its properties (weight, etc.) and finally for its relativity in space, time, and utility.
8. Actions of all objects are first attributed to animism. Later, animism is limited to moving objects, and eventually, only to self-perpetuating objects. Only the acquisition of cognitive thought permits an explanation by natural or mechanical realities.
9. A sense of ethics and justice (conscience) is anchored first in complete adherence to adult authority, to be replaced by adherence to mutuality, to social reciprocity, and finally, by adherence to social integrity.
10. Previous developmental acquisitions are retained as active ingredients throughout life. Various forms of earlier behavior patterns will find their expression in instances when the individual faces new

problems or feels compelled to revert to previous patterns. (Maier 156-57)

Jean Piaget's extensive publications have supplied educators with a plethora of valuable information, which, if studied along with other theories of human development, can enrich educators' understanding of students. This enrichment in the hands of capable, caring teachers can strengthen the instructional component in the classroom so that students at every grade level are offered the proper materials and methods for academic growth.

The Social Learning Theory of Child Development

The social learning theory of child development studies the patterns of human behavior which occur in a child's perception of experiences and explains these patterns as a function of social interaction. To the social learning theorist, behavior is learned and child development is either a corollary of the process of learning or a product of learning. This view contrasts to that of the cognitive theorists, like Jean Piaget, who believe that learning is dependent upon human development, for the social learning theorists see human development dependent upon learning.

Social learning theory, like all learning theory, is derived ultimately from the English empirical philosophers Thomas Hobbes, John Locke, David Hume, James Mill, and John Stuart Mill. These men advanced the theory that experience

is the only source of knowledge (sensationalism); that complex ideas are aggregates of simple ideas and are reducible to these simple ideas (reductionism); that ideas are connected by association (associationism) which occurs in close temporal proximity (contiguity); and that the mind is like a machine whose components are explicable (Bower and Hilgard 2-3). These four aspects of empiricism are addressed by behavioral-associational, or social learning, theorists in various ways, for while the earliest traces of learning are found in philosophy, it is in the field of psychology that these ideas are subjected to rigorous scientific experiments for validation.

Social learning theory's most recent association is with such nineteenth and twentieth century thinkers as Edward L. Thorndike, Ivan Pavlov, B. F. Skinner, Clark Hull, and Robert R. Sears. The first three men worked extensively with laboratory animals to construct learning theories which were extrapolated to humans. It was Clark Hull and Robert Sears who worked to formulate and verify a comprehensive, quantitative system of social behavior for humans. A review of Thorndike's bonding or connectionism theory and Pavlov's and Skinner's conditioning theories will serve as a prelude to a discussion of Hull's and Sears' social learning theory.

I. Bonding or Connectionism

Among the early investigators of associationism is

Edward L. Thorndike (1874-1949) who saw the connection between sensory impressions and the impulse to act (respond) as the basis of learning. He believed that the most characteristic method of learning for both animals and man is "learning by selecting or connecting" (Bower and Hilgard 22) and that "habits are developed or eliminated by strengthening or weakening the associative bonds or . . . connections between stimuli and responses" (McLaughlin 5).

As a psychologist and empiricist, Thorndike tested his associative-reinforcement theory in animal experiments and concluded that animal learning is a trial-by-error, mechanistic process which results from a "gradual stamping in of correct responses and stamping out of incorrect responses" (Bower and Hilgard 23). The "stamping in" and "stamping out" processes are, of course, accompanied by a satisfying or annoying reinforcement. Thorndike formulated the results of his animal experiments into his "Law of Effect," which delineates the relationship between sense impressions, responses, and reinforcement, a delineation which has resulted in his theory being called "the original stimulus-response, or S-R, psychology of learning" (Bower and Hilgard 21).

The successors of Thorndike who became proponents of the stimulus-response approach to human development predicate their theory on Thorndike's thinking, for they hypothesize that behavior is learned through multiple, independent acts

which are reinforced, or influenced, externally. This hypothesis has far-reaching implications. Since S-R advocates see behavior as a learned process of the accumulation of independent, specific acts, or units, it is, therefore, "almost infinitely malleable and shapable" if it is provided with sufficient external reinforcement (Baldwin 410).

While Thorndike made considerable contributions to the study of social learning, his preoccupation with his Law of Effect working "mechanically on all connections in the neighborhood of the rewarded one" (Bower and Hilgard 47) caused him to focus on external motivation, relegating internal motivation to a relatively insignificant position, and to see human learning as mechanistic phenomenon:

Both theory and practice need emphatic and frequent reminders that man's learning is fundamentally the action of the laws of readiness [reinforcement], exercise [repetition], and effect [strengthening or weakening of a connection as a result of its consequences]. He is first of all an associative mechanism working to avoid what disturbs the life-processes of the neurones.

(Thorndike 23)

Notwithstanding this skewed view of human learning, Thorndike's influence upon subsequent learning theorists was enormous indeed. Barry McLaughlin states:

To a great extent it was his work that determined

the form experimental research in the psychology of learning would take over the next half century. His studies of animals in controlled experimental settings, his reliance on quantitative behavioral measurements, his associationistic interpretations, and his emphasis on reinforcement as the determinant of learning became the keynotes of an orthodox S-R position. And it is this position that has dominated the scene in American psychology. (7)

Edward Thorndike was not only a theorist but also an educational psychologist and teacher. He believed that his research had implications for both the learning and teaching processes. Gordon Bower and Ernest Hilgard note:

Thorndike gave great impetus to the scientific movement in education, arguing that educational practices be regulated according to verified outcomes of specific practices. His tremendous drive led to enormous output in fields as varied as handwriting scales, dictionary writing, methods in teaching arithmetic and spelling, intelligence tests, and vocational guidance. (46-47)

As an early theorist of behavioral-associationism, Thorndike left a rich legacy of both scientific theory and practical application. "The picture of the learning process which [he] sketched . . . is still very much on the books.

No comprehensive theory of human development can afford to ignore the heritage left to us by Thorndike" (Postman 397).

II. Classical and Operant Conditioning

The idea of "conditioning" is central to major associationist theories of learning; hence, it is fundamental to stimulus-response theory. In psychological terms, "conditioning" implies a modification of a stimulus in an experiment such that an act, or response, which had previously been associated with one stimulus is transferred to another stimulus (Baldwin 411). In a study of conditioning, two dominant types emerge, classical and operant.

Classical conditioning refers to the original type of conditioning which was investigated and formulated by Ivan Pavlov (1849-1936), a Russian physiologist with an interest in psychology. His renowned work with dogs entailed his performing surgery on the animals so that the secretions from their salivary glands could be collected and measured. After the surgical procedure, Pavlov injected a meat powder into the dogs' mouths which was followed by the dogs' salivating. Since the salivation occurred on the first trial, the salivation is called the "unconditioned response"; and the meat powder, the "unconditioned stimulus."

Pavlov's next step was to modify the presentation of the "unconditioned stimulus," the meat, so that the animals'

responses to the meat would be transferred. This he did by introducing a bell, the "conditioned stimulus," which was rung slightly before the meat was presented. After a number of trials in which this procedure was repeated, the dogs began to salivate whenever the bell was rung. This salivation to the bell is called the "conditional response" and is done in anticipation of food, whether or not the meat powder is actually presented on that specific trial.

The timing of the bell with the presentation of the food is central to the experiment, for Pavlov found that the conditioning process occurs most rapidly and effectively when the bell is rung slightly before the food is given. If there is a delay between the two, "conditioning still occurs, but it takes longer to establish" (Baldwin 412). A. L. Baldwin makes this pithy comment about classical conditioning:

The general principle illustrated by classical conditioning is called the contiguity principle. Its important feature is the pairing of the two stimuli, the conditioned and unconditioned stimulus. The contiguity of two stimuli tends to give one of them the ability to elicit responses previously made to the other. There are several qualifications to this general principle:

1. The timing of the two stimuli is important.

The response to the latter stimulus transfers to the earlier more easily than the reverse.

2. The conditioned response is generally not identical with the unconditioned response, but it is similar. The chemical content of the saliva, for example, is not the same for the conditioned and the unconditioned responses.
3. The effectiveness of the conditioning process depends also on the general state of the organism. In other words, conditioning is not an automatic result of every pairing of two stimuli, but it does occur under a wide range of circumstances (412).

The second important type of conditioning is operant or instrumental, and it is most commonly associated with the research of B. F. Skinner (1904-1990), an American behavioral psychologist. The terms "operant" and "instrumental" are derived from the subject's behavior during an experiment. Skinner's well-known work involved his constructing a box equipped with a lever that was accessible to the subject, usually a rat, so that the rat could reach and press it. The rat is then placed in the box where it is observed until it fortuitously presses the lever, automatically releasing a pellet of food into a food box near the lever. Once the rat has pressed the lever once and has been reinforced with food, it presses the lever more

frequently and rapidly until its hunger is satisfied. The reinforcement, the food, comes only when the rat activates the lever. Since the rat's lever pressing is instrumental to its getting food, this process is called "instrumental conditioning." It may, on the other hand, be called "operant conditioning" just as well because the original pressing of the lever was fortuitous, not a response to a specific stimulus but a spontaneous action from the rat. The rat, therefore, behaved as an "operant," rather than as a "respondent," such as Pavlov's dogs (Baldwin 413).

While the initial experiment with operant conditioning did not include a stimulus, depending instead upon the rat's spontaneity, the operant response can be placed under a stimulus if it is reinforced only in the presence of the stimulus. For example, the Skinner box can be rigged so that the food pellet is released only after the rat presses the lever when a light is on. The rat soon learns that its initial operant behavior, pressing the lever and receiving food, will no longer reward it unless the action occurs in the presence of the light. As a result of the experience, the rat presses the lever as quickly as the light comes on and only when the light comes on. The light in this situation is known as the discriminative stimulus (Baldwin 413).

Of the two major types of conditioning, classical and operant, there is one major difference:

In classical conditioning, an action that is already a response to a stimulus can be put under the control of a different stimulus by contiguity of the two stimuli. In instrumental [operant] conditioning, an action that is not tied to any specific stimulus can be put under the control of a stimulus by rewarding the action consistently when it is performed in the presence of the stimulus. Thus, randomly occurring actions can be made into reliable, controllable responses or regularly recurring actions. (Baldwin 413)

Both Ivan Pavlov and B. F. Skinner contributed significantly to associationist theory of human development with their research in conditioning. Pavlov's experimental work proved how associations are formed, and "all theorists are indebted to him for clarifying basic issues and introducing a terminology and methodology that allowed for scientific investigation" (McLaughlin 5). While acknowledging Pavlov's scientific contributions to the concept of classical conditioning, Skinner was interested not only in an experimental subject's respondent behavior but also in its operant behavior. Both views of conditioning stress the absolutely critical nature of reinforcement in the shaping, inhibiting, or extinguishing patterns of behavior and provide principles and techniques which may be extended to social and interpersonal phenomena (McLaughlin 22).

III. Systematism

Building upon both Edward Thorndike's law of effect and Ivan Pavlov's conditioning experiments, Clark Hull (1884-1952) searched for a comprehensive theory of human behavior which not only recognized specific responses to stimuli but also explained the reasons for particular responses. While acknowledging the importance of a stimulating environment, Hull believed that environment (stimulus) can only partially explain how and why an organism responds in a particular manner. Equally important are such variables as "the organism's history of prior training in this or similar situations, its "biological need-states created by deprivation of food, water," etc., its "state of health or fatigue," and so on (Bower and Hilgard 95). Hull maintained "that the influence of these historical and/or deprivation variables upon a variety of behaviors could be summarized by one or another intervening variables, or theoretical constructs such as habit strength or drive level" (Bower and Hilgard 95). In order to validate his theory of behavior, Hull constructed a complex system of theoretical postulates and equations which he then subjected to intensive empirical tests.

In his general behavior system, Hull articulated sixteen postulates which he stated in precise mathematical formulae. The postulates are Hull's attempt to account for the

interval between the presentation of a stimulus (S) and the ultimate response (R). The interval is, of course, marked by internal, unobservable responses which are inferred from behavior. Central to Hull's conception of an organism's performance, or response, are the intervening variables of drive, habit strength, stimulus intensity, and incentive reinforcement. Hull defined performance in these terms:

The reaction potential (${}_S E_R$) of a bit of learned behavior at any given stage of learning, where conditions are constant throughout learning and the response-evocation, is determined (1) by the drive (D) operating during the learning process multiplied (2) by the dynamism of the signaling stimulus trace (V_1), (3) by the incentive reinforcement (K), and (4) by the habit strength (${}_S H_R$); i.e., ${}_S E_R = D \times V_1 \times K \times {}_S H_R$. (Hull 7)

Each of the four components in the formula is an intervening variable which mediates "the causal influence of the conditional stimulus upon the response performed" (Bower and Hilgard 96). For Hull, drive (D), the first component, is an intervening variable and a function of observable independent variables such as deprivation of food, water, and sex. Barry McLaughlin notes:

Drives activate and energize behavior: the combination of the strength of the drives at a given instant makes up the total energy level of the

organism. This activating effect of drives is observable in the general level of bodily activity and in the vigor with which habits are performed. The greater the total drive level, the greater the level of bodily energy and the more vigorous the response. (13)

Each drive produces an internal drive stimulus which is unique to the specific drive. For example, the hunger and thirst drives will produce stomach contractions and dry throats. Satisfying these internal stimuli traces (V_1) will alleviate the drive and also serve as a rewarding reinforcer thereby increasing habit strength of the responses.

Another important element in Hull's series of performance response components is the incentive factor (K). The desirability of the goal stimulus (K) is seen as a function of the size of the reward object; in other words, the amount of food or water given as a reward to satisfy hunger and thirst will affect the organism's performance; hence, "increases in the size of the reinforcement lead to higher levels of K and to subsequent increases in the speed in which a response is made or its vigor. Incentive, however, does not affect learning; it is a nonassociative factor, affecting performance level and not habit strength" (McLaughlin 14).

Habit strength (${}_S H_R$) is an extremely important aspect of Hull's system, for it is the basic learning variable.

Learning is conceived as the growth of habit resulting from a series of reinforced behaviors. The degree of habit strength is assumed to be a correlate of the response to a stimulus and the timing of the reinforcement to the response. Furthermore, habit strength never decreases, for it receives reinforcement repeatedly upon each response; therefore, habit strengthens and becomes permanent (Bower and Hilgard 98 and 99).

Three other Hullian ideas which, in addition to performance, are important here are fractional anticipatory goal response, secondary reinforcement, and secondary drive stimulus (McLaughlin 14-16). These ideas are significant because of their implications in subsequent learning theory. Fractional anticipatory goal response is Hull's terminology for explaining "how behavioral events are mediated by processes not directly observable" (McLaughlin 14). Inherent in this thought is the understanding that during conditioning, when an organism has learned to make anticipatory responses to stimulus events, the organism associates the stimulus events with (1) the environmental stimuli, (2) the proprioceptive, or internal, stimuli, and (3) the drive stimuli resulting from deprivation. Since each of these stimulus events is part of a complete response, each is a fractional anticipatory goal response (V_1). These fractional anticipatory goal responses may be any activity such as salivating, chewing, repeating a word,

etc., which does not interfere with the organism's reaching its goal. Hull sees these internal anticipatory responses to stimuli as "directing ideas" which aid in organizing a sequence of activities (McLaughlin 15). For example, a child may repeat the word "water" while he goes through a series of actions required to pull a chair to a cabinet, get a glass, pull the chair to the sink, climb on the chair, turn on the water, and fill the glass, to satisfy his thirst. The repetition of "water" seems to keep his actions directed toward his goal.

Secondary reinforcement and secondary drive stimulus are Hull's explanation for human behavior which is directed toward some end other than satisfying a primary, or biological, drive. For example, people will direct their behaviors toward those goals which they perceive will enhance their sense of emotional well-being. Money in itself will not satisfy a primary drive; it can, on the other hand, provide a means to satisfy both a primary drive, food, and a secondary drive, self-esteem. Money, then, is a secondary reinforcement because it indirectly satisfies a variety of needs.

While Clark Hull's contribution to quantifying behavioral science is unsurpassed even to this day, his ultimate goal was to apply his work in behavioral psychology to social interaction. He, in fact, had begun this application with his final theorem, Theorem 133: "Every voluntary social

interaction, in order to be repeated consistently, must result in a substantial reinforcement to the activity of each party to the interaction" (Hull 337). This theorem is obviously addressing social interaction; however, Hull hoped to extend his principles to the understanding of such social phenomena as moral judgments. Because of Hull's death in 1952, his vast systematic behavior theory was left to his colleagues for further research and application. Bower and Hilgard sum up the contributions of Clark Hull in this manner:

Various objective estimates exist of Hull's influence upon psychology. For example, during the decade of 1941-50 in the Journal of Experimental Psychology and the Journal of Comparative and Physiological Psychology, 40 percent of all experimental studies and 70 percent of those in the areas of learning and motivation referred to one or more of Hull's books or papers, while in the Journal of Abnormal and Social Psychology during the years 1949-52 there were 105 citations of Hull's Principles of Behavior, and the next most frequently cited book was mentioned but 25 times.

Perhaps the most striking testament to Hull's influence is the talent and productivity of the large number of neo-Hullians whom he enlisted into

the task of developing, extending, and applying his theory [These neo-Hullians and their students] have been dominating figures in American psychology over the years since 1940; they have significantly altered the intellectual landscape of learning theory. Their achievements and accomplishments are a tribute to the inspirational example set by Clark Hull and to the theoretical fertility of the system of concepts he molded together. (131-32)

IV. Dyadism

Among the neo-Hullians, who built upon Clark Hull's systematic theory of human development, is Robert R. Sears, who noted that experimental psychologists face the challenging task of constructing "a systematic psychology of personality . . . based on behavioral rather than experimental data" (Personality 329). In constructing his systematic theory of human behavior, Sears gathered his empirical data from observations of social interaction. While he adhered to the stimulus-response frame of reference, in which learning results from reinforced action sequences, he maintained that human development occurs within "dyadic" units of behavior. This dyadism is an expansion of the experimental psychologists' traditional study of "monadic" units of behavior, for the viewpoint

broadens from a limited focus on the action of a single individual to an enlarged perspective of the social interaction between two or more individuals (Maier 165). In child development, the dyadic interaction is a dynamic enlargement of the social environment from that of the child-parent interaction, to the child-family, and ultimately to the child-community. Maier labels the first of these three interactions as the "phase of rudimentary behavior" and the other two as phases of "secondary motivational systems" (172). Since Sears did not label his concept of development, Maier's terminology will be used, for it is consistent with Sears' theoretical assumptions.

Phase I: Rudimentary Behavior:

Native Needs and Early-Infancy Learning

The rudimentary behavior phase lasts approximately sixteen months and is marked by an infant's progression from an autistic stage to a dyadic stage. The infant's autistic behavior is driven by his innate desire to satisfy his biological needs for food, elimination, and warmth. Initially, the neonate responds to hunger pain by crying, a spontaneous action. This spontaneous action, however, becomes a learned behavior when the infant associates the reduction of hunger pains with the sequence of crying and breast, or bottle. Over time, the infant associates the breast or bottle with his mother, and in doing so, proceeds from an autistic,

"passive dependency" stage to a dyadic, "active dependency" stage (Maier 174-75). For Sears, "dependency [is] a central component of learning," and the "rewarding reinforcement in all dyadic situations . . . fosters dependency and, thus, reinforces it" (Maier 175).

Rewarding reinforcement in all dyadic situations depends upon the consistency of the nurturer in meeting the child's needs. The mother who promptly and consistently satisfies her child's biological needs simultaneously provides the essential reinforcement which will cause the child to repeat the behavior which was satisfactorily reinforced. The infant quickly develops "his techniques of co-operating with those who care for him, and of controlling them and insuring their nurturance" (Sears, Patterns 138). Maier describes this reciprocal behavior:

The child, consequently, is stimulated to select the responses his environment seems to expect from him. He tends to manipulate his environment in order to pursue gratifying responses, while his environment suggests to him the range of satisfactions it can supply. The key to control is embedded in this dyadic relationship. The infant learns both to control and to be controlled. Moreover, the infant wills his submission to control. (174)

The child-mother relationship is the child's initiation into socialization, and the degree of dependency which the mother permits sets the limits of the infant's control. The child learns self-control from this dyadic experience.

During this phase of rudimentary behavior, Sears sees the mother's role as critical, for the quantity and quality of nurture she is capable of giving will have a profound influence upon the personality development of the child. The mother's capabilities, in turn, are dependent upon her cultural background, role models, education, and family size, for these social components influence her child-caring practices.

The first phase of child development, then, is marked by the transition of the neonate's innate motivation to satisfy his biological needs to the young child's learned behavior to interact in a dyadic relationship with his mother. This relationship "provides the foundation for ever-increasing [social] interactions" (Maier 179).

Phase II: Secondary Motivational Systems:

Family-Centered Learning

This second phase in Sears' theory of social learning development extends from the second half of the child's second year until he enters school. Its earliest stage is still dominated by the child-mother dependency dyad, but this dependency decreases as the child learns to rely on

other adults and peers, and he develops his own identification. In tandem with the shifting dependency is the gradual incorporation of the child's primary, biological drives into secondary, or social learning, drives. These secondary, or learned, drives will replace the biological drives and become his main sources of motivation. For example, the child no longer relies entirely upon the pain of stomach contractions as a motive to eat. Instead, he responds to the sight of food or to his mother's opening the refrigerator. In a like manner, the child learns, through repeated social interactions, to associate certain facial or verbal signs with fear, a powerful secondary drive associated with pain, and "once this learning process has occurred, the secondary drive stimulus [fear] has the same effects on behavior as the primary drive stimulus [pain]" (McLaughlin 15).

During the approximately three and one-half years of this phase of secondary motivation, the child's socialization will revolve around his growing awareness and acceptance of secondary motivation systems. He learns that "his personal happiness depends upon his readiness to do as he is expected, and, eventually, his actions become self-motivated. He tends to incorporate actions which bring satisfaction to him and are significantly satisfying to his parents" (Maier 179).

At about eighteen to twenty-four months of age, the

child learns to imitate many of the actions which the parents had performed for him, and in doing so, he begins the self-activated withdrawal of dependency and moves toward the identification process which occurs around the age of three years. By this age the child has, of course, been successfully weaned and toilet trained and moves from imitation of a parent to identification with a parent such that adult role adoption will eventually emerge. This identification is "a nonmotivational system [which] emerges and becomes a goal response" (Maier 189). In other words, identification occurs without parental instruction and emerges from the child's role play. In this respect identification differs from other forms of learning (Maier 189).

An important aspect of identification is that of sexual identification. Sears notes that boys around the age of four years are encouraged to switch their identity from their mothers to their fathers, while girls continue with the female identity. Sears believes that girls progress more rapidly to more mature modes of behavior because their identity is not interrupted. Boys, on the other hand, tend to adopt mature modes of behavior at a later age than girls because boys must not only change role models but also establish a dependency relationship with the masculine role model (Maier 190-91).

In studying identification and child-rearing practices, Sears identified five clusters of dependency behavior:

1. Negative attention seeking: Getting attention by disruption, aggressive activity with minimal provocation, defiance, or oppositional behavior (e.g., opposing and resisting direction, rules, routines, and demands by ignoring, refusing, or doing the opposite).
2. Reassurance seeking: Apologizing, asking unnecessary permission, or seeking protection, comfort, consolation, help, or guidance.
3. Positive attention seeking: Seeking praise, seeking to join an in-group by inviting cooperative activity, or actually interrupting a group activity in progress.
4. Touching and holding: Non-aggressive touching, holding and clasping to others.
5. Being near: Following or standing near a particular child or a group of children or an adult. (Maier 192-93)

These clusters of dependency behavioral patterns are, according to Sears, the results of specific child-rearing patterns of the parents. Successful child development depends upon finding an equilibrium between dependency, identification, and conscience (Maier 194).

Before the end of this phase, the child will understand the process of "labeling, an essential prerequisite to reasoning" (Maier 193). Whereas reasoning entails an

explanation and justification for a behavior system, labeling focuses on specific actions and expectations. In the labeling process, the mother will "explain to a child exactly what it is she does or does not want him to do Its main purpose is directing behavior rather than sanctioning" (Sears, Patterns 351).

Sears' second phase of child development explores the child's socialization within the family unit where the child gradually adopts his parents' and siblings' behavior into his own. As a result of parental directing of specific behaviors, the child develops a conscience sensitive to social expectations and obedience to demands. All of his family centered learning is directed toward establishing acceptable perimeters for social interaction not only within the family unit but also with society at large.

Phase III: Secondary Motivational Systems:

Extrafamilial Learning

The third, and last, of Sears' developmental phases begins when the child is of school age, about five or six years old. His socialization within his family has been like a microcosm preparing him for the macrocosm. The child's base of dependency has grown from his mother, to his family, and now to other individuals, such as his teachers, neighbors, and peers. Within his peer group, he will attempt to reinforce his operant dependency behavior and

will seek to perpetuate those dependency clusters which brought him previous success. For example, he may exercise either positive patterns of attention-seeking, "such as compliance with expectation," or negative patterns of attention-seeking, such as "teasing, exhibitionism, or practical joking" (Maier 195).

As in his earlier dyadic relationship with his mother, the child continues to seek ways to control other people so that his own desires are satisfied. While he seeks control of others, however, he finds that others are demanding greater control of him. All significant adults with whom he comes in contact have established areas of control which are "rigorously defined and more inclusively reinforced" (Maier 196).

As the child's relationships expand to include ever widening experiences, his value system and conscience are tested, for "his new and wider environment helps him to achieve more comprehensive, internal values as well as to achieve social, religious, and eventually political and economic values" (Maier 196). Nevertheless, all subsequent value judgments are measured against those he has learned from his parents.

Sears' third phase of child development is seen more or less as a continuation of the second phase. His empirical data is relatively sparse in comparison to that of the first two phases. All phases, however, stress the idea that

development depends upon dyadic interaction between child and adult. The infant's autistic behavior, driven by innate biological needs, gives way to learned behavior, driven by social gratifications. As the innate drives give way to secondary motivational drives, the child's growing socialization motivates him to imitate and, ultimately, identify with a parent, the key to child behavior in Sears' social learning theory. Maier makes this cogent observation:

As the child behaves, he develops. In turn, his behavior is the product of his immediate social experiences of being brought up. Child development, consequently, is the visible product of the parental child-rearing efforts . . . namely, child development is a consequence of learning. (197)

Robert Sears' social learning theory is the culmination of centuries of thought. Whereas Sears' specific contribution to this theory of child development is the construction of a systematic psychology of human development based on behavioral data; as a behaviorist associationist, he worked within the long tradition of these theorists. The behaviorist, of course, emphasizes "the importance of objectively measuring the stimuli and the responses of an organism in a learning situation," and the associationist explains "behavior by using rules associating stimuli with responses"

(Isaacson, Hutt, and Blum 214). Stimulus-response theorists are associationist whose research strategy is "to coordinate empirical research to theory and to let the theory guide the research" (Baldwin 486). Building upon but modifying stimulus-response theory, Clark Hull sought not only to explain the acquisition of behavior (a goal of S-R theorists) but also to account for internal responses occurring between the presentation of the stimulus and the external response. His research culminated in a systematic theory, and "his formulations of the laws of learning remain the closest approximation to a formal deductive theory in psychology" (Isaacson, Hutt, and Blum 223). Following the death of Hull, his colleagues, with the exception of Robert Sears, branched off into various narrowed strains of learning theory. Sears, on the other hand, has attempted to maintain a comprehensive, systematic view of human behavior, which focuses on familial and extra-familial dyadic relationships yet encompasses S-R tenets and Hullian theory.

The Affective Theory of Child Development

The affective theory of child development explores the patterns of human behavior which occur in a child's perception of experiences and interprets these patterns as products of emotional responses. The affective, or psychoanalytic, theorist subscribes to the assumption that

behavior is the result of the interplay of opposing forces and conceives of child development as a universal, evolutionary process in which the child's biological, psychological, and sociological readiness is matched by societal readiness. The idea that behavior is the result of the interplay of opposing forces takes its origin from Sigmund Freud's personality theory in which the individual is seen as being endowed with powerful instincts, or drives, which seek satisfaction through internal or external stimulation. Satisfaction, or the release of tension, depends upon the individual's ability to organize his personality systems, the id, ego, and superego, so that he can interact with his environment to fulfill his basic needs and desires.

Perhaps the foremost theorist who has built upon, reformulated, expanded, and applied Freudian thought to construct a systematic theory of child development is Erik H. Erikson. Erikson integrates classical psychoanalytic theory and biological, sociological, and psychological variables to formulate an epigenetic sequence of eight developmental stages, five of these focusing on child development and three on continuing adult development. Inherent in each stage are opposing positive and negative forces, which must be reconciled and resolved by the ego, and an emerging character trait, which is associated with a social institution.

Stage I: Basic Trust versus Basic Mistrust:

Drive and Hope

The first crisis which the infant's rudimentary ego must resolve is the polarity between trust and mistrust so that hope may emerge as the foundation for all subsequent human development. Erikson defines the ego as an "inner institution" which dwells between the id and the superego and "keeps tuned to the reality of the historical day, testing perceptions, selecting memories, governing action, and otherwise integrating the individual's capacities of orientation and planning" (193). To Erikson the ego is the intermediate process of the mind between the id, "everything which would make us 'mere creatures,'" and the superego, "a kind of automatic governor which limits the expression of the id by opposing to it the demands of conscience" (192-93). The ego, then, is that rational process which selects from the past and the present to chart the course for the future.

This first stage of trust versus mistrust begins at birth and lasts approximately eighteen months. This stage parallels Sigmund Freud's oral phase, the first of Freud's psychosexual phases, and is marked by the infant's total dependence on his mother, whose quality of care creates "a sense of trust" in her child (Erikson 249). If the mother meets her infant's basic needs, such as feeding, in a loving, consistent, relaxed manner so that he experiences

physical comfort and a sense of well-being; then he will develop a basic feeling of trust. This trust "forms the basis in the child for a sense of identity which will later combine with a sense of being 'all right,' of being oneself, and of becoming what other people trust one will become" (Erikson 249).

During this stage of development, the mouth is the most sensitive area of the infant's body, for through it he gains nourishment and stimulation by the "modal behavior of incorporation" (Maier 35). The infant "incorporates," or takes into his mouth, a nipple, his fingers, etc., and as he matures, he reaches for items, grasps them, orally examines them, and bites down on them. Sometime during the second half of the infant's first year, his oral pleasure becomes both a source of pain and of frustration. He begins the painful teething process which he hopes to alleviate through biting. If the child is breast fed, the biting motivates his mother to wean him. His ensuing frustration during the weaning process, however, is tolerable if his mother continues to give reassuring physical contact so that his trust is reinforced.

Erikson associates each stage of development with a social institution, for he sees both the human life cycle and social institutions evolving together. Erikson explains this stage's association with organized religion in this manner:

The parental faith, which supports the trust emerging in the newborn, has throughout history sought its institutional safeguard (and, on occasion, found its greatest enemy) in organized religion. Trust born of care is, in fact, the touchstone of the actuality of a given religion. All religions have in common the periodical child-like surrender to a Provider or providers who dispense earthly fortune as well as spiritual health; some demonstration of man's smallness by way of reduced posture and humble gesture; the admission in prayer and song of misdeeds, of mis-thoughts, and of evil intentions; fervent appeal for inner unification by divine guidance; and finally, the insight that individual trust must become a common faith, individual mistrust a commonly formulated evil, while the individual's restoration must become part of the ritual practice of many and must become a sign of trustworthiness in the community. (250)

The first eighteen months of the infant's life are crucial ones. From the moment of birth, when he leaves a secure, self-contained environment and is thrust into an alien, stimulus-laden one, until his physical readiness for his second critical developmental stage, the infant's experiences with his mother will shape his attitude toward

and feelings about his world. Whether he develops a sense of trust, or the converse, and whether he emerges from this phase with the essential virtue or ego quality of hope depend upon his first experiences in socialization in the arms and lap of a loving mother.

Stage II: Autonomy versus Shame and Doubt:

Self-control and Willpower

The second developmental crisis which the infant's maturing ego must resolve is the conflict between internal self-control and external other-control. Erikson describes this stage in these terms:

This stage, therefore, becomes decisive for the ratio of love and hate, cooperation and willfulness, freedom of self-expression and its suppression. From a sense of self-control without loss of self-esteem comes a lasting sense of good will and pride; from a sense of loss of self-control and of foreign overcontrol comes a lasting propensity for doubt and shame. (254)

As in each developmental stage, this stage is also marked by a dialectical process associated with a Freudian psychosexual phase, a social institutional entity, and with the acquisition of an ego virtue.

The Stage II attending Freudian psychosexual phase is the anal phase. Associated with the anal phase is the young

child's toilet training and his social modalities of holding on or letting go. The physical holding or passing is possible because of the infant's maturing sphincter muscles and his awareness of his ability to control these muscles. For the first time in his young life, the child sees himself capable of doing something rather than having something done to him. Again, his mother's firm but gentle control can assist or hinder his transition through this stage and set the pattern for succeeding experiences. Erikson notes the importance of the quality of parental control:

Outer control at this stage, therefore, must be firmly reassuring. The infant must come to feel that the basic faith in existence, which is the lasting treasure saved from the rages of the oral stage, will not be jeopardized by this about-face of his, this sudden violent wish to have a choice, to appropriate demandingly, and to eliminate stubbornly. Firmness must protect him against the potential anarchy of his as yet untrained sense of discrimination, his inability to hold on and to let go with discretion. As his environment encourages him to "stand on his own feet," it must protect him against meaningless and arbitrary experiences of shame and of early doubt. (252)

Erikson speaks almost contemptuously of both well-meaning and mean-spirited adults who would use shaming methods to intimidate a child beyond his endurance in order to exercise control. While the child may succumb to these tactics and comply with the adult's demands, he internalizes his anger and his shame such that he "forms a substratum for later and more verbal forms of compulsive doubting [which] finds its adult expression in paranoid fears concerning hidden persecutors and secret persecutions threatening from behind (and from within the behind)" (Erikson 254).

The social institution associated with this second stage is the courts of law which imply a judicial system with even-handed justice that recognizes the freedom and integrity of the individual while safeguarding social institutions from individual anarchy. The principle of law and order "apportions to each his privileges and his limitations, his obligations and his rights" and secures both domestic and international order over chaos (Erikson 254).

The child who makes the transition from stage two to stage three in a positive manner will add to his ego virtue of hope, the qualities of self-control and willpower. The latter two qualities are balanced such that personal dignity is affirmed and directed toward the preservation of freedom and dignity for all.

The second stage of Erikson's child development lasts from about the second half of the child's second year until

his third year. These eighteen months empower the child to use his reaching, walking, climbing, holding, and releasing activities. Maier notes that the youngster uses these activities to establish his autonomy:

Vigorously he tries to do all on his own: to feed himself, to walk, to dress himself, and to open and shut things. To live, at this stage, means aggressively to expand, to act on one's own terms, and to insist on one's own boundaries (42)

While toilet training, according to Erikson, is a critical activity, it is but one of the activities which must be resolved to the mutual satisfaction and benefit to both child and mother, and, ultimately, to society at large.

Stage III: Initiative versus Guilt:

Direction and Purpose

Erik Erikson begins his discussion of this third stage of human development with these words:

There is in every child at every stage a new miracle of vigorous unfolding, which constitutes a new hope and a new responsibility for all. Such is the sense and the pervading quality of initiative. Initiative adds to autonomy the quality of undertaking, planning and 'attacking' a task for the sake of being active and on the move. (255)

Whereas the young child had walked before, now he runs to explore his ever-widening social and spatial environment which sequentially expands from his family, to his neighborhood, to nursery school and kindergarten. This ambulatory stage of the three to six year old, however, has not only its wonderment about life in general but also its fascination with sexuality. During this psychosexual genital phase, the child is forced to come to terms with his infantile sexuality and its attendant sense of guilt.

The three to six year old is conscious of and curious about both male and female genitalia and, predictably, the young child's love for the parent of the opposite sex becomes incestuous. When the child fails in realizing his incestual fantasy, he suffers anxiety and guilt, for he fears potential castration and senses incest taboo. Erikson notes that the degree of emotional turmoil at this time is especially taxing, for the "infantile sexuality and incest taboo, castration complex and superego all unite" to bring about "the most fateful split and transformation in the emotional powerhouse" (256). The young child must turn from his pregenital (precoitus) attachment for his parent and entertain his own eventual development as a parent. This split and transformation is necessary for both social and procreative reasons.

Becoming a parent brings with it the accompanying adult activity of work. The young child's play revolves around

multiple adult occupations. Especially is he intrigued by those which are marked by a distinctive uniform: soldier, policeman, fireman, etc. In his play he likes to participate in group activities to simulate "war," "cops and robbers," and to plan and construct such things as forts and treehouses. In these action-oriented occupations, the young child engages in ego-building, heroic-duty fantasies.

These fantasies also help the child to attach his dream world to the real world of active adult life where he will be a part of the economic community. Erikson observes "social institutions, therefore, offer children of this age an economic ethos, in the form of ideal adults recognizable by their uniforms and their functions, and fascinating enough to replace the heroes of picture book and fairy tale" (258).

The ease with which children proceed through this potentially emotionally traumatic stage is, of course, related to the behavior of their parents. Boys must move toward an identity with their fathers and girls with their mothers, and both must turn their attention to the world outside their families for socially acceptable sexual partners and for meaningful work experiences. The parents, on the other hand, must accommodate this process by gentle but firm control so that their children exit this stage with the ego-enhancing virtue of purposefulness.

Stage IV: Industry versus Inferiority:

Method and Competence

The fourth stage of Erikson's theory of human development focuses on the six to eleven year old child as he begins his early, formalized schooling. He quickly learns that the primary school has its own set of expectations for him and that he must put aside his internally motivated, whimsical explorations and submit himself to externally imposed, systematic instruction. Assisting him in this transition are his continuing interests in manipulating tools and building things, his joy in cooperative endeavors, and a quiescence in his psycho-sexual development.

Complicating this stage is a potential "sense of inadequacy and inferiority. If he despairs of his tools and skills or of his status among his tool partners, he may be discouraged from identification with them and with a section of the tool world" (Erikson 260). If, on the other hand, he perceives himself competent in his academic and mechanical skills, he will exit this stage with an enhanced self-esteem and a positive sense of himself functioning in the world.

The testing of his academic and mechanical skills occurs in the classroom where he is subjected not only to self-judgment about his performance but also to teacher and peer judgment about his adequacy. The resulting comparison will motivate the child either to attempt ever new and more complex tasks or to withdraw from challenging himself in

tasks that he perceives himself inadequate to perform.

Among these tasks will be the formalized course of study, and inherent in this curriculum are those values and skills which a given culture perceives as fundamental to its preservation and advancement. A technological society which emphasizes the work ethic will influence both the content and the methods of instruction. Thus, according to Erikson:

Play is transformed into work, games into competition and co-operation, and the freedom of imagination into the duty to perform with full attention to the techniques which make imagination communicable, accountable, and applicable to defined tasks (qtd. in Stevens 48-49).

The child, then, develops a sense of industry; that is, he adjusts himself to become part of a productive society.

Being part of a productive society leads the child to develop "a sense of the technological ethos of his culture" (Erikson 260). While he assimilates the mores of his culture, he, nevertheless, is vulnerable to the excesses inherent in technology-driven, industrialized nations.

Erikson wisely comments on the potential danger:

Namely man's restriction of himself and constriction of his horizons to include only his work to which, so the Book says, he has been sentenced after his expulsion from paradise. If he accepts work as his only obligation, and

"what works" as his only criterion for worthwhile-ness, he may become the conformist and thoughtless slave of his technology and of those who are in a position to exploit it. (260-61)

If the child is to develop a sense of values which balances the demands of work with the fullness of living, then all of his culture's social institutions will play an integral part, for the family, community, schools, governmental and religious bodies share in framing his perspective. This fourth stage of development is a crucial one because each social unit contributes to the child's intellectual, ethical, and social growth. With satisfactory instruction, example, and encouragement, the child will exit this stage with self-esteem and confidence that he can function competently and contribute significantly to his world.

Stage V. Identity versus Role Confusion:

Devotion and Fidelity

The fifth and final stage in Erikson's focus on infant, child, and adolescent development occurs between the approximate ages of eleven and nineteen years. During these years the youngster experiences puberty, which marks the close of childhood and the transition into adolescence, and develops a sense of identity, a psychosocial process which, in Erikson's words, integrates "constitutional givens, idiosyncratic libidinal needs, favoured capacities, significant

identifications, effective defenses, successful sublimations and consistent roles" (qtd. in Stevens 61). The concept of identity is of great importance to Erikson who discusses its evolvment more thoroughly than any other developmental characteristic and whose published works address this subject extensively. In fact, thirteen of forty-five, nearly one-third, of his publications from 1953-1970 incorporate the word "identity" in their titles.

During adolescence the youth's rapid physical growth is matched by his psychosocial consciousness and his psycho-sexual drives. His body undergoes a growth spurt which equals that of early childhood and renders him awkward and self-conscious. This awkwardness and self-consciousness motivate the adolescent to seek affirmation of his evolving identity by forming cliques and by excluding "all those who are 'different,' in skin color or cultural background, in tastes and gifts, and often in petty aspects of dress and gesture as have been temporarily selected as the signs of an in-grouper or out-grouper" (Erikson 262). While identifying with a group implies fidelity, it is accompanied by an inherent and ironic loss of individuality because conformity to group dress and behavior is requisite to group membership. Also associated with a sense of belonging to a group is the adolescent's propensity for "falling in love." This "love," according to Erikson, is more a means toward self identity than a means of sexual gratification.

He explains this phenomenon:

"Falling in love" is by no means entirely, or even primarily, a sexual matter--except where the mores demand it. To a considerable extent adolescent love is an attempt to arrive at a definition of one's identity by projecting one's diffused ego image on another and by seeing it thus reflected and gradually clarified. This is why so much of young love is conversational. (262)

Erikson also notes that identity with groups or cliques is one way that the adolescent compensates for his inability to decide upon an occupation. He senses the social and parental expectations for his choosing a career, yet he experiences such uncertainty about a potential occupational role that he often chooses to postpone, or escape, making a decision. Erikson refers to this period between the end of childhood and the beginning of adulthood as a psychosocial "moratorium," during which the young person is free to explore various options (262). Society sanctions, even institutionalizes, this interval when the young adult may postpone assuming an adult identity by extending his schooling, drifting or traveling about the world, or enlisting in military service for a given period.

This period of moratorium allows for great individual variation, for it often extends well beyond the teen years. Erikson believes that the youth's postponement of career

choice, "role confusion," may prove beneficial, for it may prevent a presumptuous commitment to an occupation which, in time, will prove unchallenging, unsatisfactory, and wasteful of abilities and talents (262). Erikson also recognizes that gifted individuals are much more likely to postpone committing to a career and to profit from the social moratorium. Richard Stevens expands upon Erikson's insight into the "identity configuration of North American society":

One critical aspect of American society, for example, is what [Erikson] regards as its essentially adolescent nature. By this, he means that there is a pervasive openness about identity, a refusal to be pinned down or committed, a continual search for new roles and experiences and a strong belief in the notion of the 'self-made' person-- that we all have the freedom to create who we are.

A second core ingredient of American identity Erikson suggests is puritanism, expressed in both a powerful work ethic and the sense of a search for a lost paradise which can only be restored through arduous effort. (72)

The ideas of a "self-made" person and "puritanism" imply a social value system which the young person seeks to identify so that he can clarify his personal identity. Erikson notes that in this search the adolescent "confronts the problems of ideology and aristocracy" which, when taken in

their broadest sense, "connote a defined world image and a predestined course of history":

The best people will come to rule and rule develops the best in people. In order not to become cynically or apathetically lost, young people must somehow be able to convince themselves that those who succeed in their anticipated adult world thereby shoulder the obligation of the best. (263)

Moving into the adult world will signal the end of adolescence, a time of identity diffusion which the individual, given enough time and space, will resolve. Maier elaborates upon Erikson's belief that the youth experiments with patterns of identity before he commits to a continuous development and that there are seven dimensions with "each dimension representing a partial polarization of developmental crises on the developmental continuum":

1. Time perspective versus time diffusion
2. Self-certainty versus apathy
3. Role experimentations versus negative identity
4. Anticipation of achievement versus work paralysis
5. Sexual identity versus bisexual diffusion
6. Leadership polarization versus authority diffusion
7. Ideological polarization versus diffusion of ideals (62-63)

This fifth stage of human development is a complex, even potentially traumatic, stage in human development. Whereas Erikson sees dialectical movement inherent to his theory of development, this stage is especially fraught with polarities, diffusion, inconstancy, and indecision. There is, however, the belief that given enough time and understanding, the vast majority of individuals will resolve their internal conflicts and become productive, reasonably satisfied adults.

Maier makes the point that while Erikson builds upon Freud's psychoanalytic theory of human development, Erikson diverges from the Freudian model in three significant ways. First, he emphasizes the ego, rather than the id, and sees a developmental continuum impacted by cultural expectations. In emphasizing the ego and minimizing the instincts, Erikson highlights "man's struggle to cope, to master, and to overcome" (Maier 18). Second, Erikson departs from the Freudian child-mother-father triangle to introduce a new individual-family-community-historical-cultural matrix which expands the dynamics of human development. Third, Erikson goes beyond Freud's focus on the power of the unconscious to emphasize "the developmental opportunities in the individual which help him triumph over the psychological hazards of living" (Maier 18). When reading Erikson, one is ever aware of his faith in humanity, a most welcome positive outlook in an all too often negative world.

Whereas Freud ended his developmental study with the adolescent, Erikson adds three adult stages, seeing development as continuous from birth until death and seeing individual identity as a constantly evolving phenomenon. In formulating an epigenetic chart for the course of human development, Erikson explains:

The underlying assumptions for such charting are (1) that the human personality in principle develops according to steps predetermined in the growing person's readiness to be driven toward, to be aware of, and to interact with, a widening social radius; and (2) that society, in principle, tends to be so constituted as to meet and invite this succession of potentialities for interaction and attempts to safeguard and to encourage the proper rate and the proper sequence of their enfolding. This is the "maintenance of the human world."

An epigenetic diagram thus lists a system of stages dependent on each other; and while individual stages may have been explored more or less thoroughly or named more or less fittingly, the diagram suggests that their study be pursued always with the total configuration of stages in mind. The diagram

invites, then, a thinking through of all of its empty boxes All of this should make it clear that a chart of epigenesis suggests a global form of thinking and rethinking which leaves details of methodology and terminology to further study. (271-73)

Erikson conceived of his chart as "only a tool to think with" (270). Table 3 illustrates this point, for he refers to this chart as a "worksheet." In the vertical column of Table 3 (page 76), Erikson lists in descending order on the page the eight stages of human development from infancy through old age; while in the horizontal columns, he lists each stage's dialectical crises, social context, social order, psychosocial modalities, and psychosexual orientation. This worksheet is converted to an epigenetic diagram in Table 4 (page 77). In this diagram, Erikson develops a matrix in which he lists in the vertical column in ascending order on the page the eight stages of human development from infancy through old age and each stage's psychosexual orientation. In the horizontal squares, placed in an ascending diagonal pattern, he lists a progression through time of the psychosocial crises and acquired virtue associated with each stage. Erikson states:

As to the progression from one stage to the next, the diagonal indicates the sequence to be followed.

Table 3

Erikson's Worksheet of Developmental Stages

	A PSYCHOSOCIAL CRISES	B RADIUS OF SIGNIF- ICANT RELATIONS	C RELATED ELEMENTS OF SOCIAL ORDER	D PSYCHOSOCIAL MODALITIES	E PSYCHOSEXUAL STAGES
I	Trust vs. Mistrust	Maternal Person	Cosmic Order	To get To give in return	Oral-Respiratory, Sensory-Kinesthetic (Incorporative Modes)
II	Autonomy vs. Shame, Doubt	Parental Persons	"Law and Order"	To hold (on) To let (go)	Anal-Urethral, Muscular Retentive-Elimi- nature)
III	Initiative vs. Guilt	Basic Family	Ideal Prototypes	To make (=going after) To "make like" (=playing)	Infantile-Genital, Locomotor (Intrusive, Inclusive)
IV	Industry vs. Inferiority	"Neighborhood," School	Technological Elements	To make things (=completing) To make things together	"Latency"
V	Identity and Repudiation vs. Identity Diffusion	Peer Groups and Outgroups; Models of Leadership	Ideological Perspectives	To be oneself (or not to be) To share being oneself	Puberty
VI	Intimacy and Solidarity vs. Isolation	Partners in friendship, sex, competition, cooperation	Patterns of Cooperation and Competition	To lose and find oneself in another	Genitality
VII	Generativity vs. Self-Absorption	Divided labor and shared household	Currents of Education and Tradition	To make be To take care of	
VIII	Integrity vs. Disgust, Despair	"Mankind" "My Kind"	Wisdom	To be, through having been To face not being	

Source: From Erikson's essay, "Identity and Life Cycle: Selected Papers," Psychological Issues (Monograph), (New York: International UP, 1959) I:1. Adapted to this paper from Table 2.2, "The Psychoanalytic Theory of Erik H. Erikson," in Henry W. Maier, Three Theories of Child Development, rev. ed. (New York: Harper & Row, 1969) 77.

Table 4

Erikson's Epigenetic Diagram

VIII Old Age MATURITY								Integrity vs. Despair, Disgust: WISDOM
VII Maturity ADULTHOOD								Generati- vity vs. Stagna- tion: CARE
VI Young Adulthood YOUNG ADULTHOOD						Intimacy vs. Iso- lation: LOVE		
V Adolescence PUBERTY AND ADOLESCENCE					Identity vs. Role, Confu- sion: FIDELITY			
IV School Age LATENCY				Industry vs. Infe- riority: COMPE- TENCE				
III Play Age LOCOMOTOR-GENITAL			Initia- tive vs. Guilt: PURPOSE					
II Early Childhood MUSCULAR-ANAL		Autonomy vs. Shame, Doubt: WILL						
I Infancy ORAL SENSORY	Trust vs. Mistrust: HOPE							
	1	2	3	4	5	6	7	8

Source: From Erikson's essay, "Reflections on Dr. Borg's Life Cycle," *Daedalus*, 105, 26. Adapted to this paper from Figure 1, "The Life Cycle," in Richard Stevens', *Erik Erikson: An Introduction* (New York: St. Martin's Press, 1983) 55; and from Figure 12, "Eight Ages of Man," in Erik Erikson's *Childhood and Society* (New York: W. W. Norton, 1963) 273.

However, it also makes room for variations in tempo and intensity. An individual, or a culture, may linger excessively over trust and proceed from I 1 over I 2 to II 2, or an accelerated progression may move from I 1 over II 1 to II 2. Each such acceleration or (relative) retardation, however, is assumed to have a modifying influence on all later stages.

. . . The diagram invites, then, a thinking through of all its empty boxes: if we have entered Basic Trust in I 1 and Integrity in VIII 8, we leave the question open, as to what trust might have become in a stage dominated by the need for integrity even as we have left open what it may look like and, indeed, be called in the stage dominated by a striving for autonomy (II 1). (272-73)

Erik Erikson's theory of human development conceives of growth as a dynamic process which follows a normative sequence of psychosocial gains; these gains, in turn, strengthen the developing ego. Erikson's theory is most notable for its universal vision, for he integrates all aspects of individual experience with historical-cultural entities. While he is a renowned children's psychoanalyst, he is a scholar-philosopher in the truest sense, for he is an astute student of human nature, a writer of great depth and breadth, a thinker of universal magnitude, and perhaps most

striking of all, a sensitive man who expresses an abiding faith in humanity.

Jean Piaget, Robert Sears, and Erik Erikson present distinctive, comprehensive views of the nature of human development. While all three subscribe to the idea that human life unfolds, or evolves, in an orderly, systematic fashion and that this unfolding receives its dynamic impetus from polarities, each envisions the etiology of human behavior in a different way.

Jean Piaget emphasizes cognitive comprehension and conceives of a universal process of intellectual development which is dependent upon human development. In marked contrast to Piaget is Robert Sears who stresses dyadic interaction and envisions human development as a product of learning through social interaction. Erik Erikson, on the other hand, emphasizes emotional processes and sees human development as the outcome of the individual's interrelationship with familial and historical-cultural variables.

While the theorists vary in their conceptions of the determinants of human development, their individual emphases are the result of their focusing on selected aspects of human nature and dismissing or overlooking others. Piaget concerns himself with the intellect; Sears, with behavior; and Erikson, with emotions. A truly comprehensive theory of human development, however, will integrate cognitive, social, and affective theories of development to encompass the multi-

faceted character of humanity, for, indeed, we are all thinking, acting, and feeling creatures. This integration, then, becomes the subject of the next chapter.

Chapter 3

Toward An Integrative View of Child Development

Philosophers, poets, playwrights, and novelists have long presented human nature in multi-dimensional terms, for the very word "human" denotes and connotes the conception of the individual as a being who develops intellectually, socially, and emotionally. In exploring the conflict within the soul that is struggling with reason, emotion, and society, philosophers and writers encapsulate the totality of the human condition. Scientists, on the other hand, have tended to investigate a particular facet of humanity. This tendency has resulted, undoubtedly, from the nature of the scientific method in which data are gathered, scrutinized, and presented quantitatively. In a review of the history of child development in the United States, Robert Sears notes the dilemma which developmentalists experience:

Today, in child development circles, there is frequent, even compulsive, reference to the value of interdisciplinary research, although the reasons are rarely mentioned. To the researcher, half drowned in the minutia of his own little problem puddle, this emphasis on the whole child as the unifier for a science may seem a hollow appeal to some forgotten piety. Regrettably enough, it often is. But to those who struggled with the infinite

variety of human problems presented in the child guidance clinics of the 4 decades before World War II, the piety is alive and genuine, for the need was--and is--ineradicable. (qtd. in Hetherington 18-19)

The recognition of the need for focusing on "the whole child as the unifier for a science" is shared by other professionals concerned with developmental phenomena. One such group of professionals, composed of cognitive psychiatrists, developmental psychologists, educational and curriculum specialists, and clinicians, gathered at Wheelock College in June 1978 "to foster interchange and the elaboration of an interactionist view" (Shapiro and Weber vii). Following the Wheelock conference, Edna Shapiro and Evelyn Weber edited a book, based upon the conference participants' discussions, entitled Cognitive and Affective Growth: Developmental Interaction. In this book's first chapter, "The Evolution of the Developmental-Interaction View," Barbara Biber defines "developmental-interaction" and delineates the reciprocal nature of this view:

Developmental refers to the emphasis on identifiable patterns of growth and modes of perceiving and responding which are characterized by increasing differentiation and progressive integration as a function of chronological age. Interaction refers, first, to the emphasis on the child's interaction

with the environment--adults, other children, and the material world--and, second, to the interaction between cognitive and affective spheres of development. The developmental-interaction formulation stresses the nature of the environment as much as it does the patterns of the responding child It is a basic tenet of the developmental-interaction approach that the growth of cognitive functions--acquiring and ordering information, judging, reasoning, problem solving, using systems of symbols--can not be separated from the growth of personal and interpersonal processes--the development of self-esteem and a sense of identity, internalization of impulse control, capacity for autonomous response, relatedness to other people. (9-10)

The task, then, of the proponents of the developmental-interactive approach to child development may be stated simplistically: Study the whole child. Yet while the task may be simply stated, the creation of a comprehensive methodology for a systematic study of the whole child has eluded researchers. In an essay entitled "Cognitive-Affective Interaction: A Concept That Exceeds the Researcher's Grasp," Herbert Zimiles reviews various theoretical approaches and research priorities of the past to show that while many psychologists allude to a cognitive-affective interaction, the research literature rarely

addresses the construct. Zimiles notes that the "recessive position" of the concept of cognitive-affective interaction is directly attributed to the domination of the behavioristic tradition in psychology, which "reduced the complex processes of learning and thinking to an analysis of mechanical linkages between visible stimuli and responses governed by the laws of association and conditioning" (qtd. in Shapiro and Weber 48). A counter-balance to the behaviorists' research methods was offered by the psychoanalytic and cognitive theorists; however, notwithstanding the clinical evidence produced by psychoanalysts and the Piaget-related data amassed by researchers, the fact remains that no comprehensive methodology has emerged for the study of cognitive-affective interaction. Zimiles explains:

A large part of the problem lies in a paradoxical methodological dilemma that tends to undermine efforts to study complexity. The tools and methodological frameworks available to researchers have been fashioned by a tradition that has been concerned with simplifying and consolidating. Faced with an almost impenetrable complexity, psychologists turned to a strategy of quantifying, limiting, and reducing

The net effort is to stultify the study of complexity. It is not surprising, then, that efforts to study cognitive-affective interaction have

faltered [P]sychologists encounter so much difficulty in simply identifying and measuring the basic parameters of affect and of cognition that it seems impossible for them to explore productively the interrelation between two such largely unknown quantities. And yet it may be that the interaction-istic properties of these entities are among their basic defining traits and that a thorough understanding of each cannot be achieved without dealing with their interrelation. (qtd. in Shapiro and Weber 60-62)

While researchers intent upon an integrated, quantitative theory of child development are embroiled in a methodological quagmire, sociologists and educators are persistent in accommodating the whole child. Until researchers resolve their theoretical and methodological quandaries and produce an integrative theory of child development, educational practitioners will be forced to gather divergent data, integrate it, and apply it in the interest of serving the whole child. The remainder of this chapter will present the results of such a course of action.

Henry Maier notes that there is "a high degree of accord" among the development phases articulated by Piaget (cognitive), Sears (social learning), and Erikson (affective) and that in studying their three theories "in relation to each

other, a single developmental continuum suggests itself" (209-10). While Table 5 (page 87) reflects such a continuum, Table 6 (pages 88-93) presents a list of precise descriptors characteristic of the child at each developmental stage in the continuum. Table 6 will, in turn, serve as a condensed guide to undergird the development of a kindergarten through twelfth grade writing program.

Table 5

Comparison of the Three Theories' Developmental Phases

AGE (YEARS)	PIAGET	SEARS	ERIKSON	INTEGRATION
0	Sensorimotor	Phase of Rudimentary	Phase I: A Sense of	Phase I: Establishing
1	Phase	<u>Behavior</u>	Basic Trust	<u>Primary</u> Dependence
2	_____	Phase of Secondary	_____	Phase II: Establishing
3	Preconceptual	Motivational Systems:	Phase II: A Sense of	<u>Self-Care</u>
4	<u>Phase</u>	Family-Centered	<u>Autonomy</u>	Phase III: Establishing
5	Phase of Intuitive	Learning	Phase III: A Sense of	Meaningful Secondary
6	Thought	_____	Initiative	<u>Relationships</u>
7	_____	Phase of Secondary	_____	Phase IV: Establishing
8	Phase of Concrete	Motivational Systems:	_____	Secondary Dependence
9	Operations	Extrafamilial	Phase IV: A Sense of	_____
10	Industry	Learning	Industry	_____
11	_____	_____	_____	Phase V: Achieving
12	Phase of Formal	_____	_____	Social Dependence
13	Operations	(Little research done	Phase V: A Sense of	and Individual
14	_____	by Sears thus far)	Identity	Independence
15	_____	_____	_____	_____
16	_____	_____	_____	_____
17	_____	_____	_____	_____
18	_____	_____	_____	_____
19	_____	_____	_____	_____
20	(Not investigated by	_____	Phase VI: A Sense of	Adulthood
21	Piaget)	_____	Intimacy	Phases
etc.	_____	_____	_____	_____

Source: Adopted to this paper from Table 5.1, "A Comparison of the Three Developmental Theories," in Henry W. Maier, Three Theories of Child Development, rev. ed. (New York: Harper & Row, 1969) 211.

Table 6

Descriptors of Developmental Characteristics

Age (Approximate Years)	Cognitive	Social	Affective
0 - 2	<p>Sensorimotor Phase</p> <p>Autistic state</p> <p>Cognitive processes</p> <p>Rudimentary evaluation (qualitative, quantitative, temporal, symbolic)</p> <p>Rudimentary judgment and intellectual reasoning</p> <p>Object differentiation</p> <p>Physical processes</p> <p>Reflexive, voluntary, sequential action; sensory coordination</p> <p>Emerging behaviors</p> <p>Play, imitative, cyclical, repetitive; emotional; independence and mobility</p> <p>Identification processes</p> <p>Of self, with models</p> <p>Language acquisition</p> <p>Growing understanding</p> <p>Imitative sounds</p> <p>Rudimentary vocabulary</p> <p>Indefinite (private) meanings</p>	<p>Phase I. Rudimentary Behavior: Native Needs and Early-Infancy Learning</p> <p>Autistic state</p> <p>Passive dependency</p> <p>Innate motivation</p> <p>Biological drives</p> <p>Maternal reinforcement</p> <p>Goal-directed response</p> <p>Learned behavior</p> <p>Active dependency</p> <p>Child-mother relationship</p> <p>Rewarding reinforcement</p> <p>Social variables</p> <p>Family's socio-economic level</p> <p>Child's sex and ordinal position</p> <p>Mother's personality and background</p>	<p>Stage I</p> <p>Psychosocial Crisis/Modality</p> <p>Basic trust vs. mistrust</p> <p>To get, to give in return</p> <p>Ego quality</p> <p>Hope</p> <p>Psychological modality</p> <p>Id dominates</p> <p>Psychosexual stage</p> <p>Oral-respiratory, Sensory-kinesthetic (incorporative mode)</p> <p>Significant relationship</p> <p>Mother</p> <p>Physical activities</p> <p>Reaching, gripping, sitting, crawling, walking, weaning</p> <p>Related social institution</p> <p>Organized religion</p>

Table 6 (Continued)

Descriptors of Developmental Characteristics

Age (Approximate Years)	Cognitive	Social	Affective
2 - 4	<p>Preconceptual Phase</p> <p>Egocentric state</p> <p>Cognitive Processes</p> <p>Subjective judgment</p> <p>Disjunctive perception</p> <p>Emerging behaviors</p> <p>Investigative mode;</p> <p>Imaginary, symbolical, imitative play</p> <p>Identification processes</p> <p>Imitation and awe of adult models, obedience to adults</p> <p>Language Acquisition</p> <p>Increased vocabulary</p> <p>Accurate phonation</p> <p>Shared "social" meanings</p> <p>Rudimentary thought conveyor</p>	<p>Phase II. Secondary Motivational Systems: Family-centered Learning</p> <p>Learned dependency</p> <p>Social-learning motivation</p> <p>Rewards and punishment</p> <p>Emerging conscience</p> <p>Child-mother duad</p> <p>Competition motivation</p> <p>Behavioral patterns</p> <p>Imitative mode</p> <p>Goal-achieving response</p> <p>Frustration, anger, aggression</p> <p>Identification processing</p> <p>With parent model</p> <p>Through role-play</p> <p>With reinforcement</p> <p>With appropriate sex</p> <p>Dependency patterns</p> <p>Negative attention seeking</p> <p>Reassurance seeking</p> <p>Positive attention seeking</p> <p>Touching and holding mode</p> <p>Social variables</p> <p>Parental attitudes and standards</p> <p>Quality of mother-child relationship</p> <p>Interpersonal communications</p> <p>Verbal and nonverbal modes</p>	<p>Stage II</p> <p>Psychosocial crisis/modality</p> <p>Self-control vs. other control</p> <p>To hold on, to let go</p> <p>Ego quality</p> <p>Self-control, willpower</p> <p>Psychological modality</p> <p>Id-ego fluctuation</p> <p>Superego emergence</p> <p>Psychosexual stage</p> <p>Anal-Urethral-muscular (retentive-eliminative modes)</p> <p>Significant relationship</p> <p>Parents</p> <p>Physical activities</p> <p>Climbing, manipulating, exploring, acting independently, expanding boundaries, toilet training</p> <p>Related social institution</p> <p>Courts of law</p>

Table 6 (Continued)

Descriptors of Developmental Characteristics

Age (Approximate Years)	Cognitive	Social	Affective
4 - 6	Perceptual/Intuitive Phase	Phase II. Secondary Motivational Systems: Family-centered Learning	Stage III
	Egocentric state Rudimentary cognition Centered thought Preoperational thought Perspectives coordination Subjective perception Realistic view Symbol generalization Play behavior Interactive mode Collective considerations Symbolic extension Imitative patterns Moral values Absolute view Obedience to adults Immanent justice Language acquisition Expanding vocabulary Improving syntax Thought clarifier Egocentric thought conveyor Collective monologue mode Word-fact equalizer	Continuing development of behaviors begun in the 2-4 year old stage	Psychosocial crisis/modality Initiative vs. guilt To make, to make like Ego quality Purposefulness Psychological modality Id, ego, superego balance Oedipal complications Psychosexual stage Infantile-genital Locomotor (intrusive, inclusive modes) Significant relationships Family unit Neighborhood Physical activities Running, skipping, cooperative playing, hero-fantasy playing, building projects Related social institution Economic system

Table 6 (Continued)

Descriptors of Developmental Characteristics

Age (Approximate Years)	Cognitive	Social	Affective
6 - 11	<p>Concrete Operations Phase</p> <p>Manifold perspective state</p> <p>Cognitive Processes</p> <p>Inductive to deductive mode</p> <p>Comprehensive perception</p> <p>Concrete perception</p> <p>Order reversibilities</p> <p>Data classification</p> <p>Emerging behaviors</p> <p>Growing socialization</p> <p>Sense of emancipation</p> <p>Concept of mutual respect</p> <p>Identification processes</p> <p>Continuing imitation of adults</p> <p>Equal and autonomous peers</p> <p>Unilateral peer respect</p> <p>Language Acquisition</p> <p>Expanding vocabulary</p> <p>Growing syntactical significance</p> <p>Message conveyor</p> <p>Marginal thinking tool</p>	<p>Phase III. Secondary Motivational Systems: Extrafamilial Learning</p> <p>Widening base of dependency</p> <p>New adults (teacher)</p> <p>Peer group</p> <p>Behavioral patterns</p> <p>Operant dependency</p> <p>Cooperative peer experiences</p> <p>Positive and negative attention-seeking</p> <p>Value systems</p> <p>Comprehensive, internal; Social, religious, political, and economic</p> <p>Social variables</p> <p>Expansion from parents, to teachers, neighbors, other adults, peers influence</p> <p>Cultural-community influence</p>	<p>Stage IV</p> <p>Psychosocial crisis/modality</p> <p>Industry vs. inferiority</p> <p>To make things (completing)</p> <p>To make things together</p> <p>Ego quality</p> <p>Competence</p> <p>Psychological modality</p> <p>Ego</p> <p>Psychosexual stage</p> <p>Latency</p> <p>Significant relationships</p> <p>Peers, social organizations (school, church, youth), extrafamilial adults</p> <p>Physical activities</p> <p>Real-life play, sexually segregated play, work-oriented play manipulating tools and building things)</p> <p>Related social institution</p> <p>Technological elements</p>

Table 6 (Continued)

Descriptors of Developmental Characteristics

Age (Approximate Years)	Cognitive	Social	Affective
11 - 19	<p>Formal Operations Phase</p> <p>Objective, detached state</p> <p>Cognitive Processes</p> <p>Theoretical capabilities</p> <p>Systematic analysis</p> <p>Hypothetical formulations (application of propositional statements--theory to real/actual; use of implications)</p> <p>Logical deductions</p> <p>Parts to whole integration</p> <p>Reality to possibility expansion</p> <p>Symbolical capabilities (development of concepts from concepts)</p> <p>Emerging behaviors</p> <p>Crystallization of personality</p> <p>Manipulation of social concepts</p> <p>Clarification of values</p> <p>Sense of justice, equity</p> <p>Moral solidarity</p>	(Relatively unresearched)	<p>Phase V</p> <p>Psychosocial crisis/modality</p> <p>Identity vs. diffusion</p> <p>To be oneself</p> <p>To share being oneself</p> <p>Ego quality</p> <p>Fidelity</p> <p>Psychological modality</p> <p>Ego containing postpubertal id and balancing superego</p> <p>Repetition of Oedipal desires</p> <p>Psychosexual stage</p> <p>Puberty</p> <p>Significant relationships</p> <p>Peer groups, "outgroups,"</p> <p>Leadership models</p> <p>Physical activities</p> <p>Group/cliue behaviors;</p> <p>Work apprenticeships;</p> <p>Military service</p> <p>Related social institution</p> <p>Ideological perspectives</p>

Table 6 (Continued)

Descriptors of Developmental Characteristics

Age (Approximate Years)	Cognitive	Social	Affective
11 - 19	Formal Operations Phase (Continued)		
	Identification processes		
	Self-identification in ever-evolving world		
	Social inter-communication (replacing imitation)		
	Social maturity (replacing egocentrism)		
	Language acquisition		
	Expanding vocabulary		
	Reasoning facilitator		
	Message conveyor		
	Symbolical/figurative expressions		
	Thought manipulator		

Chapter 4

The Developmentally Based Writing Program

All observant adults recognize that language acquisition and application are dynamic processes which develop over time as the human organism matures. While these phenomena may be acknowledged by adults, the theoretical explanations for the phenomena rest in the domain of the developmental psychologists and psycholinguists who concern themselves with the learner, the learning conditions, and the learning process. In relating these concerns to language development, Paula Menyuk states that the theorists, with few exceptions, seem to agree upon the following:

1. That language development takes place in a set sequence and that this sequence is universal.

For example [children] produce sounds (or signs) before they produce words, they produce words or jargon phrases before they produce sentences, and they produce simple sentences before they produce complex ones. They talk about the here and now before they talk about things removed in space and time. The degree of detail that each theory claims is universal differs from theory to theory. Thus some theories assume a rough universal sequence, such as that described

above, whereas others cite a detailed evidence of a fixed sequence of phonological, morphophonological, and semantic structure, pragmatic rules, and lexical acquisitions.

2. That a great deal of knowledge about language is acquired over a fairly short period of time
3. That children hear language that is highly variable, takes place in time in a connected sequence, and then disappears. Despite these characteristics of the language they hear, children determine the categories and rules in the language.
4. That the child produces language that he couldn't possibly have heard at all. These unique productions appear at all structural levels of the language. For example, children have been found to produce speech sound contrasts that do not exist in their language at all, such as the initial sound in "ship" as /ts/. They produce plural nouns such as "childrenziz" and past tense verbs such as "runned." They produce lexical items that do not exist in the vocabulary of their language such as "buggieboo" for ghost. They produce such as "The door closed me." (24-25)

While the theorists agree upon these characteristics of language development, they offer various explanations of the relationships between language and thought and language and environment. As a background to a focus on written language, this chapter will begin with a summary of the major language acquisition theories, continue with a brief discussion of children's readiness for language, and culminate with a theoretical paradigm for a developmentally based, kindergarten through twelfth grade writing program.

The Prewriting Phase: Theory and Readiness

In her book Language Development: Knowledge and Use, Paula Menyuk raises the question of why those who plan to focus on the application of language would concern themselves with language acquisition theory. After all, the reality is that all normally developing children acquire language; therefore, theory is peripheral if not useless. Menyuk proceeds to answer her question by stating that clinicians and teachers are affected by theory because it provides insight into the learner and the conditions of learning so that both intervention in language disorders and instruction and enrichment in language arts are facilitated (24). Of the theoretical schools, the cognitive, the social, and the innatist are most eminent.

Those theorists who emphasize the relationship between cognition and language take the position that language

development and logical thinking are inextricably connected. The most noteworthy of the cognitivists are Jean Piaget, Heinz Werner, and Lev Vygotsky. While stressing the centrality of logical thinking, the three theorists differ somewhat on the exact relationship between cognition and language. Piaget describes child development occurring in stages, during which identifiable behaviors reflect cognitive growth. This cognitive growth, in turn, reflects "the ways in which the child perceives the world, organizes these perceptions, stores them, and then thinks about objects and events in that world using these stored representations" (Menyuk 49). Linguistic development, according to Piaget follows the same processing sequences as cognitive development such that "both appear at approximately the same developmental time" (Menyuk 52), and both are the products of the development of logical thinking.

Heinz Werner also sees human development occurring in stages; however, he sees both cognitive and linguistic development "dependent upon perceptual-motor experiences," which "lead to the development of symbolization or representation" (Menyuk 53). Werner, unlike Piaget who sees cognitive and linguistic development occurring in a fixed sequence of stages regardless of the environment, views cognitive and linguistic development as interdependent and as products of biological, affective, and social factors (Menyuk 57).

Lev Vygotsky presents his view of the relationship

between cognition and language in Thought and Language. His research led him to conclude that:

1. In their ontogenetic development, thought and speech have different roots.
2. In the speech development of the child, we can with certainty establish a preintellectual stage, and in his thought development, a prelinguistic stage.
3. Up to a certain point in time, the two follow different lines, independently of each other.
4. At a certain point these lines meet, whereupon thought becomes verbal and speech rational.

(Vygotsky 44)

Vygotsky sees a shift in the nature of language development, from a biological process to a sociohistorical process, for verbal thought is not innate; it is, rather, subject to sociocultural experiences. Vygotsky concludes that "the child's intellectual growth is contingent on his mastering the social means of thought, that is, language" (Thought and Language 51).

Menyuk summarizes the views of Piaget, Werner, and Vygotsky concerning the relationship between cognition and language:

Piaget suggests that cognitive and linguistic developments are equally the product of development of logical thinking. Werner believes that early

developments in both cognitive and linguistic domains are dependent on perceptual development. Later developments, contemplative and analytic thinking, he suggests, rely heavily on the use of language. However, all developments are a product of three factors: biological state, affective state, and societal conditions. Vygotsky places great emphasis on the role of the society in conveying to the child the ways in which he or she should think about and solve problems. Language and thought are fused in concept development, and language is used in planning and problem solution, and for remembering. However, thinking can take place without language, and language use can take place without thinking. (57-58)

The social, or stimulus-response, school of theorists sees language development as a learning process in which the environment provides a stimulus, the learner responds to the stimulus, and the environment provides a reward. This stimulus-response-reward (S-R-R) process results in forming a "chain" whereby the environment provides the language stimulus, the child responds with "either comprehension or production of aspects of language," and the environment provides the reward (Menyuk 26). While the environmental context is critical to the learning process, the learner's role is surely taxing, for the learner must respond to the

stimulus, extract linguistic parameters, and generalize the parameters so that similar groupings of stimuli and responses can occur at a future time (Menyuk 27). While B. F. Skinner is the foremost proponent of this theory, C. Osgood and S. White also believe that the S-R theory provides the best explanation for language acquisition.

In contrast to the S-R theorists who see the environment as the most critical factor in language acquisition, the innatist theorists emphasize the learner as "genetically preprogrammed to acquire language just as human beings are preprogrammed to walk upright" (Menyuk 30). The leading advocate for the innatist, or transformational or generative grammarian, school of theorists is Noam Chomsky. In providing a historical background for his innatist stance, Chomsky draws from Descartes, Leibniz, Humboldt, Hume, and others to show that his theory is grounded in a rich philosophical base. Chomsky notes that these philosophers recognized that "the general form of a system of knowledge is fixed in advance as a disposition of the mind, and the function of experience is to cause this general schematic structure to be realized and more fully differentiated" (51-52). In referring more specifically to the learning of language, Chomsky notes that Humboldt concludes:

One cannot really teach language but can only present the conditions under which it will develop spontaneously in the mind in its own way. Thus the

form of language, the schema for its grammar, is to a large extent given, though it will not be available for use without appropriate experience to set the language-forming processes into operation. (51)

Based upon his belief that children have an innate schema for language development, Chomsky contends that developmental psychologists should be "mapping the intrinsic cognitive capacities of an organism and identifying the systems of belief and the organization of behavior that it can readily attain" rather than focusing, as they have, on the extrinsic behavioral traits which are subject to "experimentally manipulable conditions" (57). Chomsky concludes his discussion of linguistic theory and language learning in this manner:

In short, the structure of particular languages may very well be largely determined by factors over which the individual has no conscious control and concerning which society may have little choice or freedom. On the basis of the best information now available, it seems reasonable to suppose that a child cannot help constructing a particular sort of transformational grammar to account for the data presented to him, any more than he can control his perception of solid objects or his attention to line and angle. Thus it may well be that the general features of language structure reflect not so much

the course of one's experience, but rather the general character of one's capacity to acquire knowledge--in the traditional sense, one's innate ideas and innate principles. (59)

While the cognitive, social, and innatist theorists present varying beliefs of language acquisition, all agree that the human infant has a unique capacity for language acquisition, for in a relatively short time, four to six years, children learn and produce both oral and written communication. The human organism, in fact, possesses an innate predisposition, or readiness, for acquiring a language system. This readiness is exhibited in the infant's biological, cognitive, and social spheres.

Menyuk observes that "human infants are born with a structurally unique vocal mechanism, a uniquely functioning auditory system, and a structurally unique and uniquely functioning brain" (73). These biological components are integral to the infants' capacity to acquire, process, and produce a complex language system composed of pragmatic rules, a lexicon, a semantax, and a morphophonology.

The human vocal mechanism, unlike that of subhuman primates, is specifically structured for articulate speech. "The positioning of the larynx, the size and mobility of the tongue, the shape of the lips, and the relation between the upper and lower jaw" render human beings able to produce resonant sound and to vary the sounds (Menyuk 74).

While the vocal mechanism produces sound, the auditory mechanism receives sound such that the infant can discriminate among different categories of sound. Research with infants indicates that there is an early ability to discriminate between syllables with contrasting initial sounds based on acoustic differences. This discrimination shifts at a later time from acoustic differences to phonetic differences. This shift is seen by researchers as preparation for processing a particular language. Up until this shift occurs, toward the last part of the infant's first year, the infant discriminates based on acoustic segments such as sound duration, amplitude, and frequency, but after the shift, discrimination is based on phonetic features such as the syllables characteristic of a specific language (Menyuk 196-98).

In studying the human brain for specific language acquisition features, researchers have noted both the size and structure. In comparing the human brain to that of a gorilla, the scientists noted that the human brain is more than twice the size of the gorilla's and that size could affect the amount of information processed; more cortex allows for more nerve pathways which associate visual, auditory, and tactile information. More pathways allow more "rapid cross-modal associations (an object and its name, an object and what it feels like)" to occur (Menyuk 77).

Indeed, the rate of processing may affect the kinds of information which are stored for retrieval.

Another noteworthy feature of the brain which bears relevance to language acquisition is the two cortical hemispheres which are dedicated to different operations or modes of knowing. "The left hemisphere, which controls the production of speech, perceives the world logically, critically, and sequentially, whereas the right hemisphere is involved in intuitive, holistic patterning, visual, spatial, musical apprehension" (Weiss 25). Researchers have found that neonates generate greater electrical activity in the left hemisphere when speech is presented and conversely generate greater electrical activity in the right hemisphere when music is presented (Menyuk 77).

In relating the specialized functions of the two hemispheres to written language, Monica Weiss makes this observation:

Why are students unable to get their brilliant ideas onto paper? One hypothesis is that after age two or three, when left hemisphere dominance is firmly established, whatever "language" is learned by the right hemisphere in early childhood becomes functionally suppressed, perhaps lost or erased, and the corpus callosum assumes the role of traffic cop transmitting language information primarily in one direction--that is, to the critical, analytic left

hemisphere which leans toward ordered, structured outlines and passes judgment on the intuitive flashes of the right hemisphere. Some studies are being done with amobarbital to paralyze the left hemisphere temporarily, which relieves "competition" so that the primitive linguistic abilities of the right hemisphere can be activated. (27)

In addition to the biological components of readiness, the child must demonstrate a cognitive readiness for language acquisition. Infants' perceptual capabilities have been found to be active from birth such that they filter all sensory stimuli and respond within certain parameters which change with time. Two very early processing abilities which have implications for language acquisition are the infants' abilities to relate auditory and visual information and their abilities to imitate. Their intermodal capabilities, which account for their perceiving relationships between seeing and hearing events and between hearing and feeling events, will be drawn upon when the children acquire a lexicon and produce verbalized communication, for acquiring a lexicon calls upon children's abilities to "relate a phonological sequence to an object or event," and acquiring "a productive speech-sound system" calls upon children's abilities to "relate what they say to what they feel" (Menyuk 78).

Children's abilities to imitate are germane to language acquisition because imitation not only calls upon intermodal

association but also upon memory. Research with infants as young as two to three weeks old has revealed that these neonates imitate adults' facial expressions, even after some time delay. Infants, in fact, have shown their abilities to remember, for newborns will turn their heads to search for the source of a familiar sound; babies indicate boredom with stimuli that was of interest a few weeks earlier; and six-to seven-month-old infants exhibit recall (Menyuk 79).

Infants' abilities to imitate adults' facial expressions are indications not only of cognitive readiness but also social readiness. It has been suggested that facial imitation may be "an important precursor to the ability to recognize intent (as indicated by others' facial expressions) and, thus, to communicate appropriately" (Menyuk 79). Other examples of infants' social readiness are their abilities to discriminate between male and female voices, between their mother's voices and other female voices, between friendly and unfriendly voices, and between intonations which indicate questions or statements. They also recognize, as early as two weeks of age, that they are being addressed, for they will focus on the speaker and even respond at the appropriate cue, a pause, rising intonation, and/or facial expression (Menyuk 80). The infants' social environment is of great interest to developmental psychologists, especially the stimulus-response and affective theorists, for the environment can nurture or delay language acquisition.

Assuming that the infant exhibits the biological, cognitive, and social aspects of readiness, we can anticipate the child's development of the four components of language: pragmatics, lexicon, semantax, and morphophonology. A brief discussion of the pre-school child's acquisition of these components will prove helpful in understanding the kindergarten child's language capabilities, particularly as they relate to the writing process.

Pragmatic knowledge is that aspect of language knowledge that comprises a person's performance in a social setting. The knowledge includes not only conveying and judging communication intentions but also practicing acceptable norms in communication. This pragmatic knowledge begins as early as two-three months of age when infants "take their turn" during conversation with the caregivers. The infants wait for the caregivers' cue, a pause, intonation, or facial expression, then respond with vocalization (going). Over the first two years of life, the infant develops a range of communication signals, including gesture, word, and intonational contours to relay such intentions as demand, request, indication (of object or event), statement, negative affect, and positive affect. At the same time conversation occurs between child and caregiver, the child learns to keep the conversation going through "back-channels" or "fillers" such as "un huh, and "oh," and learns to practice politeness

such as by saying "please" and controlling volume (Menyuk 116-17).

As infants move into early childhood (three-seven years old), their pragmatic knowledge expands to an understanding of inference and such other indirect speech acts as bargaining, insulting, praising, and lying. Young children also become better communicators through a marked increase in the amount of appropriate information conveyed in conversation (Menyuk 121-25).

A second component of language is lexical knowledge, the knowledge of the meanings of words. Researchers have found that infants' first words represent specific people, specific objects, general objects, action words, negation, and question (Menyuk 142). From the time that infants comprehend words, at about eight to nine months of age, and produce words, at nine to twelve months, until the youngsters are three years old, their lexical comprehension and production increase remarkably. For example, "infants comprehend the first 10 words at about twelve months, 50 words at about fourteen months, and 100 words at about seventeen months. Infants produce 10 words at about fifteen months and 50 words at about nineteen months" (Menyuk 142-43). It is noteworthy that infants' production lags behind their comprehension at all ages and that the lag increases with time; however, the opposite is true about comprehension, for whereas the fourteen-month-old child

comprehends 40 new words per month, the eighteen-month-old child comprehends 90 new words per month (Menyuk 143). Carol Seefeldt notes that there is such a rapid increase in word acquisition in early childhood that by the time children are three years old, they have nearly 8,000 words at their command (260).

Just exactly how children acquire, store, and retrieve such a volume of words is still under research; however, a general consensus is that children have an innate ability to learn a symbol system which is initially mapped onto categories of experience and ultimately differentiated to form true concepts. Therefore both words and experiences are needed for lexical acquisition. Lev Vygotsky sees a process associated with word meaning. He believes that children hear a word, attach it to a specific object, then adjust meaning through differentiation. He illustrates his point by relating his experience with preschool children who had not formed a true concept of the word "cow." To these children the word "cow" was associated with the milk and horns of the animal. When they were asked if the word "ink" could be exchanged for the word "cow," they replied, "no, because ink is used for writing and cows give milk" (Thought and Language 129). Vygotsky goes on to relate an experiment in which children were told that they were going to play a game in which a dog would be called a "cow." A typical interchange between experimenter and child is as follows:

"Does a cow have horns?"

"Yes,"

"But don't you remember that the cow is really a dog? Come now, does a dog have horns?"

"Sure, if it is a cow, if it's called cow, it has horns. That kind of dog has got to have little horns." (Thought and Language 129)

Based upon such observation, Vygotsky concludes that children have two planes of speech which are initially fused but which separate as the children are able to differentiate word meanings in speech and consciousness.

It is clear that by the time children are of school age that they have accumulated a vast knowledge of words and word meanings, albeit much remains to be learned. In general they have learned denotative meanings, some connotative meanings, and some understanding of antonym and homonym relationships (Menyuk 152).

The third language acquisition component is semantax development, the selection and combination of words to construct meaningful communication units. More specifically, semantax development "describes the changes in structural knowledge that occur over time and that appear to be the product of both lexical and syntactic development" (Menyuk 161). Whether lexical and syntactic knowledge occur

simultaneously or semantic categories precede syntactic development is still a subject of research. We do know that children must learn the acceptable word order for various intentions such as demand, request, state, indicate, and negate; the rules for word substitutions and word markers such as number, gender, and case for pronoun substitutes and articles and word endings to mark aspect, tense, and number; and the acceptable combinatory rules to express relations between actors, objects, actions, and modifiers (Menyuk 162-66).

Infants from birth to two years acquire little knowledge of word markers; however, they do exhibit a sense of word order and semantactic relations. The average age at which children use two-word combinations is twenty-five months and the average age for three-four-word combinations is thirty-five months (Menyuk 167), yet the use of these combinations indicates a sense of appropriate semantactics. For example in a two-part word combination, the two-year-old child places noun before verb, as in "Daddy go," verb before object, as in "hit ball," and adjective before noun as in "good girl," etc.

This sense of semantactics undergoes a dramatic expansion in the early childhood years from two to six, so much so that some authorities claim that basic semantax competence has been achieved by the end of this period. In commenting on the dramatic shift in semantax knowledge between infancy and early childhood, Menyuk says the shift is "from comprehension

and use of actor-action-object relations to comprehension and use of the syntactic relations of SVO. A further and very marked development occurs in the expansion of SVO. This expansion takes place within sentences and in the use of coordinated and embedded sentences" (186). In other words, the child produces complex sentences with the appropriate word markers for modifying subjects, verbs, and objects. While children have an innate ability to learn language, social interaction where they observe and practice communication skills must not be underestimated.

The final language acquisition component is morphophonology, the recognition and production of meaningful speech-sound segments. Since the morpheme is the smallest meaningful unit in the language and it is made up of speech sounds, phonology, "the child's task is not simply to acquire the pronunciation of the sounds in his or her language but also to learn how to understand and produce speech sounds in a meaningful unit" (Menyuk 190). There is, obviously, considerable interaction with the lexical and semantactical aspects of language in the development of morphophonology.

While infants engage in various vocalizations, there is no evidence that these vocalizations are other than the infant's strengthening of the vocal mechanism until the baby is about seven months old. From the seventh to the tenth month of age, the infant begins "true" babbling, producing syllables. These variegated syllables contain repetitions

of various combinations of consonants and vowels with the easier consonants and vowels appearing first, followed by the more difficult ones (Menyuk 198). This shift from vocalization to babbling appears to coincide with the infant's ability to discriminate between initial syllables based on acoustical or phonetical distinctions. The shift from acoustical (duration, amplitude, and frequency) to phonetical differentiation also indicates the infant's acquisition of speech-sound features of a particular language (Menyuk 196).

The transferring of speech-sound perceptions into word production is a formidable undertaking:

The child's task in phonetic realization is one of problem solving. There are physiological factors that "load the dice" in certain directions. There are contextual or coarticulation factors that are given by the particular words the child selects to produce first. There are all-important motivational or social factors that may lead the child to make extraordinary and creative efforts in its word productions. (Menyuk 199)

However difficult the problem-solving task is, the normal child moves from vocalization, to babbling, to differentiation of acoustical, phonetical, and semantical categories, to differentiation among words and word stems, to a mastery of articulation and production.

While theorists speculate about the process of language acquisition and researchers study the phenomenon, we must be ever mindful of the wonder and mystery of this amazing feat. It is this process, of course, that distinguishes humanity from inhumanity, for the connection of sound with symbol, both oral and written symbols, marks not only the maturation of the individual but also the progress of a culture.

Kindergarten through Grade Three:

From Drawing to Text

In a discussion of world illiteracy, human and cultural progress, and the acquisition of literacy, Maria Montessori makes this observation:

If man is superior to the animals, which have no articulate language, then the man who can read and write is superior to one who can only speak; and it is the man who writes who alone possesses the language necessary to the culture of our times. Written language, therefore, must not be considered merely as a subject in schools, and a part of culture. It is, rather, a characteristic of civilized man. (Childhood Education 111)

The acquisition of written language, then, is unique to human development and central to cultural advancement. Explaining the emergence of written language has been of

particular interest to Lev Vygotsky who sees written language consisting of "a system of signs that designate the sounds and words of spoken language, which, in turn, are signs for real entities and relations" (Mind in Society 106). Once the system is mastered, the intermediate spoken language link disappears and the signs directly symbolize the entities and relations. The mastering of such a complex system of signs "is the culmination of a long process of development of complex behavioral functions in the child" (Vygotsky, Mind in Society 106). The theorist sees the process of development beginning with gestures, progressing to scribbles, then to drawing, and finally to writing. In this metamorphosis, symbolical representation is intrinsic to each stage.

In Mind in Society, Vygotsky notes that gestures are the first visual signs of the child's predisposition for written language, for gestures "are writing in air, and written signs frequently are simply gestures that have been fixed" (107). To illustrate the idea that written signs are often fixed gestures, Vygotsky draws from pictographic writing which employs a hand with an extended index finger to convey a particular message (107).

While the child uses gestures in various stages of speech development, the gestures are frequently coupled with scribble where the child moves freely from markings on paper to gesturing, or acting out, what the markings signify. Vygotsky relates the incidence of a little girl using her

fingers to depict running and her hands and arms to depict jumping which she regarded as representations of the two activities (Mind in Society 107).

Gestures as symbolic representation are also evident in children's play, for they readily substitute a rolled towel for a baby or a stick for a horse. It is interesting to note that in research settings, children will allow substitutions only if the substituted items can admit the same gestures as the real items. In other words, the rolled towel can be cradled and fed like a baby, and the stick can be placed between the legs and ridden like a horse. It is the relevant gesture which endows the symbolic representation with meaning. Vygotsky asserts, "this is a highly important conclusion; it indicates that symbolic representation in play is essentially a particular form of speech at an earlier stage, one that leads directly to written language" (Mind in Society 111).

When children progress in symbolical representation from gestures, scribbles, and play to symbolical representation in drawing, they are on the threshold of writing, for the graphic sign of an object will soon give way to the graphic sign of sounds, words. Their drawings are initially from memory and are highly symbolic rather than realistic. When drawing figures, children draw what they know, which explains their adding a second eye or limb to a human in profile or their showing the stomach, legs, arms, and a wallet with

money in a picture of a fully clothed man. Just as they may add items they cannot see, they may omit those they can see or those they are fully aware of, such as their drawing a head and attaching long legs to it, omitting a torso.

Vygotsky notes that "when a child unburdens his repository of memory in drawing, he does so in the mode of speech--telling a story" (Mind in Society 112). Inherent in the speech mode is an element of abstraction, a necessity in verbal representation; therefore, according to Vygotsky:

drawing is graphic speech that arises on the basis of verbal speech. The schemes that distinguish children's first drawings are reminiscent in this sense of verbal concepts that communicate only the essential features of objects. This gives us grounds for regarding children's drawing as a preliminary stage in the development of written language. (Mind in Society 112-113)

Vygotsky recounts his observing children's drawing becoming written language in an experimental setting. The children were given phrases which they initially recorded pictorially. For example, the phrase, "I do not see the sheep, but they are there," was recorded with "the figure of a person ('I'), the same figure with its eyes covered ('don't see'), two sheep ('the sheep'), an index finger and several trees behind which sheep can be seen ('but they are there')" (Mind in Society 114). The pictorial representation of

speech will progress into written language when the child "shifts from drawings of things to drawing of words" (Vygotsky, Mind in Society 115).

Montessori sees this shift from drawing of things to drawing of words as a natural, spontaneous phenomenon which comes from within the child; it should not be imposed upon the child. Furthermore, she believes that children are developmentally ready for written language well before it is usually taught. In Childhood Education, Montessori states:

Written language can be acquired much more easily by children of four years than by those of six years of age--the time at which compulsory education usually starts. While children of six years of age need at least two years to learn how to write and do so with much difficulty and against nature, children of four years learn this second language within a few months. (112)

During these few months, the child's school environment prepares both the hand and the mind for "the spontaneous phenomenon of the 'explosion of writing' in children of four years of age" (Montessori, Childhood Education 112). Using didactic materials designed by Montessori, the children engage in multisensory exercises in preparation for writing. Montessori concludes that there are three periods:

1. Exercises tending to develop the muscular

- mechanism necessary in (a) holding and
(b) using the instrument of writing.
2. Exercises tending to establish the visual-muscular image of the alphabet letters, and to establish the "muscular memory" of the movements necessary to writing.
 3. Exercises for the composition of words.
(Handbook 131)

The exercises are performed in such activities as tracing and filling in various geometric shapes with pencil or pen, touching the tips of the index and middle fingers to alphabetical letters cut from fine sandpaper and mounted on cards, and selecting alphabetical letters cut from cardboard from the "movable alphabet" to form words which the teacher dictates and which children think of themselves.

In teaching the alphabet, Montessori begins with the vowels, cut from light-colored sandpaper mounted on dark cards and from blue cardboard, and proceeds to the consonants, cut from black sandpaper mounted on white cards and from red cardboard. As soon as the vowels and their sounds are learned, Montessori begins introducing consonant sounds which she immediately attaches to different vowels, forming syllables, such as "m, m, m, ma, me, mi, m, m," (Montessori, Method 277). She notes that it is not necessary to teach the consonants in order or by any special rule but rather in response to children's curiosity about a

letter or sound. She also notes that as soon as children know several vowels and one consonant, they may begin to compose words (Method 278). While children are gradually prepared for writing, it is, nevertheless, a spontaneous activity which is a natural part of child development. The entire process in Montessorri's Case dei Bambini is remarkably brief:

The average time that elapses between the first trial of the preparatory exercises and the first written word is, for children of four years, from a month to a month and a half. With children of five years, the period is much shorter, being about a month. But one of our pupil's learned to use in writing all the letters of the alphabet in twenty days. Children of four years, after they have been in school for two months and a half, can write any word from dictation, and can pass to writing with ink in a note-book. Our little ones are generally experts after three months' time, and those who have written for six months may be compared to the children in the third elementary. Indeed, writing is one of the easiest and most delightful of all the conquests made by the child. (Montessori, Method 294)

The Montessori method of instruction is surely consistent with child development theory, for her method encompasses

individual readiness and environmental experiences. She recognizes the natural, spontaneous process of intellectual development and the influence of physical and verbal exercises in facilitating language development. These exercises are presented at the appropriate time of intellectual development, for as Piaget and Vygotsky stress, language development depends upon thought development.

All kindergarten through third grade teachers can provide the learning environments which simultaneously nurture the whole child, cognitively, socially, and affectively, and facilitate language development. David McNally notes that such an environment would emphasize:

1. general experience, self regulation and cognitive match;
2. intrinsic motivation, interest and the principle of moderate novelty;
3. interpersonal interaction and discussion as it relates to cognitive development; and
4. genuine activity, discovery and the opportunity to develop real meaning as cognitive structures are built. (143)

While McNally is focusing specifically on applying Piaget's cognitive theory to language arts instruction, his comments include the significance of interpersonal interaction and personal experiential opportunities which are central to the social and affective theories of child development.

The task, then, of creating a learning environment which fosters children's predispositions for written language requires attention to both developmental readiness and teaching strategies.

With the exception of particular handicapped and socially deprived children, five year old kindergarten youngsters are developmentally ready for writing, and had they been given the physical and environmental stimuli of a Montessori program, they would, undoubtedly, be writing in the fullest sense of the word. All children, however, do not receive the motor, visual, and cognitive stimuli of such a program; therefore, the kindergarten teacher must determine each child's progress in the writing process and provide the appropriate activities to facilitate the process.

This teacher assessment should begin very early, even in the first few days of the school year. The teacher provides a writing table with a variety of materials and instruments from which children may choose, such as various sizes and types of paper and writing instruments. After the teacher asks the children to write whatever they desire, she observes which materials are selected, how they are used, and what is written. The selection of unlined paper and a jumbo crayon used to produce scribbling or drawing will be in marked contrast to the selection of lined paper and standard pencil used to produce alphabetical characters and numbers.

Regardless of the level of each child's writing development, the teacher must set a supportive climate and demonstrate a respect for the writing process. Donald Graves notes that data show that ninety percent of children entering school believe that they can write, and, indeed, when writing is defined broadly as meaningful marks on a surface, albeit meaningful only to the writer, it is writing (18). The kindergarten teacher's role, then, is to respect this product and to encourage its development.

This respect and encouragement are exhibited when the teacher moves about the writing tables and pauses to discuss the children's writing with them. It is imperative that the teacher treat all writing samples with the same degree of interest, direction, and praise. For example, when the teacher sees a piece of writing that has recognizable words using either standard or inventive spellings, she should pause, comment upon what she sees, ask questions about the context of the sample (who, what, when, where, why), offer suggestions for expanding or clarifying the piece, and give positive comments. The same degree of interest and feedback must be given to the writing sample that is a series of indecipheral scribbles. In the latter case, the teacher will have to be an astute listener and encourager while she provides sensorimotor activities and introduces alphabetical characters and phonetical correspondences which facilitate written expression. While the teacher's positive attitude

and supportive behavior are important at every grade and writing level, they are crucial at this early education point because they convey the message that children have something interesting and worthwhile to say and that they can communicate their thoughts and feelings on paper. This message fosters self-esteem and motivates self-expression.

In addition to recognizing the importance of a supportive writing environment, the teacher must understand the craft of writing. Lucy Calkins compares the writer's "process of craft" to the researcher's use of scientific method and notes that while theorists use different terminology to describe this process, such "as prewriting, writing, and rewriting; as circling out and circling back; as collecting and connecting; and . . . as rehearsal, drafting, revision, and editing," the underlying point is that writing is a process which children can learn and teachers can facilitate (16-17).

Once teachers understand that writing is a process in which writers interact with their words to form meaning, then these teachers can move children from dysfunctional to effective writing strategies. Not understanding the writing process, teachers have far too long focused on mechanics and form with the predictable result that we have children who fear or despise the blank page; who write two sentences and madly scratch through or erase one; who follow a prescribed introduction, body, and conclusion format, while producing

inane, bland content; and who exit school unable to manipulate and control the written word. These dysfunctional behaviors can surely be reduced and hopefully eliminated through appropriate teaching strategies.

In his chapter "Learn the Twin Crafts of Writing and Teaching," Donald Graves makes this cardinal point:

The teaching of writing demands the control of two crafts, teaching and writing. They can neither be avoided, nor separated. The writer who knows the craft of writing can't walk into a room and work with students unless there is some understanding of the craft of teaching. Neither can teachers who have not wrestled with writing, effectively teach the writer's craft.

We don't find many teachers of oil painting, piano, ceramics, or drama who are not practitioners in their fields. Their students see them in action in the studio. They can't teach without showing what they mean. There is a process to follow. There is a process to learn. That's the way it is with a craft, whether it be teaching or writing. There is a road, a journey to travel, and there is someone to travel with us, someone who has already made the trip. (5-6)

While the writing teacher need not be a published author, any more than the piano teacher a concert artist, the teacher

must have an understanding of the writing process and model this process just as the piano teacher understands musical notation and models keyboard competence. Since writing is a process of rehearsing, drafting, revising, and editing, the teacher will provide both the time and the guidance for the process to evolve. Graves believes that many of our writing problems result from inadequate time allocated to the process:

Writing has never taken hold in American education because it has been given so little time. Writing taught once or twice a week is just frequently enough to remind children that they can't write, and teachers that they can't teach. They are both like athletes who never get in condition, yet have to play the game before derisive spectators. (90)

Graves recommends at least four forty-five to fifty-minute periods per week be devoted to writing with the time decreasing as the children become more competent writers (90-91).

Central to allocating time for the writing process is the teacher's insight into the distinctive yet reciprocal nature of the process. Donald M. Murray notes that writers follow their writing through the stages of rehearsing, drafting, and revising. However, when these stages are isolated from each other for scrutiny, the results while bringing clarity to the individual stages on the one hand

may ironically lead to a misunderstanding of the nature of the process on the other hand because this isolation of stages, or elements, gives an "unnatural priority to one element of an explosion of elements in simultaneous action and reaction. Meaning is made through a series of almost instantaneous interactions" among the elements (4).

In simplest terms, rehearsing refers to the mental and/or physical activity which prepares the writer for drafting. This preparation may include reading, observing, thinking, talking, etc. Drafting refers to the physical placement of symbols on paper, or other surface, to determine what the piece of writing may say, for "the writing process is a process of writing finding its own meaning" (Murray 5). Once the draft is before the writer, this detachment permits the writer to interact with it so that the revising stage may begin. The writer searches for the text's meaning and then works to clarify it. Murray says that "during this part of the process the writer must try not to force the writing to what the writer hoped the text would say, but instead try to help the writing say what it intends to say" (5). While Murray includes editing in the revising stage, other writers separate it from revising and make it the final stage in the process where the writer is most objective and critical of the text (Calkins 18).

Perhaps equally or more important to teachers' knowing the elements of the writing process is their understanding

that the process is not a linear, sequential activity which can be accomplished through teacher-led, whole-group instruction. The process, on the other hand, is cyclical with the writer moving frequently and instantaneously from one component to another. As Lucy Calkins explains:

The shifts between rehearsal, drafting, revision, and editing occur minute by minute, second by second, throughout the writing process. The writer thinks of topic, jots down a few lines, rereads them. Dissatisfied, the writer may cross out a line and recopy the remaining text, making small changes. The piece still looks feeble. Trying again, the writer asks, "What do I want to say?" and this time, jots down some notes. They are messy, so the writer recopies them. Already the writer has shifted from rehearsal to drafting, to revision, to editing, to rehearsal, to editing. (18)

This "recursive, overlapping" process (Calkins 19) precludes the myopic instructional method in which the teacher mandates rehearsal on Monday, drafting on Tuesday, revision on Wednesday, editing on Thursday, and submission on Friday. Murray notes that while elements of the writing process are distinctive, they "blend and overlap" and teachers must consciously "recombine the elements" lest they

"present each part of the writing process to their students in a prescriptive, sequential order, creating a new kind of terrifying rhetoric which 'teaches' well but 'learns' poorly" (4). Teachers, conversely, will search for methods which facilitate the writing process and which free children to communicate as their developmental "clocks" permit.

Just as developmental readiness varies from child to child so does writing development. Teachers can, however, form reasonable writing expectations by drawing from child and language development theorists.

In the cognitive, or Piagetian, view, four to six year old children's thought processes are controlled by their perception of reality and by their centering on one aspect of a given object or situation. (See pages 14-17; Table 2, page 26; Table 5, page 87; Table 6, page 88.) Their egocentrism and centeredness prohibit their comparing evidence and applying logic to overcome perceptual distortions or to understand relationships, such as parts to whole or classes to subclasses. Likewise, in the Piagetian view, four to six year old children use language as a means for thinking aloud and affirming opinions rather than for exchanging ideas. This highly individualized use of language results from children's egocentrism and introspection. Writing, then, is seen by cognitivists, as "originating within the author and then being externalized in written form" (Gere 79).

Social and affective theorists of child development emphasize four to six year olds as social beings highly motivated to seek social acceptance and reassurance and to relish in cooperative activities. (See pages 48-52; 63-65; Table 3, page 76; Table 4, page 77; Table 5, page 87; Table 6, page 88.) This eagerness to become part of a larger community of peers impels them to entertain diverse perceptions and to reevaluate their own. Language, in the social and affective views, "assumes a social genesis" (Gere 81). Leo Vygotsky, the most notable theorist of this view, recognizes inner speech as one of the stages of language development, but he disagrees with Piaget about the nature of inner speech. Anne Gere explains:

For Vygotsky the source of language lies outside the individual, and instead of being a transition from asocial to social language, egocentric or inner speech is a continuation of socially and environmentally oriented language development. In Vygotsky's view, language follows a similar pattern [to thinking] development; its origins are social: "Egocentric speech emerges," Vygotsky claims, "when the child transfers social, collaborative forms of behavior to the sphere of inner-personal functions" (Thought and Language 19).

This transfer does not, however, isolate individual and social language; they remain interlocked because individual language is internalized social language. (82)

Writing, then, is seen by social and affective theorists as social activity which is best facilitated in writing groups.

Teachers must resolve this theoretical quagmire because it will directly influence their teaching methods. If they prescribe to the Piagetian concept, then "writing groups provide a means to the end of individual performance in writing, but they are finally peripheral because the essence of writing lies in the individual effort of opening the mind's locked lid" (Gere 83-84). If on the other hand teachers prescribe to the Vygotskian view, then "Vygotsky's insistence on the dialectic between the individual and society puts peer response at the center of writing because it makes language integral to thinking and knowing" (Gere 84).

Even if teachers choose to set the theoretical issue aside, research covering more than one hundred years should convince them of the value of writing groups to student thought and language development. Gere summarizes her research into writing groups:

Over the years, support for writing groups has clustered around a few key ideas: participants

produce higher-quality writing than their peers, who follow more traditional practices; participants develop more positive attitudes about writing, including increased motivation toward writing and revision of writing, reduced anxiety about writing, and enhanced feelings or solidarity with other writers; participants experience intellectual growth, including development of critical thinking skills, enhanced evaluative capacities, and greater ability to transfer learning from one task to another; and participants increase their rhetorical skill, particularly their ability to conceptualize and address the needs of their audience. Benefits for teachers include a more reasonable paper load because writing groups can reduce the number of papers a teacher must evaluate while enhancing the quality of writing that reaches the teacher's desk. Because of the reduced work load, teachers can effect instructional improvements, including more individualized attention for students and greater adherence to a naturalistic or process-oriented approach to writing. (125)

These writing groups may consist of as few as two children, three to five, or the entire class. There are

both appropriate times and places for all of these groupings; however, the first two groupings are preferable for most writing exercises because they can function more effectively at each stage of the writing process.

For the kindergarten and first grade student the writing group will help facilitate the movement from an egocentric, introspective viewpoint to an outer, socially conscious viewpoint as well as function as an audience for the developing text. The final text will, of course, be shared by a larger audience such as the entire class, the school and community (via publication), and the family. James Moffett believes that there are two cardinal rules for student writing: first, that the students be given real choices in assignments and second, that their writing be posted, printed, or performed (25).

Moffett also summarizes the sequence of communication development and proposes a "Schema of Discourse" (Table 7, page 136). He reasons that if teachers have a comprehensive view of both "basic communication structure and principles of verbal and conceptual growth," they will have a framework for setting expectations, individualizing assignments, and determining teaching methods (11). Moffett's assignment progressions move from personal to impersonal, from informal to formal, and from lower to higher abstractions:

1. From vocal speech and unuttered speech to private writing to public writing.

2. From dialogues and monologues to letters and diaries to first-person narratives to third-person narratives to essays of generalization to essays of logical operation.
3. From an intimate to remote audience.
4. From vernacular improvisation to literary composition.
5. From immediate subjects of small time-space scope to remote subjects far flung in time and space.
6. From recording (drama) to reporting (narrative) to generalizing (exposition) to theorizing (argumentation).
7. From perception to memory to ratiocination.
8. From present to past to potential.
9. From chronology to analogy to tautology.

(11-12)

Moffett notes that this progression is not intended to be only linear but that it be both a spiral, including idea writing in the dramatic and narrative modes before it is expanded upon in the expository mode, and a recursive structure, allowing the most mature writers to return freely and frequently to the narrative mode.

Following his discussion of the schema of discourse, Moffett offers three groupings of writing assignments (revising inner speech, dialogues and monologues, and

narrative into essay) which he stresses should be viewed as parallel activities rather than sequential activities. According to Moffett, these groupings (outlined in Table 8, page 137) are offered as "practical strategies for learning one kind of discourse through experience with another (e.g., written through oral, monologue through dialogue, narrative through diary, first-person fiction through real autobiography, and so on)" (5).

While Moffett believes that most elementary school children can address his assignments in groups one and two and much of group three, he states that all of the assignments are appropriate for secondary school and most for college as well (6). All assignments, of course, are at the discretion of the teacher who knows each child's development and writing readiness and who understands that students exhibit higher motivation for writing if they are given an array of assignments from which they choose. The choice of subject is crucial to the writer, for it is the medium through which the writer's voice is heard. Without the writer's voice, the writing is mere words with no life. Donald Graves comments on the relationship of subject and voice:

Our data show that when a writer makes a good choice of subject, the voice booms through. When the voice is strong, writing improves as well as all the skills that go to improve writing often

Table 7
 Schema of Discourse
 (reading down)

Progression of Speaker-Audience Relationship

Thinking to oneself	Inner verbalization
Speaking to another person face to face	Outer verbalization
Writing to a known party	Informal writing
Writing to a mass, anonymous audience	Publication

Progression of Speaker-Subject Relationship

Recording what is happening	Drama	The chronologic of on-going perceptual selection
Recording what happened	Narrative	The chronologic of memory selection
Generalizing what happens	Exposition	The analogic of class inclusion and exclusion
Inferring what will, may, or could be true	Logical Argumentation	The tautologic of transformation and combination

Source: James Moffett, Active Voice: A Writing Program Across the Curriculum (Upper Montclair, NJ: Boynton/Cook 1981) 13.

Table 8

Moffett's Writing Assignments

- Group One: Revising Inner Speech
 Stream of Consciousness
 Spontaneous Sensory Monologue
 Composed Observation
 Spontaneous Memory Monologue
 Composed Memory
 Spontaneous Reflection Monologue
 Composed Reflection
- Group Two: Dialogues and Monologues
 Duologue
 Exterior Monologue
 Interior Monologue
 One-Act Play
 Dialogue Of Ideas
 Dialogue Converted to Essay
- Group Three: Narrative into Essay
 Correspondence
 Diary
 Diary Summary
 Autobiography: Incident
 Autobiography: Phase
 Eyewitness Memoir: Human Subject
 Eyewitness Memoir: Nature
 Reporter-at-Large
 Biography: Phase
 Chronicle
 Parable
 Fable
 Proverb and Saying
 Directions
 Narrative Illustrating a Generality
 Thematic Collection of Incidents
 Generalizations Supported by Instances
 Research
 Theory

Source: James Moffett, Active Voice: A Writing Program Across the Curriculum (Upper Montclair, NJ: Boynton/Cook, 1982) v-vi.

without any formal teaching in the tools. When the person is in the piece, the dynamo hums, energy for writing goes up, and the child enjoys the writing. Teachers should never assign what children choose to do when they find their own voices.

Voice breathes through the entire process: rehearsal, topic choice, selection of information, composing, reading, rewriting. Not only is it the dynamo for the writing, but it contributes most to the development of the writer. It pushes the writer into confronting new problems through interesting topics, gives energy to persist in their solution, then carries the writer on to a new set of issues. (229)

Whereas more experienced writers may struggle from time to time in finding voice, beginning writers never have this problem because of their egocentrism. The whole world is reduced to their perception, and they write for the sheer pleasure of making their marks on paper. The subject for their writing will be themselves, their families, their experiences and interests.

In the rehearsing stage of the writing process, typical five to six year olds will begin their pieces of writing with a drawing. They may have an idea of what the subject of the drawing will be but will more likely discover the subject after the drawing begins. They begin drawing much

like building a structure with blocks--the subject appears as they manipulate marker on paper just as the structure appears as they manipulate blocks in space.

As the subject of the drawing emerges, the drafting process will begin. Children will "write" about their drawings either by scribbling or by forming letters. The development from scribble to letters, words, phrases, and sentences occurs rather quickly as children recognize that writing involves particular kinds of marks. They "may move from wiggly lines to rows of lollipops and triangles, from these to the alphabet letters in their own names, and then to the letters they find in environmental print and in their early reading experiences. Eventually young authors realize that the choice of letter depends on the sound it represents" (Calkins 39).

The revising process is rather limited in five to six year old authors. Since they are centered on themselves, they reason that if the piece of writing satisfies them, it is finished. In satisfying themselves, they may erase, scratch through, and redraw or rewrite; however, they are more likely to omit revision because they are unconcerned that the writing make sense to anyone but themselves. This unconcern will change very soon as they begin decentering and become more aware of an audience.

To aid in decentering and developing an awareness of audience, the teacher encourages their sharing their writing

in a writing group. She will have already modeled and discussed writing group procedures where the authors "read" (actual or invented reading) their compositions and the group members comment on or ask questions about the text. It is not uncommon for beginning writers to read their texts simultaneously, to ignore their group members, and to leave the group believing they have shared their texts. In time, however, they will conform to teacher expectations about group behavior and will begin to listen to each other's texts. The teacher perseveres in encouraging group activity, for the group activity will help the young writers move toward better revising strategies as they internalize group expectations. In other words, they will begin to ask themselves what they anticipate the group will want to know, and in anticipating questions, young writers learn how to extend a text.

Extension of text may be so subtle that only the astute teacher will perceive it. For example, Lucy Calkins tells of a kindergarten teacher who thought that one of her students was making no progress in writing because he appeared to draw the same picture day after day. Wondering about the child's most recent book, which had page after page of a drawing of a square person standing in midair and a final page of this same person with a funny-shaped flower, Calkins asked the child to tell her about the book. The kindergartner began to read the entire book to her, turning

the pages as he read. Calkins relates this interchange:

"Once upon a time Mr. Toastman wanted to make a flower," he said, "so he got a seed." The boy showed me page one, with Mr. Toastman and the seed. "You can't see the seed," he explained. Then, on page two, Mr. Toastmaster got some dirt (and sure enough, there was a smudge on his hand), and on page three, he got some more dirt (a bigger smudge). The book ends with the seed growing into a flower. (41)

Repetition of drawings, letters, words, etc. is typical of kindergarten and first grade writers. Judith Hilliker, a kindergarten teacher, notes that drawings often have repetitious themes but that these drawing themes become the subjects of the writer's first action sequences. She notes that in one of her classes during a five month span that one child had forty-nine drawings featuring the sun; another had twenty-seven drawings of vehicles; and another twenty drawings of various holiday topics. She states that with every redrawing, "the meaning that the picture represented for the child became more dense and elaborate. As the associations the children made with their drawings grew, the writing burst the confines of the one-word label. Beginning narrative emerged" (qtd. in Newkirk/Atwell 16-17).

The writing process for the second and third grader changes more in degree of activity than in kind of activity

from that of the first grader. This change in degree is expected because the child's cognitive and social development has advanced from the perceptual to the concrete operations phase and from a sense of dependence within the family to dependence and competence outside the family (See pages 17-21; 46-48; 58-60 and Table 2, page 26; Table 5, page 87; Table 6, page 88). Whereas the first grader's thinking is dominated by the biases inherent in egocentrism and centeredness such that his reasoning is disjunctive or partial, the second and third graders move away from perceptual dominance to decenter such that they can consider varying perspectives, compare and transform elements, and order and relate experience to an organized whole as long as the experience is real or concrete.

Since the seven and eight year olds' perspectives have broadened, they are conscious of an audience; therefore, their writing moves from drawings or words on paper for pleasing themselves to an awareness of a product for informing others. This awareness of an audience motivates these children to extend their texts and to revise and edit their drafts.

In the rehearsal stage, talking serves their needs as drawing had served them earlier. Their eagerness to discuss subjects for writing makes the writing group a necessity for their writing development: the group provides the audience for testing topics and for elaborating

upon them. Typical second and third graders will leave their writing groups with a list of possible topics from which they generally choose for their focus (Calkins 70,81).

The drafting stage for these children is linear: they produce texts, usually focusing on personal incidents, which for the second grader are "bed-to-bed chronological narratives" and for the third grader are step-by-step chains of events (Calkins 74,82). For the seven year olds, who initially wrote caption-like texts, drafting now becomes a long series of clauses joined by "and" or "then." This view is so comprehensive that they are seemingly compelled to include the minutest of detail in their texts which are frequently titled "All About" Whereas third graders are no longer wed to the morning-to-night narrative, their texts resemble those of the second grader in that chronology and detail dominate. Third graders can begin the narratives at any point in time, but once they begin, they "produce one-track, systematic, and even-paced narratives" which are richly embellished with "sound effects, dialogue, and action" (Calkins 85, 89).

Revision for these children usually means adding more clauses so that everything that "really happened" is recorded. Second graders will happily paste another page to the bottom of their work to form a string of sheets where text can be added because in their view, longer narratives are automatically better narratives. While third graders

also value length, they are more likely to recopy their texts numerous times adding more sentences with each revision.

The editing process becomes more important to these audience-conscious writers than it was to egocentric first graders. Second and third graders want their texts to be long and to look right on the page. They will laboriously copy a text multiple times "to get it right" because their pride in the finished product has replaced their earlier sheer joy in the process. Correct margins, capitalizations, punctuation, and spelling become matters for great concern. Whereas they resort to invented spelling in their drafts, they will now ask for correct spelling to polish text.

The children's consciousness of product provides the teacher with the optimum moment for teaching mechanics and guiding spelling. Youngsters who perceive a need for mechanical and grammatical elements in their texts are those who are most receptive to instruction. Nevertheless, the teacher must give individual assistance with great discretion, focusing on only one or two corrections which the child is interested in addressing. Teaching grammar and mechanics to the entire class is not only useless but also potentially harmful to the writing process (Hillocks 74). It is far better for teachers to encourage children's editing through writing groups, editing checklists, editing tables (where dictionaries, lists of Dolch words, etc. are

kept), and one-to-one student-teacher conferences.

The period from kindergarten through third grade is a significant one in terms of language and writing development. The child moves from drawing; to labeling; to invented spelling; to words, phrases, sentences; to listing and choosing topics; to writing caption-like texts; to writing extended texts. There will not be another four-year span when such dramatic progress will occur. It is, therefore, incumbent upon teachers to understand and nurture this special period in the young child's life. Acknowledging this special period, Dorothy Strickland and Joan Treedey make these comments:

Given the profile of the primary school child as an active, social, mobile, inductive thinker who goes from whole to part in learning the uses and conventions of written language, we suggest the following implications . . . :

1. There should be a rich print environment: a class library filled with appropriate literature; language experience stories on charts; songs, poems, charts, and notices in bold manuscript around the room; and prominent reading and writing centers.
2. Children should be given many opportunities to test out their hypotheses about print in a risk-free atmosphere. In the primary years,

children are between the stages Piaget calls "intuitive" (4 to 7) and concrete operations (7 to 11) and need interactive experiences with written language Children's ability to acquire metalinguistic skills depends on their operativity or level of concrete operational thought. "Big books" that are read together several times before children read them to themselves and each other are one example of an activity that encourages hypothesis testing.

3. Literacy programs for young children should focus on broadening each child's experiential background, as the conceptual base grows, so will the vocabulary for reading and writing. Reading and writing should not be isolated from each other or from other curricular areas. They are tools for getting things done and should be presented in realistic contexts.
4. Choice should be an integral part of the language program: children should be able to write about topics they know and read books of their choosing.
5. Meaning should be at the center of all language activities: skills should be taught within the context of real reading and writing situations

rather than in isolated workbook and worksheet activities.

6. Teachers should read to children daily and write with them, modeling the dynamic processes of reading and writing. (294)

Grades Four and Five:

From External to Internal Processing

In his cognitive theory of child development, Jean Piaget divides the concrete operation phase into two stages: simple operations and whole systems. In the simple operations stage, children from seven to nine years old perform simple classifications, such as grouping or sorting by color and shape; seriations, such as arranging sticks in order by length without measuring them and drawing a "smallest" or "largest" square without drawing the intermediate members in the series; and term-by-term or one-to-one correspondences, such as recognizing liquid poured from a spherical glass into a cylindrical one results in liquid increasing in the cylinder as it is decreasing in the sphere (Beard 76, 81). As children become adept at performing these activities mentally, or internally, as opposed to physically in their previous perceptive or intuitive phase, they move from the simple operations stage to the whole system stage where they increase their understanding of part to whole. In the whole system stage

they understand Euclidian concepts, such as measurements of length, area, and angles and properties such as numbers of sides or angles, or parallel sides of a figure; reversibility, such that any action or change can be reversed; mental imaging, such as predicting the results of a particular action; concepts projection, such as understanding "a pilot's view" or imaging a changing perspective; and simultaneity, such as dealing with a number of relations at the same time (Beard 88-91). (See pages 17-21; Table 2, page 26; Table 6, page 88 of this text.)

The tremendous growth in cognitive development during the concrete operations stage allows fourth and fifth graders to exert greater control over manipulating language. Unlike early elementary children who have to write ideas on paper to consider them, these upper elementary children can perform this activity mentally, moving freely between alternatives. During the composing process the nine to eleven year old is no longer bound to the single-track, step-by-step chronology. Calkins illustrates this flexibility in the writing process of Susie, a fourth grader, who was engaged in her fifth lead to a narrative about a fishing adventure with her father:

In working on her lead to "The Big Fish," Susie had alternated between writing, reading, redrafting, rereading, inserting information, rereading, and trying another draft, and in doing so, she had

written 287 words and used eighteen revision codes (arrows, carets, coded insert marks, stars, etc.).

(94)

This description of Susie's writing behavior demonstrates her having transcended the younger child's motor-spelling focus to an information-relaying focus. She is acutely aware of her intentions and rereads her text not only for orientation but also for confirmation that meaning has emerged from text.

The spontaneous shifting from one aspect of the writing process to another illustrates the recursive pattern involved in writing and once again underscores the absurdity of expecting students to rehearse on Monday, draft on Tuesday, revise on Wednesday, edit on Thursday, and submit on Friday. The spontaneity and rapidity with which the movement within the writing process occurs also make it difficult to distinguish what occurs within each aspect of the process. Recognizing these difficulties, Calkins chose not to discuss these children's writing process in terms of rehearsing, drafting, revising, and editing. Nevertheless, it seems that there are certain characteristics which can be considered as components of these four features.

For fourth and fifth grade children, the rehearsal stage is usually performed internally. They no longer have to list potential topics on paper and choose one for develop-

ment; instead this activity is performed mentally and over time or rather quickly. For example, if students know that they will be writing every day in class, they often decide what their topics will be and how they will be developed days or hours before the actual writing begins. Since they are audience-conscious, they often share their potential topics or tentative content with their peers in a group conference.

Once a choice of topic has been made, these children begin drafting by writing one or more "leads" or writing their texts according to their predetermined plans. These upper elementary students have a clear sense of their entire text such that even while still composing, they know what will come next and can give a full explanation of sequencing all the way to the end. Donald Graves notes the advancement that the nine-year-old makes over the six-year-old:

The six-year-old added one operation (one word) to the previous operation at a time, with only a dim perspective on where the part (word) fitted into the whole message. The past was shaky, the future almost nonexistent. The nine-year-old, however, expands operations to acknowledge a much more distinct past and future. The last part of a piece is related back to the first, even to a written selection composed months before. (251-52)

In describing their observations of groups of children at seven, ten and thirteen years of age in Crediton, Devon, England, Andrew Wilkinson and colleagues report that ten-year-olds are capable of beginning their texts in medias res, of incorporating retrospection, of developing two themes with one subservient to the other, of portraying a single-dimensional character, of indicating a sense of time and place, and of using such conventions as dialogue, lexical cohesion, and idiomatic expressions (115-119). Wilkinson notes that although ten-year-olds clearly prefer the chronological narrative, they can modify it remarkably:

Writers no longer need to get up, eat a series of meals, and go to bed. They can begin with a significant incident which plunges us in medias res, and end with a further significant incident. Retrospection is possible: on the one hand, with a short reference, perhaps by way of explanation, to some prior event; on the other hand, the major part of the writing may be a flashback from an event described at the beginning, which is led up to once again at the end. (116)

Since fourth and fifth graders can manipulate language mentally, entertaining multiple possibilities for a text, their revision strategies are highly integrated into the drafting process. They have developed what Carl Bereiter

refers to as "a central executive function" (qtd. in Calkins 86) which allows them to revise even before they put pencil to paper. Revising, literally re-vision or seeing again, is refined by these children's reading their texts aloud to a peer, writing group, or teacher. While the listeners may function more as sounding boards than as constructive critics, they provide additional opportunities for developing the "central executive function" because in the oral reading of the text, the reader often stops to clarify meaning. This activity reflects Vygotsky's concept that "what a child can do in cooperation today, he can do alone tomorrow" (Thought and Language 101).

In her article entitled "Children Responding to Children: Writing Groups and Classroom Community," Suzanne Brady reports her observations of her fourth and fifth grade students' responses to classmates' texts. She states that while their responses varied, they appear to follow three patterns: the pointing remark, where the responder repeats words or phrases and comments on their effectiveness or lack thereof; the question, where the writer is asked about his intentions for further development of the text; and advice, where the responder offers ideas for clarifying or elaborating upon the text (143-44). All of these writing group responses cause the writer to reconsider after which the writer may change the text or leave it

as it is. The very act of reconsidering, however, reinforces revision skills.

Much of editing will have been addressed when the writer makes decisions from group feedback. Awkward constructions and unclear passages will have been addressed so that final editing will focus more on spelling, punctuation, and grammar. Again, the writing group can be invaluable. Peter Elbow elaborates on four levels of group feedback, from minimal to high. While he discusses the value of each level, he states emphatically that writers "should always use feedback to help eliminate errors in grammar and usage from any final draft that needs to be polished" (142). The collaborative spirits of upper elementary children will render them receptive to asking for proofreaders. After students are satisfied that they have edited the text to the best of their abilities, they are ready for teacher assistance, an assistance that celebrates all that is done correctly while identifying one or two key errors. Calling attention to more than a few errors is counter productive, for students cannot address myriad markings without feeling defeat and losing faith in themselves as writers.

To enhance the development of upper elementary children's language arts skills, Dorothy Strickland and Joan Feeley make the following recommendations:

1. Reading and writing should be taught through a process approach. The conference aspect, in

which listeners provide the external executive function needed by children still in the concrete operational thinking stage, works well for both reading and writing.

2. Before reading and writing children should be encouraged to engage in scheme activation activities so that they can make use of what they know about topics and to aid in meaning-making Webbing, semantic mapping, structured overviews, and other background-generating techniques . . . should be taught and modeled.
3. There should be increasing attention to expanding children's knowledge about text structures [comparison/contrast, problem/solution, etc.].
4. Vocabulary should be expanded through constructing networks of ideas; it is best developed in meaningful contexts.
5. Children in the middle grades can begin to be reflective about their reading and writing. They can learn to step back and monitor their attempts at meaning-making.
6. Writing across the curriculum holds much promise as a way to enhance learning in the

content areas Children [are] more able to talk about what strategies they used and how their knowledge changed after writing than after reading. (296-97)

Children in the fourth and fifth grades make significant advances in their cognitive development. Their abilities to perform mental operations such as classifications, reversibility, imaging, concepts projection, and simultaneity equip them with the thinking tools to interpret, manipulate, and organize their world. These same thinking tools enable them to communicate their interpretations of reality in coherent texts, where language is shaped to convey meaning. Perhaps the single, most remarkable achievement these children exhibit in their writing processes is their ability to perform internally much of what was performed externally in their primary years. This ability moves them ever closer to maturation in both their cognitive and language development.

Grades Six through Eight:

From Literal to Figurative Language

The introduction of the middle school concept in the 1970's and 1980's was an attempt by educators to address the unique cognitive, physical, and social development of early adolescents. Prior to this time period, American schools had moved from the eight year elementary and four year high

school pattern, which was popular from post Civil War years until the 1920's, to the six year elementary, three year junior, and three year high school pattern. This three-level organizational structure remained popular for half a century until the junior schools were faulted as miniaturized high schools. Educators reasoned that while departmentalization, rigid scheduling, and inter-scholastic athletics were acceptable for older adolescents, they were objectionable for the younger adolescent; therefore, they proposed another three-level pattern of five year elementary, three year middle, and four year high, which would focus on the transitory nature of middle level students (Pikulski, in Flood 303).

The notion of eleven to fourteen year old youngster's initiating the progress from one developmental stage to another is recognized by Jean Piaget, who sees these early adolescents in the transitional stage between concrete operations and formal operations. Piaget, in fact, divides his culminating phase of cognitive development into two stages: the transitional and fully realized formal operations. (See pages 21-23; Table 2, page 26; Table 6, pages 80-81.)

Whereas children in the earlier concrete operations phase can perform mental operations on "ideas and objects for which they have had direct, concrete experience," adolescents in the formal operations phase have "the ability

to think in abstract terms" (Pikulski 306). In explaining this new capacity, Ruth Beard observes:

Firstly, the adolescent can accept assumptions for the sake of argument. Secondly, he makes a succession of hypotheses which he expresses in propositions and proceeds to test them. Thirdly, he begins to look for general properties which enable him to give exhaustive definitions, to state general laws and to see common meanings in proverbs or other verbal material. Fourthly . . . in his spatial concepts, he can go beyond the tangible, finite and familiar to conceive the infinitely large or infinitely small, and to invent imaginary systems. Fifthly, he becomes conscious of his own thinking, reflecting on it to provide logical justifications for judgements he makes. Sixthly, he develops an ability to deal with a wide variety of complex relations such as proportionality or correlation. (98-99)

Since middle school students are in the early stages of formal operations, they are capable of performing, to various degrees, all but perhaps the last of the mental operations Beard delineates. The last operation will probably not occur until the adolescent is fifteen years old.

Just as middle school students display dramatic intellectual growth, they also experience pronounced physical and social development. Their bodies, governed by increased hormonal activity, go through a growth spurt when they become taller, more muscular, and heavier. This same hormonal activity affects them emotionally, for they exhibit wide mood swings and often feel awkward, self-conscious, and inadequate. These emotional traits motivate them to place a high priority in becoming part of a social group and, indeed, peer groups often become more influential than parents or other respected adults. (See pages 61-65; table 3, page 67; table 4, page 68, table 6, pages 80-81.)

Piaget sees the absolute necessity of such social interaction for initiation of formal operations. Interaction, of course, causes adolescents to entertain various viewpoints and to examine their own. In The Psychology of Intelligence, Piaget states:

It is clear that co-operation is the first of a series of forms of behavior which are important for the constitution and development of logic In order to reason logically it is indispensable that there should be established between [others] and oneself those simultaneous relationships of differentiation and reciprocity which characterize the co-ordination of viewpoints. (qtd. in Beard 97-98)

Adolescents' capacities to see various viewpoints are critical not only to cognitive and social development but also to language development. Their ability to differentiate and coordinate enables them to see similarities in meaning so that they can "make full use of similes and metaphors . . . allusions as well as assertions . . . within the limits of a logical possibility which replaces the illogical phantasy of childhood" (Beard 103). Their new way of using figurative language enriches verbal and written expression.

In the rehearsing stage of the writing process, middle school youngsters turn to their peers, teachers, books, and experiences for potential topics, modes, and audiences (Atwell 98). Once these decisions have been made, they often engage in additional planning strategies. In presenting the results of the National Assessment of Educational Progress's (NAEP) 1984 writing achievement assessment, Arthur Applebee and colleagues report that among the eighth graders in the study that 84.1 percent said that, in more than half the time, they think before writing; 47 percent ask themselves questions about their topics; 55.8 percent look up facts; and 44.4 percent consider their audiences and write differently for different audiences (68). Not surprisingly, the NAEP's assessment also shows that those eighth grade students who reported more planning tended to have higher writing achievement than those who did not (Applebee, Writing Report Card 69).

The high percentage (84.1) of adolescents who reported that thinking is an important constituent of the rehearsing process reflects these students' maturing cognitive powers which find expression in the drafting process. Their abilities to objectify, analyze, hypothesize, synthesize, classify, and generalize enable them to increase control of language. Not only do they expand from the narrative mode of discourse to include the expository and persuasive, or argumentative, modes, but they also continue refinement of writing mechanics and usage. In discussing the writing of thirteen year olds in the Crediton Project (Devon, England), Andrew Wilkinson and fellow researchers report that these adolescents exhibit structurally well-organized pieces of writing, that the syntax is controlled, that cohesive devices are used with ease, and that such stylistic devices as repetition, parallelism, irony, tone, and metaphor are employed with competence (121-22).

The use of figurative language is a clear signal then that adolescents have entered Piaget's phase of formal operations. Indeed, children who can understand, appreciate, and produce metaphorical language are at the culminating stage of development because, as Janet Emig explains, a number of requisites are required: first, a maturation of the cerebral cortex so that memory provides a repository of associations which are brought to bear in

simile, metaphor, irony, etc.; second, a variety of accrued experiences which provide sources for comparisons; third, control of linguistic and syntactic elements; and fourth, concept formation which will permit the combination of criterial attributes and the distinction between similarity and identity (105-106).

Since middle school students are becoming more proficient in their thinking and writing, the drafting, revising, and editing processes tend to merge as the writers move freely among the various processes. While working on their drafts, they undoubtedly benefit from either group or teacher conferencing, for other viewpoints bring them new insight. Nancie Atwell, a middle school teacher, has isolated typical writing problems that these children experience, and has offered various questioning techniques which can help them resolve these problems (Table 9, page 162). It is noteworthy that Atwell resists telling students how and what to do but rather leads them to see and make decisions about revising on their own. The questions that she asks them in conference will later become internalized revising techniques.

The editing process is, of course, the final step in producing a finished product. Only after all revision is complete will writers present their papers to peers or teachers for proofreading and correcting. Editorial issues for these students are best done in context so that only

Table 9

Conferencing Questioning Techniques

Situation	Conference Approaches
The piece is unfocused; it covers several or many different days, events, ideas, etc.	<ul style="list-style-type: none"> o Do you have more than one story here? o What's the most important thing you're trying to say? o What's your favorite part? How can you build on it?
There isn't enough information in the piece.	<ul style="list-style-type: none"> o I don't understand. o Please tell me more about it. o What else do you know about your topic? o How could you find out more about your topic?
There's too much information in the piece.	<ul style="list-style-type: none"> o Is all this information important to your reader? What parts don't you need?
The piece is a list of events and includes little of the writer's reflections.	<ul style="list-style-type: none"> o How did you feel when this happened? o What do you think about this? o Why is this significant to you?
The lead holds the reader at arm's length, going on about contextual details rather than introducing the writer's thesis.	<ul style="list-style-type: none"> o Does this lead bring your reader right into the piece? o Where does your piece really begin? Can you delete other information and begin there instead?

Table 9 (continued)

Conferencing Questioning Techniques

Situation	Conference Approaches
The conclusion is either too sudden or drags on and on.	<ul style="list-style-type: none"> o What do you want your reader to know or feel at the end of your piece? Does the conclusion do it? o Where does your piece really end?
There are no or few quotes in a piece in which people talk.	<ul style="list-style-type: none"> o What can you do to show how these people spoke, so your reader can hear their voices?
You want to bring closure to the conference and understand what the student is taking away from the conference situation.	<ul style="list-style-type: none"> o What do you think you'll do next?

Source: Nancie Atwell, In the Middle: Writing, Reading and Thinking with Adolescents (Portsmouth, NH: Heinemann, 1987) 95-96.

relevant grammar punctuation, spelling, etc. are handled and only one or two concerns addressed at any given time.

Atwell suggests that both students and teacher keep editing journals where students keep a record of their own skills and where the teacher records what skills each student used correctly and what skills need teaching the next day. The teacher's journal will also prove valuable in teacher-parent conferences when questions about the omission of whole group, formal grammar instruction may emerge. Parents are less apprehensive about skills being taught in the context of their children's writing if the teacher can show them exactly when certain skills were addressed (Atwell 107).

The fact that middle school students are more receptive to working through the stages of the writing process, rather than simply turning in a recopied first draft, is apparent from the National Assessment of Educational Progress's report of eighth graders' writing strategies. The percentage of students who said that they used the various strategies more than half the time is encouraging. In truth, the use of these strategies is probably greater today than reflected in the NAEP 1984 report because the writing process concept is more widely practiced today. The statistical results of the 1984 study are presented in Table 10.

Table 10
Use of Revising and Editing Strategies

Strategy	Grade 8
Add ideas or information	62.1 percent
Delete information	56.0 percent
Move sentences or paragraphs	36.4 percent
Change words	68.5 percent
Rewrite most of the paper	42.1 percent
Discard draft and begin again	33.3 percent
Reconsider placement of facts and ideas	67.6 percent
Make changes in first completed draft	68.2 percent
Correct spelling	75.1 percent
Correct punctuation	68.2 percent
Correct grammar	66.5 percent
Recopy before submission	66.8 percent

Source: National Assessment of Educational Progress, Report No: 15-W-02. Adapted to this paper from Table 7.3, "Use of Revising and Editing Strategies Reported by Students," in The Writing Report Card: Writing Achievement in American Schools. Eds. Arthur Applebee, et al. (Princeton: ETS, 1986) 71.

While the middle school is a transition between elementary and high schools, it is also the home of students who are making a transition from childhood to adulthood and from concrete operations and fully developed formal operations. The middle school years, then, can be both exhilarating and frustrating, or as Lucy Calkins, borrowing from Charles Dickens, calls these years "the best of times; the worst of times" (101). Because of the unique nature of these children, a network of teachers, administrators, state department personnel, and university professors formed a group known as The Middle Level Curriculum Project to address the significant concerns of adolescents searching for self and social meaning (George 93.) The group culminated its 1990 meeting with a curriculum vision which, through slight modification, could also be a pattern for a writing vision because writing is a powerful medium for realizing educational goals. Their curriculum vision incorporates ten concepts:

1. The questions and concerns of early adolescents ought to be an explicit source of the curriculum. This requires that teachers plan with young people so that their concerns and views of the world are heard and acted upon
2. Organization of the curriculum should extend beyond interdisciplinary approaches that retain subject identities--and more toward alterna-

- tives that actually transcend separate subject areas
3. The primary use of knowledge ought to be to help early adolescents search for answers to questions they and the world pose
 4. Just as knowledge and skills are not ends in themselves, they ought to be pursued in a functional context in which their use is apparent and worthwhile
 5. Teachers and early adolescents should have more control over the curriculum
 6. Curriculum planning should have less to do with narrowly prescribing performance objectives and examination questions, and more to do with posing and clarifying self and social questions; identifying significant organizing themes, activities, and knowledge; and finding resources.
 7. Although the curriculum should engage common questions and concerns, it is quite possible, even likely, that all early adolescents might not learn the same particular information.
 8. The definition of who is learning in the school should be expanded to include teachers and other adults who work there

9. The curriculum should be "Constructivist," enabling young people to construct their own meanings rather than simply accept those of others
10. Although the curriculum should obviously be "affect-loaded," it clearly should engage cognitive activity as well (George 96-97)

Such a middle school curriculum would undoubtedly incorporate the writing process, for the process gives students free choice of subjects which concern them, brings students and teachers into a collaborative learning environment, provides students with a means for probing self and society to discover meaning, allows students to develop cognitive and language skills according to their biological clocks, and furnishes students a meaningful context for expanding and refining writing skills.

Grades Nine through Twelve:

From Product to Artifact

Between the time adolescents enter the congested, electrifying halls of the American high school and exit the family-packed, nostalgic site of the commencement exercises, they will have marked both the termination of their free public schooling and their initiation into the adult community, a community with set expectations for its citizens' literacy. In Arthur Applebee's words:

In school and in society, we expect a reader to be able to analyze, evaluate, and extend the ideas that are being presented, just as we expect a writer to elaborate upon and defend judgements that are expressed. We expect people to know how to get information and how to use it and shape it to suit their needs. (Learning to be Literate, 9)

While the ability to gather and to shape information from diverse sources is a characteristic of the literate, the ability to translate personal experiences, ideas, emotions, and perceptions into a functional and aesthetically satisfying composition is not only the mark of the literate but also the achievement of the craftsman. The achievement of craftsmanship becomes possible only when students no longer view their writing as a formulated product to submit for correction and grade but rather as an artifact to shape for communication of self to reader.

The "three keystones of effective communication," according to Walter Loban, "are clear thinking, the desire to communicate, and the skills needed to make communication effective" (Teaching Language and Literature 322). The first of these requisites should be a given for high school students who are in the last phase of intellectual development, the formal operations phase. According to Piaget, adolescents enter the first part of this phase when

they are approximately eleven years old and advance to full realization of formal operations when they are approximately fourteen to sixteen years old. Thus by the high school years adolescents have remarkable reasoning capabilities:

Firstly, the adolescent can accept assumptions for the sake of argument. Secondly, he makes a succession of hypotheses which he expresses in propositions and proceeds to test them. Thirdly, he begins to look for general properties which enable him to see common meanings in proverbs or other verbal material. Fourthly . . . he can go beyond the tangible, finite and familiar to conceive the infinitely large or infinitely small, and to invent imaginary systems. Fifthly, he becomes conscious of his own thinking, reflecting on it to provide logical justifications for judgements he makes. Sixthly, he develops an ability to deal with a wide variety of complex relations such as proportionality or correction.

(Beard 98-99)

The breadth and depth of the cognitive capabilities of high school students present a challenge to their teachers to provide instructional opportunities for their using and refining the abilities to objectify, analyze, hypothesize, synthesize, classify, and generalize. (See pages 21-23; Table 2, page 26; Table 6, pages 80-81.) However, these

cognitive operations must be recognized by teachers as mental processes, not as scientific terminology that truncates the organic nature of discovering meaning to a formula.

The degree to which formula dominates process and imagination is no where more apparent than in the high school where the essay, usually a five paragraph thesis driven theme, dominates imaginative writing nearly 7 to 1, 88 percent to 12 percent (Applebee, Writing Report Card 77). In her fine study The Composing Processes of Twelfth Graders, Janet Emig makes these pointed remarks:

School-sponsored writing experienced by older American secondary students is a limited, and limiting, experience. The teaching of composition at this level is essentially unimodal, with only extensive [other-directed rather than reflexion, self-directed] writing given sanction in many schools Too often the other is a teacher, interested chiefly in a product he can criticize rather than in a process he can help initiate through imagination and sustain through empathy and support.

A species of extensive writing that occurs so frequently in student accounts that it deserves special mention is the five-paragraph theme, consisting of one paragraph of introduction ("tell

what you are going to say"), three of expansion and example ("say it"), and one of conclusion ("tell what you have said"). This mode is so indigenously American that it might be called the Fifty-Star Theme. In fact, the reader might imagine behind this and the next three paragraphs Kate Smith singing "God Bless America" or the piccolo obligato from "The Stars and Stripes Forever." (97)

While Emig finds some humor in her description of the typical high school essay, David Bartholomae delivers a potent indictment of this form of writing which is so often assigned in English classes for "analysis" of literature:

When, for example, we ask students to write about texts, the tyranny of the thesis often invalidates the very act of analysis we hope to invoke. Hence in assignment after assignment, we find students asked to reduce a novel, a poem, or their own experience into a single sentence, and then to use the act of writing in order to defend or "support" that single sentence. Writing is used to close a subject down rather than open it up, to put an end to discourse, rather than to open up a project.

(311)

Bartholomae would not likely deny that the formulated, thesis-driven essay is a method of testing specific concepts. For example, an assignment such as asking

students to discuss the characteristics of Romanticism in William Wordsworth's Lucy poems would present an opportunity for teachers to test both knowledge of characteristics, application in context, and control of writing skills. While this exercise may be worthwhile for the reasons given, it is, nevertheless, a test which "closes a subject down." Analysis, on the other hand, would ask students to read the Lucy poems, to locate several passages which characterize the series of poems, and to write an essay which elucidates how those passages help readers better understand the series. This latter assignment opens the subject up for a whole array of responses and makes writing the context for knowing or for making meaning. Even though this latter assignment would be more acceptable to advocates of writing as a process than the first assignment, they would doubtlessly prefer that students be given the total liberty to choose their own subjects. However, if writing is a powerful context for making meaning, which it certainly is, then it follows that students need a panoply of reading and writing experiences which help them gain insight into themselves and their world. Therefore, any assignment that opens up a subject serves that end. The key is to stimulate thinking and to use writing to elucidate thought.

The significance of opening up both subjects and modes of discourse has been noted by Emig in her study of

twelfth graders. She reports that even when given free choice of subject and mode, students often embrace the impersonal, thesis-driven essay as if they are "so thoroughly programmed to a single species of extensive writing that they can readily and comfortably compose no other" (Composing Processes 81-82). Noticing this phenomenon motivated Emig to review the eleventh grade writing folders of half of her sample group. As one would expect, 71 percent of their themes were formal, impersonal, literature-based essays; 24 percent were addressing abstruse topics such as the voting age and cigarette smoking and cancer; and 5 percent were introspective (Composing Processes 79-81). Obviously these students equate writing with the closed five-paragraph theme because they are trained to think in those terms. Only by opening up both topics and modes of discourse can writing become a vehicle for making meaning.

Writing as a process offers an alternative to mindless, programmed essays, especially if teachers provide a constant role-model as writer by composing in the presence of their students until "they eventually accept the fact good writing is achieved through sustained labor in the basic stages: prewriting, writing, and rewriting" (Anthony Tovatt, qtd. in Emig, Composing Processes 20). While Tovatt uses different terms--prewriting for rehearsing, writing for drafting, and rewriting for revising and editing--the concept of process is constant.

Research has proven that high school students perceive themselves engaging in the various aspects of the writing process. Applebee and colleagues report that among the eleventh graders in their study that 85.2 percent said that, in more than half the time, they think before writing; 52.1 percent ask themselves questions about their subjects; 63.3 percent look up facts; and 43.6 percent consider their audience and write differently for different audiences (Writing Report Card 68).

Emig's findings reveal that, in general, students in the rehearsing phase of the process do not make outlines before writing but that they apparently internalize a strategy, for "if able student writers are queried immediately before they begin writing, they will reveal that most of the elements that will appear in the piece are present at that period" (Composing Processes 83). Emig also notes that one student in her sample worked intensely on her lead sentence:

For, Lynn, starting to write presents a paradox. Her decision to begin is a swift, painless, one. Her enactment of a first sentence, however, is an arduous, even a tortuous, matter; and the actual time expended upon its formulation with both prose pieces is as long as that spent on any sentence-- ten minutes for "Terpsichordian Greetings," seven for "Profile of a Smile." (54)

This same student also told Emig that she had thought about the subject of a poem she was writing for about four months (50). When the student actually began writing the poem, she launched directly into it with no visible signs of rehearsing, yet her finishing the poem quickly with few revisions is indicative of her having thought about her subject which had remained dormant until writing began.

Among the various rehearsing strategies, Emig notes that the students in the research sample engaged in the following: thinking about the subject, considering various modes of discourse and points of view, anticipating the overall content, talking with others and minimal notetaking or outlining. A most significant finding Emig reports is that when the students in her study were given free choice of a subject and mode they most often chose what was self-termed as the "easiest" subject, meaning "a non-personal subject, one that does not demand interacting with feelings, one that is not reflexive" (Composing Process 49). On the other hand, Emig notes that when students choose the "harder," reflexive subjects, which involve the students' emotionally or contemplatively, the following occurs:

The process of reflexive, or self-sponsored, writing . . . is a longer process with more portions; students writing reflexively often engage in quite long prewriting activities; they reformulate more; starting and stopping are

more discernible moments in the process; and the aesthetic contemplation of their own product of writing sometimes occurs. (Composing Processes 4)

Clearly, both the thinking and writing processes exhibited in reflexive writing are preferable to the "computerized" behavior in formulated writing if student engagement, cognitive stimulation, and writing development are assignment goals.

In their drafting strategies, high school students exhibit more of the same behavior as upper elementary and middle school students:

The composing does not occur as a left-to-right, solid, uninterrupted activity with an even pace. Rather, there are recursive, as well as anticipatory, features; and there are interstices, pauses involving hesitation phenomena of various lengths and sorts that give . . . a certain--perhaps a characteristic--tempo. (Emig, Composing Processes 57)

The recursiveness of their drafting indicates that revising strategies are employed in the drafting stage. These students can anticipate a particular theme or element they want to incorporate into their text, hold that theme or element in abeyance while they discharge an intervening

portion of text or while they go back to lay the foundation for the theme or element, and then insert the idea or material at the appropriate place. Hence, addition, deletion, or combination of writing components occurs both during and after the drafting process (Emig, Composing Processes 41).

Emig found that high school seniors in general do not voluntarily revise their work. One of her students in the research sample said that she did not revise because her teachers had never indicated an interest in such nor inspired her to do such. The student, in essence, accused teachers of "oversimplification (the equation of [revising] with the 'correction' of trivia); and casualness, if not cynicism, in evaluation (they demand correction of trivia, but they will not read and reevaluate serious effort to recast essences)" (Composing Processes 68).

In this student's mind revising is an unwelcome task, so she focuses her attention instead on what she perceives to be important to teachers--the editing of her text for spelling, punctuation, grammar, legibility, titling, and length. This student is typical of other high school students who, to their credit, perceive editing more than only recopying. The 1984 National Assessment of Educational Progress's report of eleventh graders' revising and editing practices appears in Table 11, page 179. The percentages of students who said

that they used the various strategies more than half the time are encouraging.

Table 11

Use of Revising and Editing Strategies

Strategy	Grade 11
Add ideas or information	67.4 percent
Delete information	61.6 percent
Move sentences or paragraphs	46.0 percent
Change words	72.1 percent
Rewrite most of the paper	43.8 percent
Discard draft and begin again	27.8 percent
Reconsider placement of facts and ideas	75.8 percent
Make changes in first completed draft	70.9 percent
Correct spelling	75.1 percent
Correct punctuation	67.4 percent
Correct grammar	69.2 percent
Recopy before submission	74.7 percent

Source: National Assessment of Educational Progress. Report No: 15-W-02. Adapted to this paper from Table 7.3, "Use of Revising and Editing Strategies Reported by Students," in The Writing Report Card: Writing Achievement in American Schools. Eds. Arthur Applebee, et al. (Princeton: ETS, 1986) 71.

With the exception of writing differently for different audiences, discarding the draft and beginning again, and correcting punctuation, the eleventh graders reported more use of planning, revising, and editing strategies than did

eighth graders in the 1984 NAEP Report (See Table 10, page 165). This increase in the use of various phases of the writing process indicates a growing interest in writing. However, what appears to be most noteworthy in high school students' writing is their developing consciousness of the text as artifact. Emig notes that there is an awareness of decorum and stylistic principles which govern syntax, diction, and imagery. Phrasing and lexical elements vary to avoid repetition, unless incorporated for clarity or effect; sentence complexity becomes denser, with expanding phrases; and imaginative transitions emerge. One student in Emig's research sample illustrates an interest in imaginative transitions:

Lynn tries to arrange subtle and imaginative transitions through patterns of imagery. In fact, she is so concerned with shaping such transitions that she is willing to sacrifice both her overall plan for the pieces and verisimilitude to achieve them. (Composing Processes 60)

Willingness to sacrifice predetermined structure and verisimilitude to integrate imagaic transitions certainly moves the writing from focus on product to release of creativity. In Gertrude Stein's words:

You will write if you will write without thinking of the result in terms of a result, but think of the writing in terms of discovery, which is to say the

creation must take place between the pen and the paper, not before in a thought, or afterwards in a recasting. Yes, before in a thought, but not in careful thinking. It will come if it is there and if you will let it come, and if you have anything you will get a sudden creative recognition. You won't know how it was, even what it is, but it will be creation if it came out of the pen and out of you and not out of an architectural drawing of the thing you are doing [Y]ou have to know what you want to get; but when you know that; let it take you and if it seems to take you off the track don't hold back, because that is perhaps where instinctively you want to be and if you hold back and try to be always where you have been before, you will go dry. (qtd. in Emig, Composing Processes 22)

Although Stein was addressing the creative impulse in shaping a text, her words apply equally well to the writing process. Perhaps her advice to students in high school would be: You will write if you will write without thinking in terms of a written product to be graded; but think of the writing in terms of discovery, discovery of self and of the world. You will write if you will write without thinking in terms of a closed, thesis-driven, five paragraph theme; but think of the writing in terms of releasing impulses from mind

and heart to pen and paper. You will write if you will write without thinking in terms of finished work; but think of the writing in terms of creating, shaping, and polishing. You will write if you will approach writing without thinking of yourself in terms of dull, sterile, and inept; but think of approaching writing in terms of yourself as inspired, even impassioned, creative, and capable, for you will have joined the community of authors making meaning.

Becoming a member of a community of writers is a process which evolves over decades. From the first cry of the infant communicating stress to the final sigh of the aged communicating peace, we are members of a universal body longing for understanding. For caring adults to nurture the child's integration into this body of communicants requires wisdom, patience, and knowledge. For teachers, surrogate care givers, these parental qualities must be enlarged to include theoretical knowledge of child development, language acquisition, and writing development so that they may facilitate the child's integration into the community of the literate. The more comprehensive the theoretical base, the more insightful the teacher can be. Such a theoretical base is offered in this chapter and in Table 12 which follows.

Table 12

Developmental Continuum for 4 to 6 year olds

Cognitive, Social, Affective Descriptors	Language Descriptors	Writing Descriptors	Writing Process (Grades)
Perceptual/Intuitive Phase	Egocentric	Scribbling	Rehearsing (K-1)
Egocentrism	Introspective	Drawing	Drawing
Centeredness	Private to	Labeling	Subject emerges
Social consciousness	public meanings	Forming letters and	from drawing
Cooperative interests	Expanding vocabulary	numbers	Drafting (K-1)
	Control of syntax	Using invented	Strong sense of
	Pronoun usage settles	spelling	voice
	Present and past	Listings	Letters plus
	tense verbs settle	Recording sensory	drawings produce
	Verbalization of	data	meaning
	complex sentences	Story telling	Constant shift
	showing causality	Using narration	from drawing to
	or conditionality	Written words per	letters or words
	(why, because, if)	communication	to drawing
	implied	unit: 0 to 5	Rereading for
	Verbal words per		orientation
	communication unit:		Spelling emerges
	6 to 8		Initial, ending
			consonants
			Vowel sounds
			Letters for whole
			words
			Invented spelling
			Letters/words
			run together

Table 12

Developmental Continuum for 4 to 6 year olds (continued)

Cognitive, Social, Affective Descriptors	Language Descriptors	Writing Descriptors	Writing Process (Grades)
			Enlarged or darkened letters for emphasis Emerging punctuation Revising (K-1) Erasing Rewriting or redrawing Rereading for meaning Sharing in groups Adding to text Editing (K-1) Capitalization and end punctuation added

Table 12

Developmental Continuum for 7 to 11 year olds

Cognitive, Social, Affective Descriptors	Language Descriptors	Writing Descriptors	Writing Process (Grades)
Concrete Operations Phase	Introspective	Drawing	Rehearsing
Simple operations	Message conveyer	Movement from minimal to lengthy text	(2-3)
Comprehensive perception	Marginal thinking tool	Chronological narratives	Drawing
Concrete perception	Interpreter of the physical and social worlds	bed-to-bed single-track	Talking
Data classification	Vocabulary expansion	Personal narratives	Listing topic
Seriations	Incorporation of	Descriptive texts	Choosing topic (4-5)
Whole systems operations	Adjective clauses	Dialogue appears	Internal sorting and choosing of topic
Euclidean concepts of measurements and properties	Gerund phrases	Single-dimensional characterization	Talking
Reversibility	Participles	Theme development	Drafting (2-3)
Mental imaging	Connectors expand from and, then, to unless, even if, mdanwhile	In medias res technique emerges	Strong sense of audience
Concepts projection	Verbal words per communication unit: 7 to 10	Sense of time and place	Meaning embedded in text
Simultaneity		Movement from external to internal process	Step-by-step (bed-to-bed) details
Growing socialization		Written words per communication unit: 6 to 9	Single-tracking chronology
Sense of freedom and competence			Inclusion of dialogue, sound effects, action, and new mechanical conventions (exclamation point, etc.)
Self-consciousness			
Cooperative endeavors			

Table 12

Developmental Continuum for 7 to 11 year olds (continued)

Cognitive, Social, Affective Descriptors	Language Descriptors	Writing Descriptors	Writing Process (Grades)
			(4 - 5) Lead writing Predetermined planning Sense of entire text <u>In medias res</u> technique Retrospection Idiomatic expressions Revising (2 - 3) Adding more text Adding end punctuation Correcting spelling Recopying for neatness Sharing with peers (4 - 5) Integrated with drafting Shared with peers

Table 12

Developmental Continuum for 7 to 11 year olds (continued)

Cognitive, Social, Affective Descriptors	Language Descriptors	Writing Descriptors	Writing Process (Grades)
			Editing (2 - 5) Correcting one-two mechanical or punctuation errors Correcting spelling Correcting grammar

Table 12

Developmental Continuum for 11 to 19 year olds

Cognitive, Social, Affective Descriptors	Language Descriptors	Writing Descriptors	Writing Process (Grades)
Formal Operations Phase	Introspective	Objectifies self	Rehearsing
Theoretical capabilities	Reasoning facilitator	Controls structure, vocabulary, syntax	Talking
Systematic analysis	Message conveyor	Incorporates figurative language	Thinking
Hypothetical formulations (application of propositional statements--theory to real; use of implications)	Figurative expressions	Expands modes of discourse	Reading
Logical deductions	Simile	Narrative	Note-taking
Parts to whole integration	Metaphor	Descriptive	Consider various modes
Reality to possibility expansion	Irony	Expository	Differentiating usage
Symbolical capabilities (development of concepts from concepts)	Synecdoche	Persuasive	Asking self questions about subject
Crystallization of personality	Hyperbole	Argumentative	Anticipating overall content
Self-identity in changing world	Litotes	Manipulates time	Considering aesthetics
Social maturity (replacing egocentrism)	Vocabulary expansion	Retrospective	Drafting
Social inter-communication (replacing imitation)	Use of	Prospective	Strong sense of audience
Manipulation of social concepts	Complex sentences	Elaborates text	Control of tone and voice
	Subordinate connectors of concession such as: provided that, nevertheless, in spite of, unless, etc.	Detail	Control of various modes of discourse
	Auxiliary verbs such as: might, could, should	Orientation	Presentation of facts, reasons, etc. to support text
	Verbal words per communication unit: 8 to 11	Varies technique	
		Dialogue carries story	
		Stream of consciousness	
		Develops three-dimensional characters	

Table 12

Developmental Continuum for 11 to 19 year olds (continued)

Cognitive, Social, Affective Descriptors	Language Descriptors	Writing Descriptors	Writing Process (Grades)
Clarification of values Sense of justice, equity Moral solidarity		Incorporates stylistic elements: repetition, parallelism, irony, idiom, colloquialism Written words per communication unit: 6 to 10	Development through dialogue, stream of consciousness, letters, diary Incorporation of figurative language Revising Add, delete, move information Modify diction Rewrite text Correct punctuation Correct grammar Discard text, begin again Share draft with group or teacher Editing Correct spelling Correct punctuation Correct grammar

Chapter 5

Conclusion

Educators have long recognized the value of understanding human growth and development. This understanding is essential to their setting specific academic goals, planning instructional strategies, and assessing student learning. If, for example, observant adults were to stroll the halls of an elementary school, they would likely see one group of children balancing themselves as they inch along a narrow beam, another practicing alphabetical-phonetical correspondences, and yet a third group collaborating to solve a mathematical problem. If these same adults were to move to the halls of middle and high schools, they would likely see one group of students bubbling answers to a standardized test onto a computer scanning sheet, another group performing a laboratory experiment, and a third group rehearsing scenes from a favorite play. While these diverse activities appear unrelated, they are, in fact, various assessments of physical, social, and intellectual development. The results of these assessments, however, will be valid and meaningful only in relation to students' ages, capabilities, and experiences.

Determining students' chronological ages is routine, for parents present birth certificates. Determining children's intellectual, social, and emotional development, on the other

hand, is much more complex and would very nearly be impossible were it not for the masses of empirical data gathered by psychologists particularly interested in learning theory. While these scientists have spent their entire professional careers gathering these data, they reach different conclusions in their interpretations. Whereas the cognitive theorists, such as Jean Piaget, see intellectual development dependent upon human development; the social learning theorists, such as Robert Sears, see human development dependent upon dyadic social relationships between the child and significant adults; and the affective theorists, such as Erik Erikson, see human development dependent upon the interplay between internal and sociological forces. When these diverse views are integrated, a foundation for studying both the cognitive, social, and emotional development as well as a particular developmental phenomenon emerges.

One such specific study is the development of language, and more particularly written language. Since written expression is at once an instinctive impulse and a developed skill, an understanding of when and how writing emerges is of great value to language arts teachers who match children's language development with writing activities and student interests to provide positive learning experiences.

If teachers are going to succeed as teachers of writing, they must be willing to make a radical change in the way they perceive writing. A totally new paradigm must emerge:

- o Writing must be perceived as a learned process rather than being perceived as a taught process.
- o Writing must be perceived as an organic process where meaning emerges through writing rather than being perceived as a transcribing process where meaning is predetermined before writing.
- o Writing must be perceived as a process where frequent interplay occurs between focal and global aspects of the text (from the next word to the overall design) rather than being perceived as a systematic movement from part to whole (parts of speech, to sentence, to paragraph, then full essay).
- o Writing must be perceived as highly recursive where movement occurs within and among rehearsal, drafting, revision, and editing rather than being perceived as a linear activity where movement is strictly sequential from rehearsal through editing.
- o Writing must be perceived as a process which benefits from frequent collaboration among writers, peers, and teachers rather than being perceived as a solitary activity.
- o Writing must be perceived as a process benefiting from evaluation by writers, peers, and teachers rather than

being perceived as a product for teacher criticism. To initiate this dramatic new paradigm, Janet Emig suggests that teachers of writing must:

1. Write themselves in many modes, poetic and imaginative, as well as transactional and extensive, and introspect upon their own histories and processes as writers;
2. Observe directly, and through such media as videotape, female and male writers of many ages and backgrounds engaging in the processes of writing; and speculate systematically with other teacher-writers about these observations and their implications for presenting writing in schools;
3. Ascertain attitudes, constructs, and paradigms of those learning to write because the evidence grows stronger that, as with any learning process, set affects, perhaps even determines, both process and performance.
4. Assess growth in writing against its developmental dimensions, with perhaps the most important accomplishment a growing ability to distinguish between a mistake and what can be termed a developmental error. (Web of Meaning 140-141).

To ask teachers to make this kind of commitment is asking them to make major transformations in their thinking and in

their practices. Both university teacher preparatory programs and school systems must share in the responsibility and the commitment to facilitate the transformation. Universities will have to mandate courses for prospective language arts teachers which not only present developmental theory but also provide practical writing immersion activities where student teachers become aware of how they compose so that they understand how children compose. School systems, on the other hand, must mandate extensive staff development programs where teachers participate in writing workshops to refresh their knowledge of developmental theory and to immerse themselves in diverse writing activities. School systems will need to provide time for teachers to attend the workshops and incentives for them to change. This change will not be easy; it never is. However, when current practices are clearly counter to the developmental process, a new paradigm is imperative. Our students deserve no less.

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