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The orthogenetic principle as an ethical definition of development.

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THE ORTHOGENETIC PRINCIPLE
AS AN ETHICAL DEFINITION OF DEVELOPMENT

A Dissertation Presented
by
NATHANIEL BENJAMIN NEEDLE

Submitted to the Graduate School of the
University of Massachusetts in partial fulfillment
of the requirements for the degree of

DOCTOR OF EDUCATION

February 1990

School of Education

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AS AN ETHICAL DEFINITION OF DEVELOPMENT

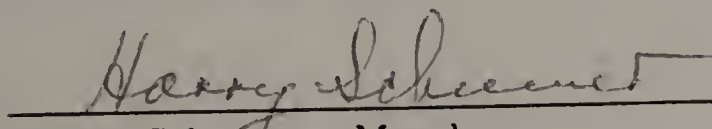
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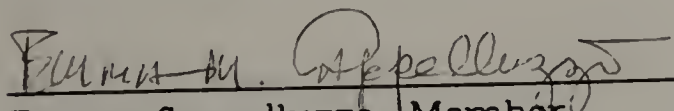
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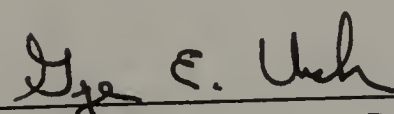
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ABSTRACT

THE ORTHOGENETIC PRINCIPLE AS AN ETHICAL DEFINITION OF
DEVELOPMENT

FEBRUARY, 1990

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The author defines development, or growth, as the ethically desirable direction of change. Is there a principle which can express what all developmental changes have in common, and what makes them desirable?

The orthogenetic principle defines development as change towards increasing INTEGRATION with complementary DIFFERENTIATION of people with respect to their environment. Heinz Werner and Bernard Kaplan first articulated this idea. It characterizes the portrayal of development by Jean Piaget, Lawrence Kohlberg, and John Dewey. None of these authors, however, justify orthogenesis as an ethical definition of development across a global range of experience. The author attempts this here, giving educators a tool for criticizing or justifying education having development as its aim.

The author analyzes integration and differentiation into three aspects: CO-ORDINATION of DISTINGUISHED elements in the environment; AUTONOMOUS choice from a DE-CENTERED or

objective perspective; IMMUNITY from environmental vicissitudes alongside an OPENING of and openness to the environment.

Advancing these qualities is justified as ethically desirable in two ways. It overcomes the problem of egocentrism and habit-attachment which gives meaning to the notion of development across human experience. It also meets formal ethical criteria of universalizability, universality, and prescriptivity.

Educators can use the orthogenetic principle to examine assumptions about development within psychological theories to see how these might themselves influence development. This enables educators to make eclectic use of psychologies within an ethical framework. The principle is also used to generate guidelines for thorough and objective inquiry into what is most growthful for a particular person at a particular time. The author argues that the principle cannot prescribe any educational course in advance of such inquiry into unique situations.

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CHAPTER I

PURPOSE AND NATURE OF THE THESIS

A. Origin and Function of the Orthogenesis Concept

The concept of orthogenesis is defined as change in an organism in the direction of increasing differentiation and hierarchic integration (Werner, 1957). It has gained currency within developmental psychology as a definition of development. [1] Functioning as "an heuristic principle . . . itself not subject to empirical test" (p.126), the concept has been used to distinguish changes which are developmental from those which are not.

The orthogenesis idea has its roots within the "organismic" stream of developmental psychology. [2] The two dominant theories within this stream are those of Heinz Werner (who, with Bernard Kaplan, first used the term "orthogenesis"), and Jean Piaget. [3]

Organicism, as typified by these authors, explains the development of human perception, consciousness, cognition, personality, and moral judgement in terms which evoke the BIOLOGICAL heritage and context of these phenomena. Such terms (e.g., adaptation, regulation) are analogous to those used for

describing non-intelligent change in biological systems, including both the evolution of species (phylogenesis) and the life-span of individual organisms (ontogenesis). Organismic models do this without in any way reducing the properties of intelligent systems to non-intelligent ones. They do this by positing a hierarchy of discrete systems. These may have common FUNCTIONAL features: e.g., the first fish crawling upon land, a baby's attempts at language, and Einstein's theory of relativity all represent the organism's effort to expand its environment. Nonetheless, they have different STRUCTURES with distinct sets of rules. The system of intelligence is hierarchically superior to, for example, the system of instinct used by bees, or the systems of homeostasis within the human body.

A core theoretical question for organismic developmental psychology is "what are the criteria for judging some systems to be hierarchically superior to others?" Now, organismic psychology analyzes structures with an eye to their origin and function (Piaget, 1975, p.83). It seeks to explain the structural features of existing systems by examining how they came into being (genesis), and also the purposes towards which these changes are "directed" (Werner, 1963, pp.133-136). Hierarchically superior systems are considered to have evolved from inferior systems, largely as a result of the very functioning of the lower systems (Piaget, 1971, 1978, 1980). Therefore, organismic psychologists are interested in plotting the "functional continuity" between systems

having different structures: between, for example, the thought of the child and that of the adult. The adult's thought structure is held to carry out the same fundamental functions as the child's, but in a superior way. Since this function is continuous and invariable, organismic psychologists are interested not only in a static structural comparison of different systems, but also in defining the common properties which characterize the ongoing DIRECTION of movement (what Piaget calls the VECTOR, 1965, p.386) from lower to higher systems.

Finally, the radical changes accompanying the development of new systems are considered to grow out of the incremental changes that take place within existing systems. Thus organismic theorists also ask: "what characterizes the direction of ALL change deemed to be from 'lower' to 'higher', whether intra-systemic or trans-systemic?" It is the function of the concept of orthogenesis to provide a standard for assessing hierarchies of change, whether change is described as a vector or as a series of discrete states.

B. Preliminary Statement of the Thesis

I propose that the orthogenetic principle is susceptible of being transformed from a principle whose only value is held to be its value for scientific inquiry, into an ethical principle which can serve as a definition of development as the aim of education.

As a component of a psychological theory, orthogenesis is associated with a series of explanatory assumptions regarding the mechanisms by which change occurs, as well as other assumptions associated with the organismic world-view. An ethical theory of development, however, is concerned with justifying certain changes as being "for the better", ultimately in terms of their consequences for human welfare. I propose that the core conceptual features of orthogenesis can be abstracted from their organismic psychological-theory setting, and put to work in the construction of an ethical theory. This theory may borrow additional notions from the organismic view which are congenial to its internal ethical logic. It may, on the other hand, omit other organismic notions which are irrelevant or uncongenial to the justification of such a theory. Such selective abstraction is possible because the aims of a valid and useful theory of explanation are not identical to those of a valid and useful theory of justification. I propose that the orthogenesis idea can endure such a transplantation without distortion of its essential features.

C. Definition of Terms

EDUCATION is defined as the intentional art of promoting development in oneself and others. Dewey uses a "persuasive definition" of this term (Stevenson, 1944, pp.210-217; 1963, pp.32-54), when he says that in order "to be worthy of the name

EDUCATION", the activity must be one of growth (Dewey, 1938a, p.90). I use the term in the same spirit, except to say that while all education promotes growth, not all growth is a result of education. I wish to preserve a distinction for education as a consciously refined practice, while allowing for the notion that growth may occur as a result of experiences which are unplanned and unpromoted. EDUCATORS are people who hold the practice of education to be their primary purpose or function with regard to some particular activity or context.

I do not wish to construe education as being restricted to specific institutional contexts (e.g., schools) nor do I wish to assume that education is what is going on in those contexts. Likewise, people can act as educators without having specific social roles (e.g., as professors or schoolteachers), and I do not assume that people holding those roles are necessarily educators.

I do wish to construe education as aiming at a relatively global development of others or oneself, as opposed to TRAINING (for skill) or TEACHING (for knowledge), which might refer to action having a more narrow aim. For example, someone who teaches a sport with an eye to a student's personality development, and to the contribution made to society by people adept at co-operative teamwork, is more of an educator than someone whose teaching interest is limited to the development of physical skill. An educator sees his contribution to a particular developmental path against the background of the student's

overall development, which is his fundamental interest. The term STUDENT is used loosely to define the object of an educator's practice; it is not meant to be age- or context-specific.

DEVELOPMENT is defined as the consistent direction of psychological change (the term PSYCHOLOGICAL being used in its broadest possible sense of incorporating all mental life) held to be of supreme value, synonomous in this respect with Dewey's notion of GROWTH. While "development", in Kohlberg's work is limited to definition in terms of cognitive-structural stage advance, my meaning is rather synonomous with Dewey's broader view of "growth". In this thesis, development is assumed to be the sole aim of education. It is argued in this thesis that development or growth ought to be defined as being characterized by ORTHOGENESIS.

ORTHOGENESIS is defined as complementary INTEGRATION and DIFFERENTIATION of an ORGANISM with respect to its ENVIRONMENT. The term refers to an abstract principle as well as a material psychological process. Phrases such as "orthogenetic principle", "orthogenesis idea", or "orthogenesis concept" will be used when clear reference to a formal abstraction is desired. The term "development" will be used when clear reference to a psychological process is desired.

ORGANISM and ENVIRONMENT are mutually defining abstractions which represent poles of a systemic, interactive, and mutually fashioning relationship between the subject of

development and everything with respect to which this subject can be said to develop.

ENVIRONMENT is used here in keeping with Werner's concept of "Umwelt" (1963, p.133). Environment is a field of interaction which includes the physical/geographical world, as well as the social, cultural, and historical context (especially flesh-and-blood others). It also refers to thoughts, feelings, imagination, ego, "self-concepts", and physico-chemical body states. The term INTERNAL ENVIRONMENT will be used when specific reference to this latter category of environment is desired.

Environment is defined by its impingement and influence upon changes in the organism. It is also defined by the potential objects of the organism's attention, concern, thought, or action. Thus it is referred to as "the organism's environment". To the extent that something is far removed from both the organism's concern, imagination, or action, AND any actual influence upon change in the organism, it can be said to simply not be part of that organism's environment. A faraway star, unless one believes in astrology, is not part of an infant's environment, while it may be a major aspect of an astronomer's environment. A war which makes it impossible for an infant to receive food is, to an objective observer, part of the infant's environment even if the infant has no idea of the war.

Further clarification of what is meant by internal environment seems prudent. People can influence, and be influenced by, their thoughts and feelings. They can also potentially influence, detach from, and otherwise change ego, self-concept, and habits. Hormones and body organs affect change, and can in turn be affected by actions as diverse as taking drugs and perfecting yogic practice. In defining environment as an abstraction, it is not necessary to reserve some fixed "core" self which, when everything else is abstracted out, is "left" to be the organism.

ORGANISM refers to whomever is being considered the subject of development, the one who is developing, in a particular discussion. It is not necessary or possible for this to be defined in some fixed way. Organism is not "self" when the discussion revolves around "construction of a self (or selves)"; in that case self is a feature of the environment. On other occasions, various habits or thought patterns, which might otherwise be examined qua environment, may be momentarily collapsed into what is considered to be organism when the discussion focuses upon some other feature of the environment.

The term organism conjures up the image of an amoeba rather than a human being. Therefore, the terms INDIVIDUAL or PERSON will be used in speaking of the organism most of the time. However, it is possible for an actual individual to be considered now the organism, now an aspect of the environment.

All actual individuals are in fact both organism and someone else's environment. The term organism refers to the one who is our immediate subject of developmental concern, in contrast with any named aspect of the universe which either impinges upon the organism, or can be affected by the organism, or both, and which therefore is the organism's environment. I think that context and specifying remarks should render it obvious whether individuals are being discussed qua organism or qua environment.

Strictly speaking, I consider development to be an attribute of the organism only, evaluated ultimately in terms of individual EXPERIENCE (see below). Therefore, if I speak of the "development" of the environment or social context, this is shorthand for "consistent direction of change in the environment which promotes the development of the organism". This is not to be construed as an inversion whereby the "development" of history, culture, species, society, or some other idea is seen as the purpose of individual development.

INTEGRATION of the organism with respect to the environment combines three qualities. First, there is CO-ORDINATION, whereby differentiated elements are linked and unified within a more stable yet flexible plan of thought, action, etc. A concept is an example of an integrative act, co-ordinating birches, elms, etc., under the notion of "tree". Integration is referred to as "hierarchic" (Werner, 1948, p.44) because the integrated system confers co-ordinative power over the

differentiated elements within that system. Our concept of tree enables us to see what birches and elms have in common, as well as to perceive better what makes a birch unique. Second, the notion of power through co-ordination implies the notion of AUTONOMY or independent self-direction. Example: for Piaget, (1965, pp.163-173) to decide not to lie because you hold the same respect for others that you would like them to have for you, is morally more autonomous than refraining from lying because mommy said not to. Third, the idea of IMMUNITY or INTEGRITY follows from this; even if mommy told you that you could or should lie, the more integrated your morals, the more immune you would be from such environmental contingencies.

Now we might imagine a person becoming increasingly self-directed, adept at co-ordinating or controlling his environment, and immune from all kinds of influences. Certainly this is a dangerously incomplete vision of development; it might describe a heartless megalomaniac!

DIFFERENTIATION complements the integrative aspect of development. Three qualities of differentiation complement the integrative qualities just described. First, there is the notion of DISTINGUISHING elements out of a previously more diffuse and global environment. Werner (1948, p.87) charts the process whereby infants gradually develop from manifesting two or three diffuse emotions to having the rich palette of emotional shades of which most adults are capable. In the moral realm, the

developing individual becomes more able to distinguish intention from behavior; in judging the "badness" of breaking cups, the number of cups broken becomes less important than whether the cups were broken on purpose. Distinguishing complements co-ordination in development. For example, developing moral principles allow not only for the increasing distinguishing of intention from behavior, but also the increasing co-ordination of the two, both functions being mutually reinforcing.

Second, the concept of autonomy is complemented by that of DE-CENTERING (Piaget, 1950, p.72; 1967, p.66). To de-center means to break free of a distorting "centrism" caused by some sort of attachment to anything ranging from a sensory perception to an "ethnocentric" world-view. A child who knows a ball is under a chair even when he can't see it has de-centered from his immediate perceptual experience. A person who does not lie because he does not wish to hurt others has de-centered so as to be able to adopt another's perspective. The perceptually de-centered child gains autonomy; he can direct his own actions towards finding the ball instead of depending upon its physical presence. The morally de-centered person gains autonomy both by not being dependent upon external authority, and by not being driven by immediate selfish desires (internal environment).

Third, differentiation implies an OPENING, or an expansion-extension of the environment. To differentiate-distinguish a new concept and field of knowledge, such as "history", out of a more

diffuse notion of the past, and to further be able to adopt the perspective of people who lived in other times, (a de-centering from one's embeddedness in the historical present) involves a consequent enlarging of one's environment. The opening-quality of differentiation and the immunizing-quality of integration complement one another in a developmental process. Thus, an experience that is "opening" for one person may be overwhelming (disintegrating) for another who cannot control or co-ordinate the changes forced upon him by the experience. Conversely, immunity from fear of death permitted Gandhi to engage in a path of non-violent resistance wherein he was prepared to open himself to mortal danger before he would hurt another.

Repeated examples and analyses throughout the thesis will flesh out the bare outline given above. The terms integration and differentiation should each be considered as a synthesis of their triune qualities; when I wish to emphasize a particular quality, and context will not provide clear definition, I will refer synecdochically to the quality, or use a hyphenated term, e.g., integration-autonomy.

ADAPTATION is defined as a value-neutral term which includes any kind of behavior directed at the resolution of problems within organism-environment interaction. It includes Dewey's notion that there is not only adaptation in terms of internal organismic change in response to environmental pressures, but also active adaptation of the environment by the

organism to suit its needs (1916, p.47). Such adaptation is not necessarily developmental; development is defined here as the PROGRESSIVE form of adaptation, the form which resolves problems by increasingly transcending or overcoming their basic terms or context. This would be opposed to REGRESSIVE adaptation, where the terms of the problem are increasingly succumbed to or reinforced, or STATIC adaptation, where there is no change in the problematic nature of the relationship.

Example: If a man has a phobia of leaving his house, a static adaptation might involve having all his food delivered to his door; this "solves" the problem of his obtaining food. A progressive adaptation would be to overcome his fear, thereby actually transcending the very terms of the problem.

While both EVOLUTION and development are defined as examples of progressive adaptation, the term evolution will be herein restricted to its phylogenetic meaning, leaving ontogenetic progressive adaptation, my sole interest here, to be described by the term development.

UNIVERSALITY and PRESCRIPTIVITY are used as analogues of integration and differentiation (following Kohlberg, 1971, p.184) when applied to the formal analysis of ethical principles such as orthogenesis (As such, they are tools for asking whether orthogenesis qua formal principle meets its own standards of integration and differentiation). For Kohlberg, universality is a formal map of integration. As one's justice reasoning develops, a

wider range of objects becomes co-ordinated within one moral scheme. Example: extending the right to life first to one's loved ones, then to one's countrymen, then to all humanity represents increased universality. The more universal scheme also has more integrity; it is more immune to self-contradiction and thus more self-consistent. Prescriptivity is a map of differentiation in that the autonomous "ought" becomes, with development, more distinguished from the heteronomous "is". Example: to decide that one has a duty to save a person's life even if one doesn't know him, then even if one hates him, then even if everyone hates him, and finally even if one might be in turn disliked, ostracized, or put to death for saving him, represents increasing prescriptivity, and an increasing distinguishing of what one ought to do from circumstances which are increasingly held to be irrelevant to the moral issue.

It should be clear from the above examples that universality and prescriptivity are as intertwined as are integration and differentiation. Integration could just as well map into prescriptivity, since the more prescriptive the judgement, the more integrated-autonomous-immune it is with respect to the environment, including both external circumstances and inner emotions. The more universal the judgement, the more differentiated-de-centered-open it is (we expand rights to include more people as we can adopt their perspective).

ETHICAL prescriptivity refers to statements about what is right or good in a general sense, and is to be distinguished from HEURISTIC prescriptivity, which refers to rules laid down with regard for their value to inquiry only. [4] Thus, my definitions of evolution and adaptation are heuristically prescriptive. It serves inquiry to limit the number of synonyms for development, and to make distinctions between different kinds of change. My definition of development as orthogenesis is meant to be ethically prescriptive. People ought to use it as a guide for what is generally desirable.

The term FORMAL, used here, refers to conceptual abstractions judged by criteria such as logical self-consistency. Formal concepts are held to have a natural origin and function as "maps" of EMPIRICAL reality, (although some mathematical models may be so formal as to attenuate this function) where empirical is defined in its broadest sense as being founded on experience and verifiable through shared experience or observation.

EXPERIENCE as defined here hews closely to the Deweyan view (1938a, Ch.3). Experience represents not merely the content of thoughts, feelings, memories, etc., but the most inclusive context within which all these play a part. It is that which represents the continuity of the subject, since it is a characteristic of experience that it grows out of past experiences and prepares the ground for future experiences. At the same

time, it is not a fixed entity, but a "moving force" representing the moment-to-moment point of interaction between organism and environment. Experience might best be seen as the medium of development.

D. Orthogenesis and Values: Werner, Piaget,

Kohlberg, and Dewey

The question of the value presuppositions within orthogenesis has been an abiding source of confusion for the organismic view. Both Werner and Piaget have displayed an almost painful ambiguity on this subject. On the one hand, they both firmly and repeatedly disavow the presence of any view of the "good" implied by this direction of change. Werner asserts that orthogenesis is "not value bound because the theoretical requirement is for objective rather than evaluative means of assessing change and stability" (Langer, 1970, p.745). Piaget wrestles with "the problem of setting up such degrees of organization as will enable us to establish some objective and independent hierarchy, untainted by any value judgement" (1971, p.122). While Werner is content to speak of "progressive" as opposed to "regressive" development (Langer, *ibid.*), Piaget, in his desire to "avoid this ambiguous word 'progress'", opts to use the phrase "evolutive vection" (p.123), which simply gives us the no less ambiguous word "evolution"!

Yet Werner links orthogenesis to Goethe's idea of "perfection" (Werner, 1948, pp.40-41, also Kaplan, 1986, p.94), while Piaget makes numerous prescriptions for education (1965, pp.404-405; 1973, pp.90-91, 111-112, pp.131-139) based on conformity with this "vector", which he sees as "implying the existence of ideal norms immanent in the human spirit" (1965, p.397). Both men strive mightily to project a scientist's neutrality regarding orthogenesis. Both are aware of the fallacy of deriving ethical precepts from a psychological phenomenon on the basis of its "immanence" or "naturalness". Being scientists, they see their role as the explanation of facts, and neither man attempts to provide a separate justification for orthogenesis as an ethical principle. Still, it is hard to escape the conclusion that they had faith in its desirability as a guide for human "progress". It remained for Lawrence Kohlberg to address the ethical implications within the orthogenetic vector, specifically as embodied in Piaget's "cognitive-structural" order of stages. (Piaget, 1950, Ch.5; 1967, Ch.1). He attempted to make explicit how development, defined as a progression through an invariant order of stages or cognitive structures, could, and ought to, serve as the aim of education (Kohlberg, 1972). Kohlberg recognized that in order to prescribe an order of stages as the aim of education, he would have to provide separate ethical justification for the vector implied by this sequence: "the justification of education as development requires a philosophical statement explaining why a

higher stage is a better or more adequate stage" (p.167). Such a statement could not be derived or deduced from any facts about development; to do this would be to commit the "naturalistic fallacy" by using psychological explanations to justify ethical prescriptions. At the same time, since development is conceived of as a psychological process, it requires expression in psychological terms: "before one can define a set of educational goals based on a philosophical statement of ethical, scientific, or logical principles one must be able to translate it into a statement about psychological stages of development" (p.167).

Kohlberg holds educational practice based upon psychologically-defined developmental goals, justified by a progressive ethical framework, to be more logically consistent, potentially effective, and morally superior to the other educational models. [5] This view, which I accept, provides a launching point for my thesis. There is, I believe, room for improvement in Kohlberg's definition of development which will render it more useful to educators in a practical context. Not only can such improvement be undertaken without deviation from the view expressed in the first sentence of this paragraph, but it can be undertaken while remaining true to Kohlberg's "internal standard of adequacy", which is that of orthogenesis.

Kohlberg invokes the orthogenetic principle in his definition of what constitutes development: "development is not just any behavior change, but a change toward greater differentiation,

integration, and adaptation". (1972, p.157) Unlike Werner and Piaget, Kohlberg is quite clear that orthogenesis is a desirable direction: "Implied in the term 'development' is the notion that a more developed psychological state is more valuable or adequate than a less developed state" (p.151).

Yet manifestly unlike Werner, who applies the notion of orthogenesis to the widest possible range of aspects of mental life: personality, creativity, relation to one's culture, etc., Kohlberg frames his view of development strictly in terms of Piaget's invariant cognitive stage sequence (1972, pp.131-2). Now, Kohlberg's particular interest in the development of justice reasoning is perhaps well served by this cognitive-structural psychology. But I question whether framing orthogenesis solely in terms of this model either fully exploits the potential applications of the concept, or creates a sufficiently comprehensive set of goals for education (See Rationale, below).

Within the realm of justice reasoning, Kohlberg takes great pains to provide independent ethical justification for why orthogenesis constitutes change for the better. His method of doing this is to appeal to a formalist analysis, arguing that an increase, with each successive stage, in psychological integration and differentiation can be justified as better in terms of the increasingly universalizable and prescriptive nature of the moral judgements produced at that stage (1971, pp.184-185).

Eddy (1986) surmises that Kohlberg's reliance on formalism is an effort to avoid the naturalistic fallacy, yet he points out that the price of this effort is a failure to ultimately justify moral norms in terms of their "adaptive consequences", their "impact on human welfare", which can only be judged by "a kind of inquiry which is in principle empirical" (p.75). The need for justification in these terms becomes obvious when we consider that "the natural origin and function" (ibid.) of moral norms is their regulation of what goes on in the material world. I accept Eddy's position, and will attempt a justification of orthogenesis which rests upon a genetic-functional view, yet which is also checked against a formal analysis. [6]

In trying to justify orthogenesis as a suitable definition for development as the aim of education, the need for such an approach becomes all the more urgent. Like Kohlberg's reliance upon cognitive-structural psychology, his reliance upon formalist philosophy may be somewhat appropriate when dealing with the analysis of judgement itself. As Eddy notes, (p.76), "Conceptual tools at the level of abstraction that Kohlberg and Piaget focus on are almost by definition formal". Yet most of us would wish to judge education in terms of its effect upon individual experience and social behavior, and not merely upon the formal adequacy of cognitive structures, "moral" or otherwise. Kohlberg does not even address the justification of orthogenesis in the areas of personality, social context, attitudes towards learning, or other

areas of arguable concern for education having development as its aim (See Rationale, below).

Although Kohlberg claims to adhere to John Dewey's philosophy of development, (1972, p.128) I question whether an interpretation of increasing integration and differentiation which is limited to an analysis of the formal adequacy of cognitive structures generates a definition of development in keeping with the spirit of the Deweyan ideal.

Dewey's notion of "growth", like Kohlberg's notion of "development", is unequivocally ethically prescriptive. In fact, it is Dewey's ultimate moral principle. He does not attempt to define growth in terms of a specific set of organized abstractions, in the way Werner does. Nonetheless, although he does not appeal to orthogenesis as a formal definition of growth, its presence is felt strongly in many of his references to growth.

For example, Gouinlock (1976) interprets Dewey as follows: "growth is the process by which the individual is increasingly able to engage his energies with his environment in a manner that creates consummatory experience" (p.90). If we relate this to Dewey's statement that "with every differentiation of structure the environment expands" (1938b, p.25), we obtain a portrait of a process wherein the organism, with increasing differentiation, gains an expanded environment with which he is capable of interacting while preserving his autonomous capacity to solve problems and attain goals. Integration, which for Dewey is "an

achievement", involves the co-ordination, or "unification" of diverse habits, thoughts, and feelings (in Gouinlock, pp.100-101). Yet such integration is only growthful against a background of "discord" which "induces reflection", thereby setting up a "rhythm of loss of integration with environment and recovery of union".

Three distinctive features of Dewey's conception of growth are of particular importance to an ethical interpretation of orthogenesis. They are:

- 1) the co-extensiveness of the growth-material with that of ALL experience.

- 2) the inextricability of individual growth from "the larger growth-process", (see Green, 1976) i.e., the socio-historic context, including "all political institutions and industrial arrangements", which are judged according to "the contribution they make to the all-around growth of every member of society" (Dewey, 1950, p.147).

- 3) the rejection of any notion of a "final end" or "highest stage" of growth (Dewey, 1916, p.50). Growth is an open-ended process, where each new step creates new conditions which frame the next step.

Green (1976, p.360) argues that Dewey eschews a formal definition of growth, preferring to rely upon bountiful examples and general guidelines, so as not to denigrate this key principle to "a set of rules to be applied like drugstore prescriptions or

cookbook recipes". Furthermore, since Dewey viewed growth as "inextricably contextual" (p.361), he was concerned that a more precise definition would limit its universality, making it culturally and historically bound.

Green argues further that the lack of a formal elaboration does not render Dewey's conception of growth vague or trivial, that it is sufficient as a guide to conduct and education. I am inclined to agree only to the extent that if one takes the time to glean Dewey's definition of growth from a careful contextual reading of the various writings throughout which it is dispersed, a rich and unambiguous picture emerges. Yet I believe that a more compact and precise definition of development than is provided by Dewey would be of greater use to educators, and that such a model is not necessarily pernicious as long as it: 1) can do relative justice to the full range of individual experience, 2) is sensitive to context as shaping and being shaped by both growth itself as well as our ideas about what growth is, and 3) avoids defining growth in terms of a fixed end.

In summary, neither Werner nor Piaget provide an ethical justification for orthogenesis. Kohlberg does, but it is limited to what he defines as the realm of moral judgement, and it lacks a well-elaborated genetic-functional rationale even within that realm. Dewey justifies growth as a moral aim, using essentially orthogenetic criteria to define growth, but he does not provide a

precise, explicit, well-organized gathering of many varieties of growth under a single integrating orthogenetic concept.

E. Final Statement of the Thesis and its Rationale

My thesis is that the orthogenetic principle is worthy of preference as an ethically prescriptive definition of development where development is construed to be the aim of education. It is worthy of preference because: 1) it can command both a formal and a genetic-functional justification; 2) it furthers educational inquiry by taking a wide range of experiential factors into account as both subject to and influencing growth; 3) it can ethically co-ordinate the use of a variety of psychological models.

Let us briefly examine these criteria in turn. In speaking of a formal justification, I am adhering to Kohlberg's basic idea. To justify a principle formally means to demonstrate its logical self-consistency in terms of its universalizability, universality, and prescriptivity.

Now Kohlberg is trying to justify a structural hierarchy of justice judgements, while I am justifying a DIRECTION of development across ALL experience. So my criteria should be defined so as to match this task. I aim to justify orthogenesis, as a standard for what kinds of changes constitute developmental ones, as universalizable for all humans in all cultures, over a wide range of aspects of experience-in-context. I aim to justify it as prescriptive in the sense of being distinguished from, and

independent of: 1) evidence of the percentage or number of people who manifest a certain course or degree of orthogenetic movement, or level of orthogenetic "attainment"; 2) what changes people in a given culture do in fact value; and 3) scientific debate over the validity or heuristic worth of a particular explanatory model. [7]

Formal ethical models are useful in education because they increase the precision, clarity, and consistency of our aims. Any formal abstraction requires justification in terms of formal, non-empirical criteria. Yet these criteria as well as the models they judge can be best seen as problem-solving "maps", generated by thought in its adaptive search for a resolution to material conflicts. To finally justify an ethical principle, then, we must seek out its GENESIS through an analysis of the basic conflict which generated it, and examine the thoroughness with which it does, in fact, fulfill its FUNCTION of addressing this conflict in a progressively adaptational way. This is what I mean by a "genetic-functional" justification. Our formal maps are ultimately justified by the extent to which they reflect this empirical reality.

To address our second criterion, a definition of development ought to enable educators to speak of growth with respect to affective attachments, inclinations and impulses, the co-existence of a variety of cognitive/affective habits or structures within an individual (Werner, 1963, p.137), the structure of the social

context, and the nature of the educator-student relationship, for a start. It should enable educators to consider the influence of each of these factors upon the others.

It should do this because, in the absence of incontrovertible evidence to the contrary, it is prudent to assume that these aspects do interact with one another to influence an individual's overall experience and behavior. We might be tempted to simplify things by limiting our definition to the development of cognitive structures, and assuming that once a person is capable of reasoning in a certain way in a particular situation, that this will suffice to bring all experience and action "in line" with this reasoning. But before we assume that no other forces play a key role in shaping experience and action in all situations, we'd better be sure it's so, or else we risk pretending to have achieved something we haven't. Even if we found that securing a cognitive structure is the best way to ensure growthful experience in general, we'd need to be sure that growth in other ways played a minimal role in the securing of that structure. [8] Finally, we'd have to be sure that securing that structure was not only necessary, but also sufficient, to advance all the paths of growth we might value, such as imagination, creativity, practical skill, aesthetics, and compassion, to name a few.

Unless all our practical and experimental experience convinces us otherwise, a definition of development that puts all its eggs in one basket is of limited use to education. A more

differentiated and integrated definition, on the other hand, permits educators to hold distinct aims for different "growth-paths", yet see connections between them, and co-ordinate them within a unified educational plan.

Finally, a useful definition of development ought to be able to make use of a variety of psychological frameworks, and co-ordinate their various conceptions of change within a unified ethical framework. This follows from the previous point, if one observes that different psychological models pay more or less attention to different aspects of experience. Psychological theorists have the luxury of selecting the angle from which they wish to study humanity; educators are confronted with a global array of goals, situations, and complexities. A cognitive-structural model may be the best tool for explaining why students reason in certain ways in democratic school meetings, why adults and teenagers don't reason the same way, or why a science program based on concrete experiments works best for 7th graders. But it may be a cumbersome or simply inadequate tool when it comes to explaining why positive reinforcement helps students to make use of any reasoning structure at all instead of their fists.

Artificial intelligence models, psycho-therapeutic models, and ecological models are all of potential use to educators in specific circumstances. No matter what model one uses, however, one is still left with having to justify changes explained by these models as serving developmental ends. An overarching ethic

enables us to make use of a mechanistic model, for example, without thereby raising the specter of treating people like machines.

The two preceding points have emphasized the need for universalizability in a definition of development useful to educators. It is worth making a final point about the need for prescriptivity in such a principle. In pursuing an agenda for education at great variance with that which is usually pursued in one's culture, it is easy to allow, if only from force of habit, the encroachment into one's work of all kinds of practices that contribute little to development, or that detract from it. A strongly prescriptive definition of development not only provides justification for practice that may oppose cultural trends, but permits a solid critique of practices that cannot enlist such justification. Perhaps most importantly, educators are faced with a host of individual and social realities which frequently represent regression or stagnation rather than progression. To retain a vision of an autonomous ideal process which can be expressed not just as a far-off goal, but as an immediate next step in that goal's direction, cannot but exert an inspiring influence.

F. Limits of the Inquiry

1. I will not undertake a defense of the position that development, as opposed to transmission of the culture, or preparation for adult life, or some other idea, ought to be the

aim of education. I will consider this defense to have been adequately presented by Kohlberg (1972) and Dewey (1916, 1938a). I will limit myself to the defense of a particular way of defining what constitutes "development".

2. I accept Kohlberg's position rejecting value-relativism and value-neutrality as educational philosophies (1972, pp. 138-139, 144; 1971, pp. 156-163). I also accept his definition of a "formalist" defense of an ethical position.

3. I will make no case for a particular set of explanatory mechanisms or cause-and-effect relationships regarding how or why development happens or doesn't happen ("theories", following Reese and Overton, 1970, p. 124). To the extent that my ethical theory rests upon concepts borrowed from psychological "models" (again following Reese and Overton's definition, p. 117), I will attempt to provide an ethical rationale for their use.

4. I will make no case for a particular educational model or set of educational practices. To determine precisely what sort of educational intervention will be most developmental for a particular individual or group, within a particular culture, at a specific historical moment, requires the weighing of many factors, including who the educators are. I shall show how my definition of development in fact leads one to reject the usual habit of deciding what our practice will be in advance of weighing all these factors.

5. I will not make a case for orthogenesis as a path of spiritual development sui generis. To the extent that spiritual development is immanent in the development of all realms of human experience, it will be served by a discussion of those realms. To the extent that spiritual growth alludes to that which transcends ideas, feelings, time, or change, it would not be well served, in my view, by a conceptual treatment here.

6. It is not my intent to make a case for orthogenesis as relevant to a wide range of human experience by compiling a comprehensive encyclopedia of the varieties of such experience. Rather, I will provide examples of aspects of experience which are of sufficient number and contrast so as to illustrate my point. Those aspects will be emphasized which have the most pressing ethical significance within education. Therefore, the development of sensori-motor perception, for example, will not be referred to extensively, except by way of analogy.

G. Strategy of the Inquiry

The dissertation is presented in five chapters, of which this is the first.

The second chapter is an analysis and interpretation of the orthogenetic idea as found in the works of Heinz Werner, Jean Piaget, Lawrence Kohlberg, and John Dewey. Many concrete examples of orthogenetic change, taken from the works of

Werner, Piaget, Kohlberg, and Dewey, are provided in this chapter.

The third chapter begins with my own summary of the orthogenetic principle, and a summary of the claims which I make and do not make for it. I then proceed to a justification of orthogenesis on both genetic-functional and formal grounds, with an explanation of the relationship between the two modes of justification.

The fourth chapter explores how the orthogenetic principle may aid in the formulation educational problems and their solutions. In the first part of this chapter I construct, extrapolating from the orthogenetic principle, a partial framework of ethical assumptions which the educator ought to make or refrain from making about the nature of development. I argue that such a framework can be employed by educators to ethically co-ordinate the eclectic use of a variety of developmental theories. In the second part of the chapter I introduce a partial set of considerations, also deduced from the orthogenetic principle, which educators can use to further the development of their inquiry into the nature of educational problems and solutions.

The fifth chapter sets forth recommendations for further research and action. In particular, I make a plea for a more developed relationship between developmental science and

education, and for the creation of more educational enterprises conceived of as "developmental contexts."

Notes

1. This holds for models that make a clear theoretical distinction between "change" and "development". Some authors define "development" through a more tenuous theoretical "screen". Spiker (1966), for example, defines it as "those changes in behavior which normally occur with an increase in the chronological age of the child"; "...the term 'developmental', used in this way, is no more or less abstract or theoretical than the terms 'behavior' or 'chronological age'." (p.41)
2. For analyses of the organismic paradigm, with comparisons of it to other paradigms, see Dixon and Lerner, 1984; Hayes, 1985; Reese and Overton, 1970, and Overton and Reese, 1973. Dixon and Lerner separate developmental psychology into five genealogical branches, all descending from Darwin: organismic, psychoanalytic, mechanistic, contextual, and dialectic.
3. In keeping with Dixon and Lerner's typology, I have distinguished the organicism of Werner and Piaget from the maturationism of psychologists such as Gesell, and also from the psychoanalytic theories of Freud and Erikson. While Piaget does not make use of the term "orthogenesis" per se, his use of integration and differentiation as defining terms of development is virtually identical to Werner's (Piaget, 1971, p.72, p.356).
4. Thus Lerner and Kauffman (1985), in seeking a possible integration of organismic and contextual developmental psychology, argue for "prescriptive" (p.324) definitions of development of use to both paradigms. They cite the orthogenetic principle as one example of such a definition (p.317). Yet they hold such a prescription to be of heuristic value only. They explicitly disavow any larger ethical implication in such a prescription: "our intent is to be neutral here in regard to the issue of the role of ideal progressions or categories in defining development" (p.319).
5. I will not recapitulate Kohlberg's argument for preferring progressivism as an educational ideology over cultural transmissionism, industrial psychology, or romanticism (1972). The notion at the heart of progressivism is that the search for progressive adaptation to problems in experience defines the essence of both ethics and education.

6. As Eddy points out (personal communication), Kohlberg does make use of a genetic-functional (or adaptational) argument when he argues for universal and prescriptive principles as promoting the process of "coming to agreement" among people. This may be what Eddy is referring to as the "germ" of a genetic-functional justification which "lies dormant" in Kohlberg's theory, but which "for various reasons...is never allowed to grow" (1986, p.75). It is this aspect that will receive clarification and strengthening in this thesis.
7. For example, research might discredit the notion that people move through an invariant sequence of stages, without discrediting the standard by which a sequence was deemed developmental.
8. Certainly Kohlberg acknowledges the influence of historical context (1971, p.178), empathy (p.220), and the structure of the immediate social environment (p.190) in shaping cognitive experience and development.

CHAPTER II

THE IDEA OF ORTHOGENESIS IN THE WORKS OF HEINZ WERNER, JEAN PIAGET, LAWRENCE KOHLBERG, AND JOHN DEWEY

A. Heinz Werner's Concept of Orthogenesis

1. Introduction

My aim in this section is to summarize the notion of orthogenesis as originated by Heinz Werner and his principal collaborator, Bernard Kaplan. Kaplan and Werner co-author a number of the texts cited (1956; 1963a,b,c,d), and are assumed to share the views therein.

Werner uses orthogenesis as a "formal regulative principle...not designed to predict developmental courses in their specificity" (1957, p.130). It is an abstraction designed to allow us to compare developmental processes in their "manifold manifestations" (p.125) across the widest possible variety of domains. Within developmental psychology, it provides a "conceptual framework" for perceiving "characteristics common to any kind of mental activity in the process of progression or regression" (p.126). It is a standard by which we can judge change as progressive or regressive.

It is not clear whether Werner intends orthogenesis to be an ethical idea, prescribing the direction of desirable change. Werner

certainly provides no philosophical justification for orthogenesis. In his later, independent work, Kaplan asserts that "development, as distinct from change, has been and ought to be an axiological and normative notion" (1983a, p.204). Yet Kaplan makes no claims for the orthogenetic principle as an ethically prescriptive definition of development.

2. The Form of Orthogenesis

a. Four Descriptive Concept-Pairs

Werner uses four bi-polar opposites to explicate the form taken by increasing differentiation and integration. Orthogenesis involves movement from the SYNCRETIC to the DISCRETE, from the DIFFUSE to the ARTICULATE, from the RIGID to the FLEXIBLE, and from the LABILE to the STABLE.

The differentiation side of orthogenesis is reflected in the syncretic-discrete and diffuse-articulate pairs. On the functional side, as individuals develop, they move from modes of thought, action, feeling, and perception which are fused with one another, to modes in which the various functions and purposes of the organism can be separated out at will. For example, in dreams, which represent a return to a less developed mode, people who in waking life would be perceived as separate may be lumped together into a single person. A child's mind will not separate out various sensory impressions, giving rise to statements such as "the leaf smells green". A developing person would cease to

confuse his own feelings with those he imagines to be held by other people, or by God. A child can actually consider (as opposed to the way an adult would poetically imagine it) a "few wisps of straw to be a doll or a bit of wood to be a horse" because "the affective and motor behavior of the child impresses itself upon the world and fashions it" (1948, p.65). There is no distinction made between the imagined world and a more "factual" reality. The syncretic-discrete pair is used to describe the content, the "acts and meanings" (p.54) of the individual as they appear to him.

The diffuse-articulate pair refers to a formal assessment of the whole structure being employed. While the process of becoming more discrete involves the distinguishing of a single function from the fused, syncretic whole, the concept of articulation looks at the degree to which a structure is divided up into component parts. The first pair focuses on the "singling out" of the one, the second on the "dividing up" of the whole. Therefore, a notion of music which includes distinguishable notes, harmonies, etc. is more articulated than one which consists of diffuse "sliding tonal movements" (p.54). Generally, a child is less able to distinguish nuances (p.98) of tone, color, emotion, and so on, than is an adult. Syncretic-discrete and diffuse-articulate appear to be two angles from which the same basic phenomena are described by Werner's model.

Linking the two concept-pairs associated with differentiation to the two associated with integration are the notions of "HIERARCHIZATION" and "SUBORDINATION" (p.55). It is not merely the separating out of individual functions from others, nor the division of an overall structure into distinguishable parts, but the control of some functions by others, and the co-ordination of articulated parts by a centralization within the "gestalt", that denotes development. For example, one becomes able to separate the aesthetic experience of "ugly" from the ethical experience of "bad" as one's conceptual schema are able to override aesthetic reactions: "just because he's ugly doesn't mean he's bad".

The pairs rigid-flexible and labile-stable are used to characterize the movement toward increasingly integrated systems of thought, emotion, and so forth. Rigidity and lability are seen as interdependent attributes of less developed systems. This is because the rigidity of the system is related to the syncretic and uncontrollable (not subordinated) attachment of aspects that would be distinguishable in a higher system. As one aspect changes, the other is forced to change also. There is no freedom of movement, no independence. Thus rigidity, rather than promoting stability, is associated with instability or lability. Werner gives the example of the "all-or-nothing" schema of young children, who see a whole series of ritualized (rigid) action related to getting fed, or getting dressed, or going to bed, as an inseparable whole, and will go into hysterics (become unstable) if

there is any deviation from the pattern (pp.206-7). He further gives the example of the boy whose idea of someone's personality was attached to their clothes; if his father appeared in unusual attire (e.g., a tuxedo), he thought that his father had become his grandfather! (p.445)

Movement in the direction of increased stability, on the other hand, involves increased flexibility; it means that one can distinguish essentials from non-essentials, and not allow the latter to influence one's attitude toward the former. To overcome racism, for example, is to attain to stability of respect for personality without being thrown off by the color of someone's skin; one is simultaneously freed from the rigidity of stereotypes based on race, and can flexibly deal with each person as an individual (this is an example of my own invention).

Flexibility implies "the use of one rather than another of several potential means" based on either "free voluntary choice" or on a response to a situation where "the normally preferred means for the attainment of an end is blocked" (1963a, p.135). It also implies the ability to make use of and directly experience earlier stages even though they are subordinated under later ones (see p.6 above). Associated with stability and flexibility are the notions of FIXITY and MOBILITY of developmental level. Increasing stability involves an increasing fixity of mental operations, a tendency to routinize various patterns, and to extend, or differentiate "horizontally" (1957, p.138) the routines of a given

stage of development across a variety of interactions. In order for this necessary movement towards "automatization of response" to avoid becoming "rigidity of behavior", it must be "counterbalanced by the polar principle of mobility" (p.138). This involves the increasing ability of the organism to employ a greater "vertical" differentiation, or the application of a wider variety of developmental levels, primitive as well as advanced, to a particular situation. This idea is intimately connected with the underlying assumption of spirality, whereby "one has to regress in order to progress" (p.139). An example of fixity and mobility acting harmoniously might be found in any creative work, which relies upon automatic habits of skill and thought, yet where original and fresh vision also depend upon an ability to "de-differentiate" those very constructions. Mobility is not the same as lability, since it is intentionally co-ordinated by the individual, and contributes to an even larger stability by providing a range of options for problem-solving and expression.

A key assumption connected with flexibility, and integration in general, is "autonomization" (1963b, p.487), which involves autonomous control and choice. Werner gives many examples of "synaesthesia", (1948, Ch.2) wherein children, adults in primitive cultures, schizophrenics, or people under the influence of drugs "hear" colors, "feel" sounds or shapes drawn on paper, and so forth. What characterizes the less developed state is the CONSTRAINT due to an INABILITY to make any distinction

between color and form; the example is given of the schizophrenic who could use the alphabet only by means of an accompanying color and personal association (with an object or place) (p.91). As development progresses, one gains the ability to make such distinctions, gaining greater stability and flexibility.

One of the problems of increased fixity at the level of symbolic thought is that one pays a price; one loses the ability to experience the world synaesthetically. This accurately describes the condition of most adults in Western society. It would constitute further development to be able to make fuller use of synaesthesia for artistic or other purposes, yet not be at its mercy. In keeping with Werner's dialectical model, such further development would represent a spiral synthesis of the original synaesthetic mode and the more developed, yet antithetical, "geometric-technical" or rational-logical mode.

b. The Concept of Primitivity

Werner studies development within a bi-polar framework which compares an "original state" to a "final state". Primitivity represents the "original state". The term refers to a complex of thought, feeling, behavior, and perceptual schema which are characterized by syncretism, diffusion, rigidity, and lability in comparison with functionally analogous schema which are more discrete, articulated, flexible, and stable.

Werner (1956, pp.88-94) takes great pains to avoid "five closely interwoven confusions" regarding his use of the concept of primitivity. First, Werner does not attach any "moralistic and normative" connotation to the word. Leaving aside Werner's putative claim that orthogenesis, or development, itself has no value-implications, primitivity as a force may help as well as hinder overall development: "instrumentally, primitivity may function now to prevent the organism from achieving certain ends, or again to enable the organism to achieve other ends" (p.89). This is in keeping with the previous discussion of stable flexibility and spirality. Werner makes a point of acknowledging "the instrumental necessity of primitive processes for certain highly valued activities of Western man" (p.93).

Second, primitivity, like orthogenesis, is not time-bound. While, empirically speaking, the passage of time generally brings movement from primitive to less primitive schema, it is orthogenesis, and not time, which defines the movement as progressive.

Third, the word primitivity may be used in its capacity as "an ideal construct", or it may be used to describe "the typical mode of functioning" of an actual individual or culture. When it is used to describe actual occurrences, it is strictly because the phenomena conform to the concept, not because one has an idea in advance that certain people or groups are "primitive".

Further, by giving examples of cultures in which most people

think and act in a primitive manner, Werner does not assume in advance that all individuals in that culture would be incapable of further development.

Fourth, the concept does not imply any statements in advance of empirical inquiry about the conditions which give rise to or maintain primitivity. It is not assumed in advance of inquiry, for example, that a society which uses less sophisticated technology will exhibit general primitivity in their mental life. Nor is this assumed of, for example, a preliterate society.

These would be hypotheses subject to empirical test.

Finally, it is not assumed that there are two "types of mentality", primitive and non-primitive. Primitivity as a term may be applied to specific features of mentality, leaving open the possibility that someone who exhibits primitivity in some respects may not in others. Also, it leaves open the possibility that primitive schemata operate in individuals at all ages, in all cultures. A "primitive culture" would be one in which most people operated "homogeneously on a primitive level" (p.93) over the range of mental life. In Western culture, "the mentality of members... is more likely to be stratified, and to show a wider range of forms of thought" (ibid.), including primitive forms.

Werner draws formal parallels between primitivity as characterizing the dominant schemes employed by adults in primitive cultures, children in advanced cultures, mentally ill adults in advanced cultures, and normal adults in advanced

cultures when under the influence of drugs such as mescaline or LSD. Parallels are drawn further between these schemes and the primitivity of auxiliary schemes employed by adults in advanced cultures, which of course may either reflect a holdover from childhood or a belief persisting in the culture (for example, otherwise rational adults may hold to pet superstitions, especially in times of stress).

Werner is careful, however, to remind us of key differences between these various categories of people as regards primitivity. It is by no means his intention to equate the healthy adult of primitive culture with the children or mentally ill of our own culture. Children in our culture are changing and developing within the context of "an alien world of adults" which they will someday join. Primitive adults have arrived at a relatively fixed level of development within a world similarly fixed by tradition which is their own. (1948, p.26).

Further, the primitive adult "lives in a world to which he is admirably adjusted", (p.34) while the mentally ill person in advanced culture suffers within a world to which he has become maladjusted. Also, the mentally ill person, having "retrogressed" from previous developmental gains, will show "signs of the higher level" which remain. Werner's example here is the comparison of the primitive man and the aphasia sufferer who have no ability to use the concept of "knife". In the primitive man's case, the notion of "knife" is completely bound up with the specific kind of

knife, and perhaps the specific thing to be done with it, or material upon which it is to be used. He may have dozens of words instead of one, or a word for each single concrete object. The aphasiac, on the other hand, has experienced a loss of language, and may use a substitution, such as "something-to-cut-with" plus a gesture, to compensate for the loss, while retaining "certain traces of the abstract thinking from which (he) has degenerated" (p.35). The mentally healthy child who has no such concept is of course surrounded by those who do, and through interaction with his world will construct his own concept in the normal course of events. In the following examples, comparisons may be made between these various "sources" of primitivity, so it is important for Werner's distinctions to be kept in mind.

3. The Content of Primitivity

a. Strategy of Presentation.

Werner's strategy for describing the content of orthogenesis was to present examples of primitivity within children, psychopaths, and primitive adults, and contrast these with more developed modes. (This is in contrast with the approach of Kohlberg, for example, who would show orthogenesis through the life span of a given individual.) It will therefore be most efficient, as well as most evocative of Werner's method, to adopt a

comparable strategy here. Examples of primitivity will be presented, followed by examples of how development out of primitivity represents movement in the direction of increasing integration and differentiation.

b. Examples of Primitivity

i. Primitive thought

Primitive language and thought is seen as highly syncretic, diffuse, labile, and rigid in a number of ways, as compared to advance language and thought:

For the primitive Trobrianders, there is one word for a "good gardener", one for a "bad gardener"; each concept is "self-contained", (1956, p.96) incapable of being further modified (e.g., by adjectives) without changing the entire concept. There is also no way to connect two states of the same object in time by means of a co-ordinating concept which posits the object as having an independent temporal existence; a yam that changes to a different state of ripeness is called something else, and is considered an entirely different object.

This is linked to a style of thought in which objects are not differentiated from their contexts. A concept refers to an entire "tableau", wherein the object, the use of the object, the person using the object, etc. are all collapsed into the same concept. The Navaho, for example, has one idea of "give" for giving things that are bundled up, and one for giving things that are bulky and

round, etc. (1956, p.103). The idea of a hypothetical or representative concept apart from concrete reality is absent. A primitive adult asked to translate the phrase "the white man shot six bears in one day" was simply unable to do so because, as he explained, a white man could not possibly shoot six bears in one day!

Primitive language, or the language used by children or the mentally ill, is less differentiated from other modes of communication or experience. Gesture and tone cannot be divorced from the meaning of the word, as it is in advanced written language. Written language among primitive people or the mentally ill is closely bound up with a pictorial or physically suggestive representation. The symbols (for primitive adults) or letters (for the patient) are closer to being expressions of emotionally-charged physical acts.

Drawing to a large extent upon Piaget's work, Werner shows how primitive thought is incapable of conceiving of objects in anything but an immediate concrete fashion, and how it is incapable of co-ordinating two ideas within a subordinating symbolic concept, as shown by children's responses to "double relationship" problems:

"'Edith is lighter than Suzanne; Edith is darker than Lily. Which is the darkest - Edith, Suzanne, or Lily?' These are typical answers: Fo (9:4), 'You can't tell because it says that Edith is the lightest and the darkest.' Gu (13:9), 'Once Suzanne is the darkest and once Edith is, so

Suzanne is the same as Edith, and Lily is the lightest.'" (1948, p.317)

The "diffuse, concrete mode of thought" (ibid.) involves a "one-track relationship": the child focuses on one aspect of the problem, and ignores others. This leads to a lability, or inconsistency, regarding solutions to problems. If the problem given above were re-worded, without in the least changing the facts, the child would be likely to come up with a different answer.

ii. Primitive aesthetic and sensory experience

Werner gives the label of PHYSIOGNOMIC PERCEPTION to ways of seeing the world which impute color, emotion, sound, tactile sensation, movement, and even taste or smell to thoughts or external objects which do not emanate those properties perceived from a "matter-of-fact", objective, "geometric-technical" perspective. (1948, p.69) Such perception, while present in some adults of advanced cultures, is dominant in primitive adults, children, and some of the mentally ill. It also can come to the fore under the influence of drugs:

* A picture of a parallelogram is perceived by a child as being "cruel". Another child sees a cup lying on its side, and says, "poor, tired, cup!" (p.73)

* A schizophrenic looks fearfully at some swinging doors and exclaims, "That door is devouring me!" (p.81).

* An experimental subject under the influence of mescaline sees one tree as "showering down" and another as "striving upwards". Baudelaire, under the influence of hashish, comments that "that which in the brain of the poet would be only a completely natural simile becomes a fact. In the tree one's passions, longing, or melancholy come to life; its sighs and tremblings become one's own, and soon one is the tree itself." Of course, the advanced adult under intoxication is in the peculiar position of being able to comment rationally on an experience after or even during it. Werner's point is that what is being experienced is a reversion to an earlier mode of seeing the world.

iii. Primitive emotions

Primitive emotions are themselves less articulated from one another. The small child begins with a tiny and diffuse repertoire of emotions, consisting of distress, delight, and undifferentiated excitement. The wide variety of shades of emotion comes only with development. As mentioned above, the same principle holds for the articulation of sensory and motor abilities and experiences.

Emotion and physical experience are closer knit in primitive thought. Melanesians express shame by saying "my forehead is biting me"; "her bowels long for it" is an expression following loss for the Australian Arandas. Werner makes the point

that for these people, these are not merely idioms, but actual experiences.

iv. Primitive action

Primitive action is characterized by the rigid and labile "all-or-nothing" schema previously mentioned: "Many aborigines are unable to begin their songs at any point in the text, but always have to commence anew at the very beginning or fail completely". Such rigid schema are also bound up in a magical view of the world: "ritualistic activities are known as indissoluble totalities.... any disruption of the form... a stumbling, a stuttering, or even a pause - often occasions a magical inadequacy". This applies to the rites of primitive tribes steeped in ancient tradition as well as to the idiosyncratic rites of children associated with meals, bedtime, etc.

In children and the mentally ill, as well as primitive adults, objects are frequently seen and described as "things-of-action" (1948, p.59). An infant given a round rattle instead of his customary square one "tried in vain to find and bite the 'corners' of the round rattle" (p.65) since his perception of the rattle was not so much optical or tactile, but bound up in the action performed with it. The rattle is a "something-to-be-bitten", non-existent as a thing outside that "motor-affective" schema. A schizophrenic patient was unable to "recognize a key presented to

him as an isolated object", yet recognized it as soon it was used to turn a lock.

In very young children, motivation is limited to responses to "vital drives", or "concrete signals of the milieu"; there are no "genuinely personal motives" (p.194). It is only as a result of development that a child begins to exercise choice independently of such forces, and "experience a desire to solve some particular task confronting him" (p.195). Similarly, the more primitive the thought, the less there is any kind of involvement with external objects in any purposeful way. At first, infants are unable to execute movements specifically organized with the intent of, for example, removing a cloth from the face. As children mature, their next actions are limited to objects in their immediate presence. Only with further development are children able to use planning to execute a foreseen end, such as building a tower of blocks. The inability of primitive thought to engage in planning has to do with inability to differentiate self from object, as well as an inability to integrate (or co-ordinate) a notion of something not immediately present in time and space with the concrete reality.

v. Primitive relationship to Nature (the physical universe)

Perhaps the core attribute of primitivity is the fusion of subject and object. "The world is separated only slightly from the

ego; it is predominately configured in terms of the emotional needs of the self (egomorphism). But, conversely, the ego, seen from the opposite angle, is highly susceptible to the emotional stimulation from the milieu" (1948, p.361).

The view of the world that is fashioned by a primitive mind which cannot distinguish that world from its own needs and impulses is labeled MAGICAL by Werner. This view manifests itself in a variety of ways, which are all characterized by: 1) a syncretic fusion of the individual's cognitive-affective-sensory-motor needs and the properties of the world; 2) a diffuse or unarticulated view of the world's laws of functioning (e.g., causation); 3) a labile conception of the world and objects, wherein these change according to the needs of the subject; and 4) a rigid adherence to a traditional, superstitious, or idiosyncratic formula for interacting with the world:

* ANIMISM and PERSONIFICATION are aspects of the magical world. These are to be distinguished from the "genuine realistic personifications" (p.77) of the poet or even the average advanced person. (Lots of people give their cars or computers personal names, but fundamentally know that they are inanimate objects). "A 5-year old girl is asked by her mother during a thunderstorm: 'What does the thunder look like?' The child replies: 'He has a head, but no eyes and no nose or mouth.' 'Then how does he look?' 'Oh, he looks like this...' and the child makes an angry face and draws her brows together" (ibid.).

* The anthropomorphization of nature is coupled with the "'naturalization' of the personality" (p.353) in magical thinking. A medicine man, in order to bring rain, "transforms himself into nature", in this case, the thunder and lightning, performing actions to simulate their activity (ibid.); "the need for the magic control of natural events may lead to an anthropomorphic presentation of nature, or, ... man himself stands for nature, actually becomes it" (p.354).

* "The sphere of a fictitious, POETIC reality appears to be less differentiated from the reality of everyday life in the case of the child" (p.394, emphasis in original). Children may actually believe in "a far-off fairyland", for example. As they develop, children may still believe in such things, but begin to distinguish them from the everyday reality: "Is that just in fairyland, or is it really where we are?" (ibid.)

* "We again encounter the DIFFUSENESS of the schizophrenic thought process in the psychotic conception of causality. As in the case of primitive man, differentiation according to cause and effect, according to condition and consequence, is supplanted by...THINKING IN TERMS OF FATE" (p.335, emphases in original). The mentally ill will perceive happenings in the world as omens, or signs of personal destiny. Such a scheme "precludes any self-contained single things and events within a causal complex". It is impossible for the primitive mind to separate single events from the "global quality-of-fate"

(p.336). Someone who believes that evil is pursuing him, for example, will see signs of this pursuit within all manner of events.

* The obverse side of this fusion of ego and world is the notion that one's own actions affect everything. Werner refers to this as "achievement magic" or "creative magic", which is a "magic by analogy" (p.365). Sacrifices, oracles, and magic talismans or amulets are all examples of an individual believing that a particular act or achievement, or failure to perform such, will have larger consequences. Werner stresses that this does not "entail the use of any sort of remote symbolism": the catatonic patient who "keeps the 'wheel of the world' in motion by circular movements of his own body" is living a "concrete reality", influenced by a "real magical event, one stripped of the metaphorical" (p.372).

* Magic objects, as in voodoo, have the power to influence faraway events. The individual may also be influenced by being close to magical objects. Werner gives the example of the 2-year-old child who believes that by combing himself with a black comb that he will get "nice black hair" (p.366). Objects from a magical perspective are labile in that they conform themselves to the subject's wishes and fears. Werner gives the example of the mentally disturbed who sees an advertisement in the newspaper, and twists its meaning to conform to his compulsion for self-destruction, taking it to be an instruction to kill himself. Lability

and rigidity go hand in hand, since the "fixed magical ideas" are what force the objects to conform.

* Werner is careful to distinguish the magical world-view from that of the religious MYSTIC in advanced culture (p.352). The attitude of the mystic is precisely to consider mysterious and outside the scope of ordinary knowledge a supernatural or spiritual realm as distinct from the realm of everyday occurrence. For the primitive mind, magical events are not something mysterious, but the simple facts of life. A religious person may offer prayers to a supernatural deity, believing that this deity has the power and discretion to hear these prayers and influence earthly events in accordance with them. But this is a developmental step up from the primitive person who directly and completely confuses his own needs and actions with unrelated objects and events in the material world.

vi. Primitive relationship to others and society

Primitive personality, as well as primitive ideas about the self and others, is also marked by syncretism, diffusion, rigidity, lability, and lack of hierarchization. The individual is not separated from the world, from the social order, or from a set of visible, concrete characteristics.

Primitive tribes characterize members of other tribes as having a single attribute. For example, if a tribe practices cannibalism, they are considered to be descended from jaguars,

and the personality trait of "jaguar" is all that is necessary or admissible for their designation. (1948, p.419) STEREOTYPY of personality, or labeling of a person by a single trait, is dominant even within one's own tribe.

Personality is not differentiated from magic objects. A "part" of someone can be considered to reside within an object associated with that person in a magic rite, for example. Personality may also reside in a person's property as well as in the person's body: "if a tree is uprooted by a gale of wind, its owner will fall sick" (p.423). Werner uses the term "EGO-HALO" to refer to the diffusion of the individual's ego among family members, property, clothing, animals, etc. Voodoo depends on the idea that body excretions, nails, hair, etc. are all vital aspects of the personality.

Personality is considered dependent upon social ceremonies. In primitive cultures, there is no gradual transition, through adolescence, from childhood to adulthood. At a certain age, there is a ceremony, and the personality is considered completely transformed from the child-being to the adult-being at that moment. (p.421) The lability of the personality is also manifested by the fact that a change of name is considered to affect it. For example, a small child asked its parents to change his sister's name so that she could become a little boy (p.446).

Primitive views of life after death highlight the way in which the personality is considered to be inseparable from the

entire social and physical environment. In the "happy hunting ground" of some Native Americans, for example, people will essentially continue the same activities that occupied them in life. "Paradise is a projection of earthly existence", since "only in his proper environment may the person be preserved in his totality" (p.423).

There is little differentiation between intention and action. Werner appeals to Piaget's research to show how children consider the objective consequences of an act (e.g., how big an ink blot is made on the tablecloth) as more important than whether the act was done purposefully, or with "good intentions", or by accident (p.444). The notion of intention as an essential aspect of right and wrong action is simply not differentiated out from the global, concrete quality of the act. Similarly, the example is given of the woman in a primitive culture whose son's life was demanded in recompense when the child of another family was burned to death in a fire that the woman had built outdoors to heat water. The fact that the woman had not the slightest intent to cause harm made no difference. (p.426)

There is little differentiation between the physical and psychological or spiritual aspects of the individual. This is why, for example, in primitive cultures, washing oneself is considered to cleanse away evil qualities, not in a symbolic sense, but in a concretely real sense. Similarly, eating the flesh of a "courageous" animal is thought to impart courage. The purpose of "scalping" a

human enemy is to gain the bravery inherent in it. (pp. 427-433) It is crucial to distinguish the actual primitive conception from the recent trend in our culture to perceive interconnections between mind and body. The mystically-oriented American who participates in a "sweat-lodge" ritual may do so believing that the process of sweating and chanting will have an effect on his psychic life, but he does not believe that his psychic life is actually contained in his sweat droplets.

The fact that personality is not distinguished from concrete action and physical substance makes it a "logical consequence" that people are not distinguished from animals, except perhaps as a "primus inter pares" (pp. 426-427). Animals certainly commit concrete actions and possess physical attributes; since this is all that is required for personality, animals are considered to have language like humans, as well as "personality": "in the (primitive Brazilian Indian's) eyes the animal is as much a person as he is himself" (ibid.). This makes it quite plausible that an unpleasant person, for example, might actually be half human and half shark, or be a human by day and a wolf by night, etc.

There is little INDIVIDUATION in the primitive personality, in that the person is not differentiated from his social milieu, or from concrete others. If a person gets sick, his relatives as well as he are expected to undergo a cure (p.433). A primitive man may actually fall sick because his wife is sick (p.434). Werner points out that waking life exhibits the same characteristics as

dreams, wherein people do not have stable identities, but are interchangeable with various "alter egos". In some African tribes, a child is not considered to have a personality separate from his father's until the rite of circumcision is performed.

"The syncretic structure formed by the unity of personality and milieu may refer to a relation not only between individual and individual, but also between individual and SUPERORDINATED SOCIAL UNITIES" (p.436, emphasis in original). Practically all of a primitive individual's actions are governed by the "powers of the social group", and not in the form of an distinct individual in contrast with a "superior social organism", but in a thoroughly "fused" way. Personal inclination or intimate bonds are not as important in determining behavior and thought as the fixed customs of the entire group. Obversely, the individual is considered to contain the totality: punishment for a crime committed by one person may be visited upon an entire clan. Marriage agreements bind not individuals, but entire families (p.437).

The most important thing to the primitive individual is his status within the structure of custom, his PRESTIGE. His very personality is completely defined by this. Again, this is to be distinguished from the egoistic or insecure individual in advanced culture whose sense of well-being is tied up in cultural approval. Even this person would have a notion that someone could, for example, "be a good person" yet not have a lot of social status.

There would also be a notion of oneself as a private individual standing in distinction from a superior social order. The primitive hunger for prestige, according to Werner, is "a token of EGOCENTRISM", i.e., of a low degree of differentiation between individual and society, between the private and specifically social goal (p.440).

Related to this view is the lack of any conception that the social order is changeable. "Where there is a rigid, immutable social pattern into which the individual is born and in which he must live without conflict or prospect of change, a true contradistinction between individual and social ends resulting in specific individuation is greatly hindered" (p.440).

Werner (like Piaget) rejects the idea (epitomized, as it is for Piaget, by Durkheim's work) that the social order is the actual source of personality, and that the individual personality, through development, "emerges" from it, embodying the views of that order. To the extent that the primitive personality is "socialized", the social order is "personalized": it is not seen as something separate onto which personal desires are "projected". Rather, as with all egocentrism, the social milieu is "blurred"; it does not stand out as something with its own life any more than individuals stand out as having "rights" apart from the maintenance of custom. All is simply fused or collapsed into the person's own desires and activity. With development, BOTH the individual and society "emerge" as reciprocal and polar elements,

through "contradistinctive processes of differentiation".

Characteristics of primitive personality formally similar to those seen in adults of primitive cultures can also be seen in children: the "ego-halo", the lack of physical and psychical differentiation, the attachment of the personality to the action and feelings of family members, especially the mother, the egocentric "blurring" of the social milieu, and the rigid and labile view of rules, based on fear of punishment and pronouncements by authority.

Further, in cases of psychopathology, particularly schizophrenia, there is analogous confusion of the self with others, with parts of the body, etc.

As a transitional step up from the lowest primitive forms, higher primitive cultures, as well as developing children, manifest the notion of a "split" personality, wherein a "good" or "higher" self is distinguished from a "bad" or "lower" self. In certain tribes, for example, the belly is perceived as the seat of desire, while the eye or the chest give rise to "nobler feelings" (p.431). A small child may have a "naughty self", who he admonishes to be good, and blames for doing naughty things. A child might thereby talk "of himself, so to speak, simultaneously in the first and third person" (p.451). This initial differentiation, of course, does not entail a complete integration of the personality as would be achieved by further development, but it does entail an initial "centralization" of personality, a preliminary sort of integration

still based on "magical" rules, whereby there is potential to bring the "bad self" under the domination of the "good self".

The primitive personality, as defined by the individual's intentionality, self-perception, and view of others, goes hand-in-hand with the primitive view of the physical and social world. The central term used to describe the primitive personality is EGOCENTRISM. This term, like primitivity itself, has a highly specific meaning, developed and shared by European developmentalists like Werner and Piaget. In egocentrism, the views of "society", as conveyed by persons closest to the egocentric individual, are intimately bound up within the ego; at the same time, "the ego is the vividly dominant element standing out against a more or less blurred social background" (p.453). The egocentric individual cannot conceive of a world beyond that which immediately impinges upon his vital needs; at the same time, he is incapable of formulating a set of rules or standards apart from those given by the intimate authorities in control of his life, who are themselves only gradually perceived as existing independently.

Egocentrism is not to be confused with egoism, which involves a "strongly individualized response that characteristically overrides the demands of the personal surroundings". The egoistic person is perfectly capable of understanding that there is a world and others apart from himself, and that there are things he wants which are separate from the wants of others or the

demands of the overall social situation. For Werner, "such a response is anything but childlike" (p.452).

Werner points to certain "crises" in the development of the child which serve to increase the differentiation between ego and world. When the infant is weaned, an intimate link is severed which renders the world less immediately accommodating to the infant's impulses. During ages 2-3, the tendency of the world to exhibit an "irreconcilable solidity" in the face of these impulses (based on gradual ego-world differentiation), "reaches its peak". It is the tension between more articulated and discrete ego-impulses and a reality which does not "magically" conform to these that provokes so much of the turmoil associated with this period. It is in this period that the child adapts by creating a code of "blind obedience" to authority, which remains egocentric in the sense that it is governed by the desire to promote personal pleasure and avoid pain and punishment (p.453).

The egocentric personality becomes somewhat more sophisticated during childhood, as the individual needs become increasingly articulated. Identification with heroes, boasting, and approval of or affection for people based on instrumental ("what they can do for me") attitudes, come to the fore. But further development out of egocentrism is somewhat dependent upon the nature of the social milieu itself. In primitive culture, where the role of authority is immutable, egocentrism remains the rule throughout life. In cultures where authority is progressively

relaxed, children build upon co-operative experiences they have with their peers to elaborate a sense of the world which is more individuated, more uniquely "personal property".

This provokes the third crisis, that of puberty or adolescence. "The crisis is expressed as overt or secret mutiny against old authorities, a severing of the intimate bonds linking the child with the family, a withdrawal into a personal, secret life" (p.456). Werner, rather than seeing this as entirely negative, perceives this crisis as "a preliminary for the establishment of a new relation between personality and society." However, the "expanding consciousness of personal responsibility" is what causes "the eternal conflict of generations within our own culture" (ibid.).

4. Aspects of advanced mental life and the direction of orthogenesis

a. The general character of orthogenetic movement.

With increasing integration and differentiation, mental activities become increasingly DISCRETE. That is, they become distinguished from each other. Thought is distinguished from emotion, thought and emotion from perception, different modes of perception from each other, one's own thoughts and feelings from one's interpretation of another's, etc. Mental activities become increasingly ARTICULATED, i.e, capable of making finer

shades of distinction because they are possessed of more actual components. Examples are the greater variety of emotions, perspectives, symbolic categories, etc. Mental activities become more STABLE, i.e., more immune to the vicissitudes of environmental change, more autonomously motivated, and more centralized or co-ordinated. At the same time they become increasingly FLEXIBLE. They are more able to adjust to environmental changes without disintegration or uncontrolled regression, more capable of interacting with a extended range of environmental possibilities, and more autonomous from rigid internal habits of thought, emotion, etc.

As a result of orthogenesis, the individual is more capable of making distinctions yet able to co-ordinate those distinctions objectively. What is essential is distinguished from what is non-essential. He is more autonomous, individuated, and self-directed yet more open to and able to incorporate a variety of perspectives. He can more easily and completely maintain integrity in the face of a greater variety of internal and external changes, yet also flexibly engage in a wider range of interactions with both the internal and external environment. In Werner's words:

"...increasing subject-object differentiation involves the corollary that the organism becomes increasingly less dominated by the immediate concrete situation; the person is less stimulus-bound and less impelled by his own affective states. A consequence of this freedom is the clearer understanding of goals, the possibility of employing

substitutive means and alternative ends. There is hence a greater capacity for delay and planned action. The person is better able to exercise choice and willfully rearrange a situation. In short, he can manipulate the environment rather than passively respond to the environment. This freedom from the domination of the immediate situation also permits a more accurate assessment of others. The adult is more able than the child to distinguish between the motivational dynamics and the overt behavior of personalities. At developmentally higher levels, therefore, there is less of a tendency for the world to be interpreted solely in terms of one's own needs and an increasing appreciation of the needs of others and of group goals." (1957, p.127)

In describing the state of primitivity, Werner outlines the requirements of primitivity as a formal, abstract concept, and then proceeds to give examples of actual individuals whose patterns of thought and action closely conform to those requirements. In speaking of a "primitive" culture, Werner uses the guideline that the preponderance of the thought of most people in the culture be primitive in nature. Overall, a fairly clear picture emerges of what Werner is using as the "original" pole of his comparative framework, both in theory and in actuality.

Werner does not depict "advanced" mentality as a structurally uniform whole to the extent that he does in describing primitivity. This is because Werner sees earlier, primitive characteristics as being retained even as more advanced ones develop. For example, an otherwise rational person may retain a superstition about knocking on wood after saying

something hopeful. The existence of several developmental levels operating at once within an individual or culture is called "genetic stratification" or "developmental heterogeneity" (1957, p.145; cf. Flavell, 1966, p.28, and Kaplan, 1966, p.37: "genetic levels"). In any case, my interest in orthogenesis as a direction does not depend on seeing it as a series of structurally-whole "stages". Thus the following examples will usually be couched in terms of INCREASING qualities, rather than in terms of static characteristics.

The label "advanced" follows the same restrictions as the label "primitive": it is a comparative term, with the basis for comparison adhering strictly to the "formal co-ordinates" (Langer, p.746) of orthogenesis. It is not assumed that advanced people are better than primitive people, or that we can determine in advance of inquiry the nature of someone's thought just because he is from a certain culture, or that people in advanced cultures operate uniformly in an advanced way. It is, on the contrary, held to be likely that in more advanced cultures, the relationship between developmental levels within each person will vary from individual to individual.

b. Examples of orthogenesis

i. Symbolic thought

At the heart of orthogenesis in thought and language is the formation of SYMBOLS. A symbol, in Werner's definition, is a

VEHICLE for representing an object or REFERENT by means of an intentionally established correspondence or analogy. For Werner, the distinctly human organismic end or goal is knowing, and symbols are our vehicles for knowing. Now, Werner's constructivist view of knowing involves the idea that "the human world cannot claim to reflect an independent 'reality per se'", but "is, rather, a man-specific... representation of 'what there is' by means available to the human being" (1963b, p.472).

Werner uses the terms "symbol" and "symbolic vehicle" interchangeably, but the latter term is meant to place more emphasis on the actual symbolic medium employed: the "sounds, lines, body movements, etc." (p.474)

Werner distinguishes symbols from signs or signals. A sign or signal can elicit or inhibit behavior by anticipating an event, or substituting for it. But a symbol involves an intentional cognitive act which "implies some awareness, however vague, that vehicle and referential object are not identical but are, in substance and form, two totally different entities." (p.475) Thus a bell may be a SIGNAL which, by substituting for food, makes a dog salivate, but the bell is not a SYMBOL for food. Throwing up one's hands as a "simple and direct expression" (ibid.) of anger may be a SIGN of anger, but it cannot be properly called SYMBOLIC. The content of dreams, while symbolic for the psychoanalyst who consciously finds interpretative meanings

within them, are not symbolic for the dreamer because they are simply "taken as such".

The orthogenetic power of the symbol lies in its "dynamic schematizing activity", which refers to the idea that symbols, including language, are not simply static "products" which exist as isolated units in a fixed world, but constitute an organizing, structuring ACTION, a "directive, regulative, form-building process" (p.476) by which the organism creates and shapes a meaningful and changeable world. Symbols transcend the immediate expressive qualities of "sensory, postural, affective, and imaginal components of the organismic state" by creating a cognitive structure which "intertwines" and contains (integrates) these qualities yet remains flexibly independent of them, and in fact "shapes" them. For example, the word "contains" in the previous sentence draws upon certain motor-perceptual antecedents but can be used in a metaphoric sense which does not imply that anything substantial is actually "contained".

Symbols transform the human world from one of "things-of-action" (in primitive life) to one of "objects-of-contemplation". The symbolizing process involves an orthogenetic shift towards "polarization" of subject and object: the child comes to know objects as being outside himself, as having their own characteristics; he similarly comes to see his thoughts and feelings as being inside himself. The "expressive qualities" in objects are co-ordinated by the symbol in such a way that the

person can construct a notion of similarities between objects. Fires in general are hot; stoves, like fires, are hot; the sun is like a big fire or stove, etc. This integrative function is complemented by a differentiative one; only by means of symbolic thought can one distinguish between the metaphoric and the concrete. To the primitive mind, the ritual fire does not SYMBOLIZE the sun, they are one and the same. By using similes, metaphors, and analogies, a person comes to reflect upon the world, rather than be completely bound up in it. Orthogenesis within symbolic thought "rests on twin form-building processes" (p.481). Not only are the referents (objects) increasingly organized in a meaningful way, but the vehicles (symbols) are increasingly organized within language, "the symbolic form par excellence" (p.482). Increasing integration and differentiation in symbolic thought are described in terms of a progressive "autonomization" and complementary "distancing" which occurs along four dimensions.

First, there is the distancing between the person and the object, which has already been discussed. Symbolic thought shifts the person's perception of the object from being dependent on its immediate external form or presence to being something that can be grasped by means of an "internalized cognitive schema" (1963c, p.492). The paradoxical yet logical result of this is that the person can conceive of both object and subject as having their own autonomous existence and qualities (A child's ability to conceive of his mother as an autonomous being that comes and goes

depends on his ability to form a symbolic image of his mother when she is not there. At a more advanced level, one might consider as an example my mother's comment when I was a teenager that I would treat her more kindly if I "simply thought of her as a human being").

Second, there is progressive distancing between the person and the symbolic vehicle. Regarding the external form of the vehicle, the person becomes more able to use forms such as writing and speech which are more removed from immediate affective and sensori-motor levels, whereas earlier symbolic forms would include images and movements which are more closely tied to a highly personal, direct pragmatic action upon something. The "person-independence" of forms such as speech make them suitable for social intercourse, for the "handing over" of meaning from one person to another (p.493). Regarding the internal form of the vehicle, meanings become less "private and idiosyncratic", which again means that communication becomes more possible, since symbols increasingly "serve to represent relatively the same content for the communicants" (p.494).

Third, there is progressive distancing between the symbolic vehicle and its referential object. Whereas in primitive thought, words are considered to have a magical identity with the things they represent, development entails a separation of vehicles from their "thinglike" status. With regard to their external form, symbols lose their tendency to be drawn or spoken so as to

pictorially or onomatopoeically look or sound like the thing they represent. A more primitive symbol for "tree" would have to look more like an actual tree, whereas the word "tree" is independent of such a function. Similarly, the inner meaning of the symbol becomes less dependent upon a sensorially observable manifestation of the symbolic vehicle. Werner is careful to point out, however, that the connection between words and their synaesthetic, physiognomic associations are not completely severed. There are many examples of onomatopoeia in language, and when one learns a foreign language, it is precisely when one begins to feel at home within the motor-affective associations of words that one is approaching true fluency. It is the work of a poet to be hypersensitive to such associations. Here again we have an example of higher development entailing not a disjunction from prior forms, but a "distancing" WITH retained access.

Finally, there is a progressive distancing between the "adressor" and the potential "addressee", in the sense that the developing symbolic structures enable communication with an "audience" further and further removed physically and in terms of common experience from the "speaker". This developmental aspect is closely interwoven with the previously mentioned notion that as symbolic vehicles develop, they become "more communal and less egocentric, idiosyncratic, and contextualized" (p.498). Werner recognizes that with people who are close to one another emotionally and otherwise, a highly personalized mode of

communication may be "adequate" (and presumably enriching), and that an identity of connotations between communicants becomes less likely with increasing psychological distance between them. With development, the individual will possess more flexibility to make use of both highly personal and highly universal forms, in an "integration of individual and transpersonal expressiveness" (p.500). With those further removed, the goal is to achieve a "consensus" of meaning whereby "the connotations evoked in both addressor and addressee occupy a COMPARABLE POSITION within each individual's PERSONAL network of meanings" (p.499, emphasis in original).

As can be seen by the above examples, Werner's use of the terms "distancing" or "polarization" does not mean that with development, people are bound to become more distant and polarized from one another, or individuals from society, in the common-language meanings of those terms which imply mutual alienation. [1] The distancing and polarization that is referred to here is comparative or relative to an egocentric state in which other individuals and social institutions are not recognized as having their own existence whose effect upon the subject can be reflected upon, and upon which the subject sees himself as capable of acting. Within this frame of reference, increasing "distancing" is necessary for there to be true communication or

sharing of mutual experience BETWEEN individuals as opposed to the mere collapsing of others into the subject's "ego-halo".

ii. Aesthetic and sensory experience

With orthogenesis, involuntary synaesthesia gives way to an increasing ability to differentiate between the senses, as well as a greater articulation within each sense. Older children can distinguish more colors and tones than younger ones (1948, p.98).

It is also true, however, that in advanced cultures, symbols tend to supplant functions which, in primitive cultures, are fulfilled more directly by sensory experience. In one sense, the person brought up in a primitive culture has more "developed" sensory powers than the person from the higher culture. The more eidetic memory of certain primitive peoples permit them to draw excellent likenesses of animals and other familiar things in their world, as long as they follow a particular traditional drawing system (pp.147-48). Eskimos can make unerring maps of long stretches of coastline by a similar process. The visual and olfactory tracking abilities of Bushmen are also, purely as sensory powers, far beyond what the average Westerner can achieve. Werner's point is that such abilities are generally bound up in the specific milieu within which they are developed. They represent a "too perfect adjustment" of the individual to his surroundings, so that there is no "flexibility and freedom in unceasing attempt to readjust, which is the very life and essence of higher, advanced

cultures" (p.19). These "superior" sensory abilities of primitive peoples represent a "specialization on a more primitive level" as opposed to a continued development of "new means" (p.18).

Werner wants us to consider the mental PROCESS behind an "achievement", as well as the outer form of the achievement itself.

People in advanced cultures lose some of the striking powers associated with such primitive specialization, but the symbolic means which replace them are less context-dependent and more flexible. Nonetheless, it would presumably constitute further development for a person in an advanced culture to cultivate these kinds of powers, and achieve a greater mobility of level. (This partially explains the attraction of the "Tarzan" myth, the man capable of the "best of both worlds"!).

Werner uses the example of great artists like Kandinsky (p.71) to point to a more mobile and integrated level of aesthetic development beyond the stage that most people in advanced culture achieve. Kandinsky could and did experience things synaesthetically, yet he could make use of language to convey his experiences "rationally" in words. In other artists, of course, such as the dramatist Strindberg (p.462), greater synaesthetic insight was accompanied by schizophrenia and a breakdown of rational thought. Orthogenesis in aesthetics, therefore, entails an increasing ability to be mobile between lower and higher ways of perceiving the world, accompanied by an increasing co-ordination

of the lower by the higher. The expressive metaphor, as conveyed by language and art, provides a vehicle for communicating an integrated experience which can evoke a response at a variety of levels (intellectually, emotionally, sensorially, etc.) from a wide audience.

iii. Emotions

Orthogenesis in the emotional realm involves the increasing perception of emotions as being generated internally, and not as being inherent in the properties of external objects. Also, emotion is differentiated from the senses, so that, for example, the expression, "a sour person" is understood to be metaphor rather than an actual fusion of taste and affect. How one feels about someone becomes less dependent on how they look (1948, pp.83-85). Emotions become more articulated; an infant can only manifest a global "distress", a slightly older child adds fear and anger to this repertoire, and these are subsequently refined to include shame, anxiety, jealousy, disappointment, etc. (pp.86-87).

Emotions also come increasingly under the co-ordination of the intellect (p.56b), and so the individual gains the ability to delay, moderate, or even abandon an emotional response as a result of reflection. Autonomy with respect to one's emotions is therefore a hallmark of development. One's bodily sensations that accompany emotion do not lead as much to "blind,

uncoordinated, momentary outbursts" (p.479), as in tantrums. The child develops more integrated and purposeful means of adapting to unpleasant situations (running away, hiding the face, argument, etc.).

Emotions are also less attached to immediate and concrete events. One thereby becomes more emotionally open and receptive to images, imaginations, events far removed in time and space, etc. This, of course, creates its own new problems. As children grow, they are, for example, less afraid of loud sudden noises, but more afraid of dreams and "imaginary creatures" (p.480). Presumably, with further orthogenesis, the individual is progressively able to distance himself from emotional impulses even when these are connected to complex cognitive schemes. Werner does not spell out the nature of such a higher stage, however.

iv. Action

With orthogenesis, action becomes more INTENTIONAL and SPONTANEOUS compared to primitive forms, which are more automatic, rigid, and determined by the environment. The developing individual becomes increasingly directed by his own intentions as flexibly and voluntarily chosen from among an increasing number of possibilities. The ability to see one's society as distinct from oneself is a prerequisite of the ability to act more flexibly with respect to authority and tradition. The development

of symbolic abstraction, as in grouping operations, allows the subject to "shift his point of view during a deliberate grouping" so that he is "no longer passively subject to the forces of sensory stimulation" (1937, p.358). An older child, confronted with a group of shapes, is able to group them differently according to size, shape, or color, whereas a younger child cannot see how a piece might belong to more than one group.

One way to interpret the relationship between intentionality and integration-differentiation might be as follows: intentionality involves a differentiation between the individual's internally integrated cognitive schema of "possibilities" and the immediate "given" quality of the physical or social environment. The integrative power of this schema lies in its ability to "dominate" and change the given external environment while simultaneously "taking it into account". Thus the intentions, and their behavioral manifestations, do not stem from purely egoistic fantasies. Such fantasies, rooted in idiosyncratic internal attachments, are themselves differentiated from an intentional schema based upon a wider, more interactive, more objective set of environmental associations. This is an example of orthogenesis transforming the relationship of the organism to both the internal and external environment, so as to achieve a unity between inner and outer "results".

Faced with a constantly shifting internal and external environment, intentionality allows the organism to maintain its

course despite emotional or cultural vicissitudes. Intellectually, diverse stimuli can be co-ordinated within a larger plan of action: "Decrease of immediacy of action signals a development through which the organism gains greater freedom of movement". This freedom is due to "the rising ability of the child to master the environment by indirect action; this involves the use of circuitous routes, instruments, and the ability to delay and to plan" (1948, p.486).

Increasing spontaneity brings increasing ability to initiate action without depending upon some particular stimulus from the environment. It brings an increasing ability to respond in a variety of ways to a particular environmental situation, ways which are less fixed by immutable routine.

Orthogenesis brings increasing OPENNESS to and IMMUNITY from the environment. The individual is "able to differentiate his organism from his objective environment". This leads to a "growing spontaneity of action" in which, generally speaking, there is a "change from object-negative to positive reactions" since the individual's integrity is less threatened by environmental stimulation and change. For example, "strong stimuli of sound and light at first cannot be mastered by the organism: hence, he reacts negatively to these stimuli by crying, turning away, etc. Later, at about six months, the predominantly negative responses change to predominantly

positive reactions; this is an indication that the child organism has learned to 'digest' intense stimulation" (1948, p.487).

v. Relationship to Nature (the physical universe)

With respect to the human relationship to the physical world, orthogenesis is characterized by the following:

- * Increasing differentiation between physical and psychological causation. The notion that things are caused by a personalized force within all objects, (or by an "immanent Thou" which "decrees" what things happen, 1956, p.92) is replaced by ideas based on sheer observation and the positing of non-psychological natural laws.

- * The idea that nature has only physical, and not psychological qualities, transforms the human relationship to nature from one of "mutuality" and "unity" to one of "exploitation" and being "separate" from nature. Nature becomes something "upon which (man) may work his will" (ibid.) [2]

- * Moral and sacred qualities are differentiated from the physical world, and lodged in a more encompassing supernatural or spiritual domain. The worship of deities replaces the worship of animals or totems. Moral guidance is not sought from the physical world, except symbolically. The world relinquishes the role of moral agent: unrelated events are not seen as punishing the individual for his sins.

vi. Relationship to Others and Society

With respect to the individual's relationship to others, orthogenesis involves movement from egocentrism to PERSPECTIVISM (Langer, 1970, p.743). Perspectivism permits "an interaction of personality with an outer discrete world, both polar elements being relatively self-subsistent" (Werner, 1948, p.191). The individual becomes increasingly able to "sympathize with, empathize with, and adopt the perspectives of others as well as his own; and he can increasingly integrate all these to form a coherent basis for his own conduct" (Langer, p.744).

The developing individual does not simply absorb and act upon the views of others wholesale, nor does he become confirmed in a purely personal perspective. Rather, BY VIRTUE OF an increasingly integrated personality, increasingly differentiated from the environment and its demands, the individual becomes MORE capable of self-modification in the face of new perspectives. He can permit GREATER interaction with and openness to other human beings.

"Increasing individuation is the counterpart of increasing socialization" (1948, p.452). As the individual moves from egocentrism to perspectivism, his relations to groups of people, and to society as a whole, become progressively less based upon unquestioned authority. They rely more upon co-operation, reciprocity, and dialogue. There is also an increasing "equalitarianism" which is "tempered by a consideration of the

inner and outer circumstance conditioning the individual". As opposed to a more rigid "everybody should be treated equally" view, this view can include, for example, the justice of giving a 6-year-old playing a game with 11-year-olds "an extra chance".

The "crisis" of adolescence in advanced culture is a "preliminary for the establishment of a new relation between personality and society" (p.456). Such a crisis is only possible in a society which has advanced past the primitive stage of "rigid, indurated authority", a society which is itself sufficiently differentiated to allow for individual differences and a wide variety of social roles and possibilities. The adolescent individual in advanced culture becomes able to conceive of "objective social goals". This is one thing that makes his rebellion different from that of the egocentric 2-year-old. It is the social structure that ceases to be authoritative: "there is a marked growth in the understanding of individual differentiation in a differentiated society, in the desire for self-determination with respect to the social role and the authority chosen" (ibid.).

With further development, the individual comes to the notion of RESPONSIBILITY: "when this sense of a personal freedom of choice exists, the individual acquires a new sense of responsibility, however limited, in relation to the society in which he lives and carries on his personal struggle" (ibid.). The responsible individual is capable both of differentiating himself

from society and of integrating objective social goals into his own personal goals.

Development of responsibility and perspectivism unite in particular within the development of leadership. Werner's comments here are brief, but he indicates that leadership based on sheer domination is related to rigidity and egocentrism, whereas with development, the leader is more able to adopt a stance in which he "spontaneously and flexibly responds to differences in other persons" (p.504).

With respect to the behavior of groups, development entails increasingly integrated and differentiated interactions between people, which Werner links empirically with increase in age. With small children, interaction is limited to two people at a time. The spontaneous organization of larger groups, in a game, for example, is only possible at about age four or five. In large groups of younger children, play tends to be "associative". Children may work on a diffusely "common" activity (e.g., building a castle), but each is really in his own world. Only later does "co-operative" play emerge, where there is an integration of individual goals around a well-articulated group project. Finally, groups only become stable, with clear "in-group" and "out-group" attachments, as in boys' and girls' "clubs", with advancing age. Again, Werner does not pursue the notion of a higher level of development which would transcend the propensity of "advanced" culture to divide people into exclusive groups.

It seems, however, that increasing perspectivism would imply such further development.

B. Complementary Integration and Differentiation as the "Vector" of Development in the Work of Jean Piaget

1. Introduction

While Piaget does not use the term "orthogenesis" to describe the direction of development, his description of what constitutes this direction, or "vector" (1965, p.386, Cf. "vection", 1971, pp. 123, 356) is virtually identical with Werner's. In this review, I shall limit myself to a demonstration of this identity, focusing on those aspects of the developmental vector that have been amplified by Piaget. This is not a review of Piaget's position in general, which would properly focus on the mechanisms of development, the functional invariance between biological and cognitive structures, and the logico-mathematical interpretation of successive thought structures (1970). This review is limited to illustrating another important theme in Piaget's work, the invariant characteristics of the vector of development. References to explanatory mechanisms are held to the minimum necessary to support such illustration.

Like Werner, Piaget claims a value-neutrality for his notion of the direction of development which belies the spirit of his work. Piaget's aim regarding the expression of the developmental vector is "to establish some objective and independent hierarchy, untainted by any value judgement" (1971, p.122). Even when discussing the development of moral judgement itself, Piaget

claims that "this is a psychological work, and it is not for us to take up a moral standpoint" (1965, p.294). He attempts to chart the development of social interactions in general "without attempting to evaluate this 'vector', and limiting ourselves to the mere description of psychological facts" (p.397). Piaget seems to regard values as external to his conclusions, as "subjective" elements which can only "taint" inquiry. This is the classic "value-neutral" scientific position, and Piaget is wary of committing the "naturalistic fallacy" of deriving values from facts, or of distorting facts to conform with presupposed values.

Yet all of Piaget's work is drenched in the presupposition that the process of development is desirable and valuable. For example, despite Piaget's insistence that "the role of the psychologist is... to give the facts the pedagogue can use and not to put oneself in his place and give him advice" (Bringuier, 1980, p. 131), Piaget cannot resist prescribing educational approaches which "best correspond with our psychological results" (1965, p.404). These turn out to be those which promote greater autonomy and de-centering in the individual, and co-operative self-government in the social structure (see especially 1976, pp.51, 90-91, 99, 112, and 1965, pp.363-364).

In addition, Piaget, by emphasizing the phenomena of development over those of non-development and long-term resistance to development, sometimes blurs the distinction between developmental stages as "real states" and as "limiting

forms of equilibrium", norms which have their basis in the extension of logic as much as in the observable "world of fact" (1965, p.386). This tendency makes it easier for Piaget to emphasize, for example, the co-operation of 12-year-olds rather than the brutality of peer pressure to conform at that age. Piaget certainly does not deny the existence of regression, arrested development, or evil, but he is even less consistent than Werner about differentiating his normative definition of development from the facts of change.

Piaget seems to slam the "front door" of his inquiry against the invasion of values, only to allow them to enter through the "back door", whereupon they mingle with the facts in an unregulated way. Piaget's explicit disavowal of any value judgement being attached to "evolutionary change" (1971, p.123) seems to be juxtaposed with the implicit idea that the "immanent logic" of organic functioning, coupled with the concept of a "final" state as logically "implied" by this functioning, obviates or subsumes any need for explicit justification of the change vector as an ethical norm. This interpretation, although speculative, helps to explain why Piaget eschews making educational prescriptions in theory, while making them in actual practice.

2. Examples of Integration and Differentiation

a. Piaget's Definition of These Terms

For both Piaget and Werner, the "main lines of development" are "the dual directions of differentiation and integration" (1971, p.72). Piaget lays heavy emphasis on the idea that the same vector which characterizes development within the domain of intelligence also characterizes the evolution of life in general, and particularly that of intelligence out of non-intelligent behavior structures, such as instincts and reflexes. Therefore, while I shall limit myself here to examples of development within intelligence, I shall permit myself to refer to ideas which Piaget has set forth in the context of biological phenomena in general, since, for him, intelligence is but a specific, uniquely developed case of such phenomena.

For both Piaget and Werner, development is a complementary and interdependent balance or synthesis between integration and differentiation:

"The chief characteristic of the vection which seems to be evinced by organic evolution is a remarkable alliance between two features that are antipathetic at first sight, although their working together is a necessary factor in the adaptations achieved at the higher levels. The first of these [is]...the ever-deepening integration making the developmental processes more and more autonomous in relation to the environment. The second...is the increasing 'opening' of possibilities of actions upon the environment, and consequently, insertion into wider and wider environments" (1971, p.356).

For Piaget, as for Werner, increasing integration and differentiation is manifested in the following ways:

i. Structures of thought, language, and action become increasingly STABLE yet MOBILE. Thus arithmetical concepts form a stable framework within which numbers can be subtracted and then re-added (reversibility = flexibility) without in the least disturbing the overall structure.

ii. In functional terms, this means an increasing DE-CENTERING (or DECENTRATION) of the organism and a corresponding AUTONOMY from

"distorting assimilations... which distort because they are not accompanied by adequate accommodations, [so] that the subject remains centered on his own actions and his own viewpoint... successive decentrations... make it possible for the subject to take the points of view of other subjects or of objects themselves" (1970, p.710).

iii. There is an increasing set of possibilities for thought and action with respect to the internal and external environment. In other words, there is a general EXTENSION or OPENING of the environment (differentiation) which implies an increasing ability of the organism to maintain its integrity in the face of change, and an increasing power of the organism to co-ordinate the environment for its own ends.

iv. There is an increasing "differentiation of substructures and their integration into totalities" (1971, p.71). Differentiation and integration are here used in their sense of distinguishing with complementary co-ordination of the distinguished elements. This

includes the re-integration of earlier structures within later ones (e.g., perceptual within conceptual structures, or Euclid's idea of space within Einstein's).

In the examples that follow, I have chosen to review the areas in which Piaget amplifies and extends Werner's ideas, rather than those which involve virtual repetitions of concepts already reviewed in Werner's work. For example, I shall not discuss the development of the symbolic function, (see 1960, pp.124-127; 158-159), nor magical or animistic thinking in the child, (see 1951a, 1951b), where Piaget's ideas match Werner's in nearly every detail. Since my aim is to show how the overall direction of development is the same for both authors, I believe I can do this while sparing the reader a mere reiteration of previously explored ideas. Instead, I shall focus on Piaget's notion of OPERATIONS, as well as on his ideas about the development of morality, personality, and society, which are enrichments of Werner's.

b. Operational Thought

The trajectory of increasing integration and differentiation is manifested in thought by the emergence of OPERATIONS. An operation is essentially a "grouping" of thoughts or actions which is defined by its integrated "conservation of the whole" (1960, p.140), manifesting itself in logical deductions and the feeling of logical necessity. It is the co-ordinative power of the grouping

which allows the subject to de-center from particular perceptions of objects by performing a mental operation which compensates for perceptual changes within concrete actions (concrete operations), and ultimately for the absence of any concrete perceptions at all (formal operations):

"The distinguishing characteristic of the sensori-motor schema (perception, etc.)...is that they are always 'centered' on a particular state of the object and a point of view peculiar to the subject; thus they always testify both to an egocentric assimilation to the subject and to a phenomenalist accommodation to the object. On the other hand, the distinguishing characteristic of the mobile equilibrium peculiar to the grouping is that the decentralisation...becomes systematic...thought is then no longer tied to particular states of the object, but is obliged to follow successive changes with all their possible detours and reversals; and it no longer issues from a particular viewpoint of the subject, but co-ordinates all the different viewpoints in a system of objective reciprocities. The grouping thus realizes for the first time an equilibrium between the assimilation of objects to the subject's action and the accommodation of subjective schemata to modifications of objects" (1960, p.142).

Operations build upon previous integrations and differentiations at the sensori-motor and pre-operational or "intuitive" level. An example of this is the construction of the "permanent object" scheme (pp.108-109). Before this scheme is constructed, a child behaves as if an object had ceased to exist if it is removed from view (covered by a cloth, placed under a sofa). Afterwards, the child initiates searching activity for the object (removing the cloth, looking under the sofa). The object permanence scheme represents an integrated (autonomous) subjective idea of the object which is differentiated (de-centered)

from perception, thereby opening the environment to include not only the place where the object is, but also all the places in which it might be imagined to be, and extending the child's power over that environment.

This scheme, however, does not yet represent an operation, since the child: 1) still depends upon physical appearance and practical purpose in forming conclusions about the object, 2) cannot focus upon more than one aspect of the object at a time, nor 3) co-ordinate one aspect with another. "We might therefore say that at this level spatio-temporal, logico-arithmetical, and practical (means and ends) groupings form a global whole and that, in the absence of differentiation, this complex system is incapable of constituting an operational mechanism" (p.152). In one experiment which demonstrates this, a child is shown a box of 20 wooden beads, in which most are brown, and only a few are white. The child is asked "are there more brown beads or wooden beads?". The child will insist that there are more brown beads "because there are only two or three white ones", while alternately recognizing that if all the wooden beads are removed from the box, there will be none left, but if all the brown beads are removed, the white ones will remain. The child is incapable of forming the notion of the inclusion of classes, wherein "brown" as a subset of "wooden" can be co-ordinated with "brown" as opposed to "white". The child can understand each one separately, but cannot group the two within a logical whole.

Once operations are achieved, however, the idea that there are more wooden beads than brown ones becomes a matter of logical necessity for the subject; it has to be that way. A similar example, involving the conservation of substance, is the experiment wherein a child is given a clay "sausage" which he proceeds to make longer and thinner. "Centering" on the increased length, the pre-operational child will insist that there is now more sausage, even though he admits that none has been added (If the sausage is made longer and longer, at some point the child will declare that there is less!). The operational child, on the other hand, will see as a matter of unshakeable necessity that the clay has conserved its original substance because: 1) nothing was added or taken away (IDENTITY), 2) the sausage gets correspondingly thinner as it lengthens (COMPENSATION), and 3) although the sausage has been lengthened, it could just as easily be reformed into its original shape (REVERSIBILITY).

The practical notion of reversibility, that what is done in the objective world can be undone within the subjective mind, is one hallmark of the operation, and the necessary precursor for understanding basic arithmetical principles such as commutivity, transitivity, etc. Yet operations which are dependent upon concrete action or perception are not yet "fully reversible": "being constantly tied to action, they give it a logical structure, embracing also the speech accompanying it, but they by no

means imply the possibility of constructing a logical discourse independently of action" (p.146).

FORMAL operations open up this possibility by performing "a grouping operating on concrete groupings" (p.152), rather than mere groupings of concrete objects: "with formal operations there is even more than reality involved, since the world of the possible becomes available for construction and since thought becomes free from the real world. Mathematical creativity is an illustration of this new power" (p.151). The problem of Edith, Lily, and Suzanne mentioned earlier (Sec.A 3bi above) can be solved by forming it into an abstract problem:

$$A < B; A > C, \text{ therefore } B > A > C$$

Again, there is an opening of the environment, a co-ordination of possibilities under the subject's control, and an autonomy from "reality" which is not autistic, but rather a de-centering from immediate givens.

Integration and differentiation are the invariable characteristic of the direction of development: "Each of the transitions from one of these levels to the next is therefore characterized both by a new co-ordination and by a differentiation of the systems constituting the unit of the preceding level" (p.152).

c. Morality

Within Piaget's theory, moral and intellectual development are interrelated. Like the development of operations, the development of moral judgement is an adaptational search for equilibrium between subject and object; in the case of moral development, the "object" is other people, and the equilibrium is sought within human relations. This equilibrium, manifested as justice in action and thought, entails a sequence of thought structures aimed at the regulation of these relations. Development in the moral realm may be characterized by the emergence of the same logical rules as in the intellectual realm: e.g., absence of self-contradiction (1960, p.163), and reversibility, reciprocity or the "co-ordination of viewpoints" (p.162). In a sense, then, one might describe moral development as a subset of intellectual development.

Yet the construction of operations themselves depends upon the nature of the interactions between people; reason itself is formed "at the heart of an investigative collectivity" (1976, p.51). Not only in Piaget's theory, but in his prescriptions for education, therefore, moral and intellectual development are held to be both parallel ("Logic is the morality of thought just as morality is the logic of action"; 1965, p.398) and mutually reinforcing.

Piaget does not exclude affect from the realm of the moral; for Piaget, the moral realm seems to be defined by its unique subject-object relations (i.e., within this domain, the "object" =

other 'subjects') and by its aim of equilibrating those relations, with the means employed including both affect (energy) and cognition (structure). For example, will, which for Piaget plays the role of an "affective de-centering", (Kohlberg, 1984, p.556) analogous to the cognitive role played by operations (the operation asserts itself in the face of perceptual "centerings", while will asserts itself in the face of affective "centerings"), is referred to as a "moral feeling" (1960, p.5).

Moral development studied by Piaget follows a trajectory of increasing integration and differentiation, as manifested by the following:

- i. There is a movement from moral judgement based on EGOCENTRISM and corresponding adult CONSTRAINT to judgement based on individual AUTONOMY and corresponding social CO-OPERATION. Piaget emphasizes that the child's egocentrism, far from being in opposition to authority (wherein increased authority would overcome egocentrism, a popular belief) in fact enters into a mutually reinforcing relationship with it (1965, p.61). Development consists of constructing moral rules which are increasingly independent of external influence, especially that of fear of punishment, and based rather on MUTUAL RESPECT, and the ability to take another's viewpoint. The freely chosen co-operation of people who regard each other as equals is seen as the ideal equilibrium to be achieved.

ii. The rules which govern such co-operation are increasingly those of DISTRIBUTIVE JUSTICE as opposed to RETRIBUTIVE JUSTICE, or OBEDIENCE. Distributive justice is based on the idea of reciprocity and equality: the idea of fault stems from the notion that the "bond of solidarity" necessary for mutual respect has been broken, and the purpose of punishment is to lead the transgressor (as well as others in the community) to realize this and to act in such a way as to restore this bond (pp.227-232). Such justice is increasingly free from the emotional need for revenge, (thus it becomes increasingly tempered by love and forgiveness, see p.323) and from the need to obey a set of rules merely because they are decreed by a perceived AUTHORITY. There is a shift from "a system of rules that are external" to "relations founded on reciprocity" (p.395). Distributive justice sees the responsibility for the social equilibrium as distributed equally among all members of the group; any rules agreed to by the group derive from a conscious desire to preserve these relations. This is seen as more developed than an unequal relation between rule-makers and rule-obeyers, or than agreed-upon obedience to a rule whose purpose goes unquestioned.

iii. As has already been discussed in the above review of Werner's work, there is progressive differentiation of subjective moral responsibility from the OBJECTIVE features of the transgression (e.g., how big the ink stain was as opposed to whether it was done on purpose), from intentions ascribed to the

physical world (the bee stung him because he was bad), and from the collective social group (everyone in the group should be punished if one person was bad).

iv. There is movement from pure "equalitarianism" to an understanding of "equity". When the focus is on pure equality, justice consists of doing precisely to an offender what the offender did (an eye for an eye); with increasing equity, punishment is freed from this concrete idea, and seen as more symbolically or analogically equivalent. Also, instead of treating everyone according to a rigid or arbitrary "equality", a view based on equity makes allowances for age, circumstances, "special relations of affection" (p.283), etc. The example is given of an older boy and a younger one who are given ice cream; the younger one drops his by accident, should he be given more? There is an increasing ability to empathize with an actual person in an actual situation, and to balance the equal application of the rule with the specialness of the circumstances.

v. There is increasing differentiation between the conception of what is and the conception of what ought to be, in such a way that one's ideal conceptions become more autonomous from what is while providing a basis for critical action upon existing conditions, whether in society or in one's own behavior and judgement. At the same time, the "ought" is not formed through mere conformity to a group, nor through idiosyncratic desires, but through the regulations provided by an increasing breadth of

dialogue and co-operation within a society of increasingly differentiated (varied as well as autonomous) individuals:

"This co-operation...is the only thing that allows for the distinction between what is and what ought to be...the essence of social constraint and of external authority, on the contrary, is to identify what is with what ought to be, the ideal state of things being thus conceived as already realized" (p.346).

vi. There is increasing differentiation of moral content from method, and the integration of the former by the latter, which is the method of "experimental behavior", which "whether scientific, technical, or moral, consists, not in a common belief, but in rules of mutual control. Everyone is free to bring in innovations, but only in so far as he succeeds in making himself understood by others and in understanding them" (ibid.). To agree on the process of dialogue and mutual efforts at understanding as a moral method is increasingly held to be more important than specific values or rules of behavior. Even a rule agreed upon by everyone "can acquire no new value from the mere fact of its generality" (p.394). Development means increasing concern with the overarching, integrating process by which rules are agreed upon, and decreasing concern with the degree of conformity to or identification with a given rule. There is a shift in allegiance from "constituted rules" to "constitutive norms" (ibid.):

"The morality of the autonomous conscience does not tend to subject each personality to rules that have a common content: it simply obliges individuals to 'place' themselves in

reciprocal relationship with each other without letting the laws of perspective resultant upon this reciprocity destroy their individual points of view" (p.397)

d. Personality

Intellectual, affective, and moral development at the higher levels is integrated by Piaget within the concept of PERSONALITY.

Autonomy and de-centering are at once the source and the defining characteristics of personality, which is alternately distinguished from "self", "ego", or even the "individual".

Personality is therefore something that only begins to evolve during late childhood and early adolescence, once operational thought is well-established:

"...by personality we mean, not the unconscious self of childish egocentrism, nor the anarchical self of egoism in general, but the self that takes up its stand on the norms of reciprocity and objective discussion, and knows how to submit to these in order to make itself respected.

Personality is thus the opposite of the ego and this explains why the mutual respect felt by two personalities for each other is genuine respect and not to be confused with the mutual consent of two individual 'selves' capable of joining forces for evil as well as for good" (1965, p.96); "...an entire concept of personality could be defined by terming it a reciprocal 'rapport'... it is essential to distinguish the individual and the personality. In the degree that the individual is self-centered, he creates an obstacle by his moral or intellectual egocentrism to the inherent relations of reciprocity that all evolved social living contains.

Whereas, on the contrary, the part of an individual that is a 'person' freely accepts some kind of discipline, or contributes to its creation, by voluntarily subjecting himself to a system of mutual 'norms' that subordinate his liberty in respect to that of others... the personality is opposite to anarchy at the same time that it is opposite to any restraints since it is autonomous, and two such 'autonomies' can only maintain reciprocal relations" (1976, pp.90-91); "...personality implies a kind of de-centering of

the self which becomes part of a co-operative plan which subordinates itself to autonomous and freely constructed discipline" (1967, p.66).

Autonomy and co-operation are seen as opposed to tendencies towards ANOMY, or isolation and the absence of internal self-guidance, and HETERONOMY, or subjection to external control. Anomy and heteronomy go hand in hand within the egocentric personality.

Egocentrism itself is not seen as something transcended once and for all by a particular stage. Rather, it is a persistent tendency which not only takes on new forms at each stage, but whose form depends on the developmental acquisitions of that stage, and frames the problem to be overcome by further development. This is in keeping with the theory of convergent reconstruction: "each new mental ability starts off by incorporating the world in a process of egocentric assimilation. Only later does it attain equilibrium through a compensating accommodation to reality" (1967, p.64). The role of egocentrism as the core "problem" of human development in Piaget's work cannot be too highly stressed: for Piaget, all development is in some way development out of egocentrism.

At the level of concrete operations, therefore, the child's very ability to construct assumptions about concrete events makes it possible for his egocentrism to take the form of a preference for these assumptions over the facts of a situation (Salkind, p.208). Faced with a situation that does not conform to

a hypothesis, the child will alter the "facts" rather than alter his hypothesis; the idea that there might be more than one hypothesis is still beyond him.

With formal operations, fact and hypothesis are differentiated, but one's own thoughts and the thoughts of others are not at first (p.210). This sets the terms for adolescent egocentrism, which consists of the adolescent projecting his own concerns onto others (e.g., believing that everyone is scrutinizing his appearance), or of elaborating fantasies (a "novel", 1968, p.68) about the self or about society which do not accommodate themselves to reality (See Elkind, pp.117-128).

Personality development is characterized by integration and differentiation, as follows:

- i. There is an equilibration between these assimilative adolescent notions and accommodation to a more objective self-perception, real others, and actual social institutions. In Piaget's view, this is achieved through "effective and enduring work", undertaken in concrete and well-defined situations" (1967, p.69). Piaget stresses, however, that development does not consist of abandoning the "vast dream of reform" in order to completely accommodate oneself to the world, but rather to overcome the "megalomania" associated with one's fantasy of one's own messianic role, while still acting to transform the world in accordance with ideas which are increasingly informed by a de-centered perspective.

ii. There is the emergence of a "lifeplan", a "personal system" in which there is

"...an autonomous organization of rules and values, and the affirmation of will with respect to the regulation and hierarchical organization of moral tendencies...these factors are integrated with the self into a unique system to which all the separate parts are subordinated...it is peculiar to a given individual and implies autonomous co-ordination...[it] is both a source of discipline for the will and an instrument of co-operation" (p. 65)

iii. There is a transformation of the experience of romantic love and peer friendship from one which is an egocentric projection of an ideal onto a person to one which truly takes the other person objectively into account: "Then what we seek in the other person is the very thing that enables the other person to come out of himself while yet remaining most profoundly himself" (1965, p.352). Piaget's ideas here make it quite clear that cognition is not something to be set up in opposition to affect, for love implies not only a "bond of affection", but a desire to "know" the other person.

iv. There is an increasing role played by discussion in social interaction, as opposed to the mere playing of games or other sharing of concrete activity. Obviously, it is not Piaget's aim to denigrate concrete activity as a form of meaningful interaction, or to hold up empty verbiage as an ideal. His point is that prior to a certain stage of development, individuals cannot allow the mutual communication of ideas and feelings through dialogue to play a meaningful role in social interaction. With this ability, the

entire universe is open to discussion, and the individual's potential opportunities for de-centering expand accordingly (1967, p.68).

v. There is an increasing autonomy of reason from both dominant social beliefs and affectively-charged egocentric distortions. The rules of a game, for example, are seen to apply to everyone equally (reversibility), even when this means a disadvantage for oneself. If a rule is perceived as truly unfair, on the other hand, apart from one's own selfish interest, then this view is maintained in the face of authority or peer pressure to the contrary. "The autonomy of reason has nothing to do with individual fancy, but it stands in direct contradiction to the idea of external authority recognized as such" (1965, p.370). Progress in science, on the other hand, depends on autonomy from internal distortions due to attachment to a particular theory or hypothesis.

vi. There is an increasing autonomy from fear as a determining motivation. Piaget maintains that there is always some role for fear, but that it moves from being connected to the idea of physical punishment to a more subtle aversion to "any lowering of prestige in the eyes of the other", in the case of mutual respect: "The quasi-physical element of fear which plays a part in unilateral respect then gradually begins to disappear in favor of the purely moral fear of falling in the esteem of the respected person" (1965, p.382). Piaget does not equate this kind

of "fear" with the fear of being ostracized by the social group (which is an embodiment of authority). Presumably, the "other" whose respect one would not wish to lose is one whose values and ideals truly embody our own; fear of what this "other" would think could be likened to a fear of falling in one's own self-esteem. Piaget does not explore the possibility of further autonomy from fear or other attachments as an aspect of personality development.

vii. It is hard to mistake Piaget's ideas about what would constitute development, not only for the child, but for the adult in a position of authority. Piaget implies (1965, pp.190-194) that it is the adult's attachment to maintaining unilateral respect that perpetuates egocentrism in children, in himself, and in social institutions. Adults maintain this mode of dealing with those in their power because that is how it was done by their parents, their boss, etc. With respect to both parenting and leadership, therefore, personality development consists of an increasing desire to promote systems based on co-operation and reciprocity, an ability to act scientifically in discerning appropriate means to this end, and overcoming internal and social barriers to the establishment of such systems.

e. Society

For Piaget, society is neither the result of individual initiative followed by imitation, nor is it a separate "totality" which shapes the individual from the "outside". Rather, it is a

system of relations between individuals. Piaget points out that even with only two individuals, the system of their relations forms a "gestalt" which cannot be reduced to its parts. Society, as a vastly complex system of varied interactions, can be considered an entity in a "statistical" sense only, and not in a "mythological" sense. Piaget consistently rejects the path of projecting a mythic destiny or personality onto "society" which is the source of individual personality, or somehow superior to the individual (1960, p.156-157). The developing "epistemological subject" is simultaneously "an individual, though decentered in relation to his private ego", and a "sector of a social group decentered in relation to the constraining idols of the tribe" (1971, p.360). With development, "these two kinds of decentering" are mutually reinforcing.

Piaget is quite aware that the work of equilibration at the level of social institutions is "unfinished": "Society cannot be regarded as a completed whole nor as a system of fully realized values" (1965, p.353). Society "is not just one thing", but contains both relations of autonomously de-centered co-operation and mutual respect as well as relations of constraint, egocentrism, authority, and unilateral respect. Piaget is clear that it is these latter features which "characterize most of the features of society as it exists". Although the foundations for individual co-operation manifest themselves in 12-year-olds, these are not taken up

within the realm of government, economics, education, and the like (1965, p.76).

Therefore, it is in speaking of the development of society that Piaget differentiates most clearly between development as an immanent "fact", and as an "equilibril limit" embodied in a co-operation rarely seen at the level of social systems. Nonetheless, Piaget declares that "the actual evolution of the relations of constraint tends to bring these nearer to co-operation" (1965, p.396).

To be precise, Piaget does not usually speak directly of the "development" of the society as an entity, but rather of the increase in more developed inter-individual relations, i.e., those marked by autonomy and de-centering. What follows here, then, is a gathering of Piaget's thoughts on what changes in social institutions would bring this about. With development:

- i. There is movement toward greater DEMOCRACY: equality between the generations, self-governance, and social egalitarianism. Breaking down the barriers which prevent the "infinite capacity for interaction with other people" and "complete reciprocity" between individuals is both the source and the fruit of not only greater moral development, but of greater intellectual development in all areas of life.

- ii. There is increasing differentiation and "density" of the society with respect to the diversity of influences upon the individual, and the number of roles available: "The 'denser' the

community, the sooner will the adolescent escape from the direct constraint of his relations and, coming under a number of fresh influences, acquire his spiritual independence by comparing them with one another. The more complex the society, the more autonomous is the personality and the more important are the relations of co-operation between equal individuals" (1965, p.336).

iii. There is a decrease in collective conformism and an increase in the "organic solidarity" of the group, which arises from communication and mutual respect. Organic solidarity is sometimes evinced by the children who "stick together" in the face of unilaterally imposed adult authority (e.g., by not "squealing", p.251). Piaget points out that when expressing organic solidarity, a group may appear to be regressing to collective responsibility (where the group is to blame for the offenses of the one) but that a crucial distinction must be made in the fact that the more developed group is quite aware that they are not collectively to blame, but that they are each as individuals freely choosing to take blame, responsibility, or punishment for the acts (or alleged acts) of one or more of their members out of solidarity with them.

iv. In educational institutions, there is an increase in the degree of co-operative self-government allowed students, wherein they make and enforce their own rules, etc. Also, an increase in the amount of work done by investigative teams of students pursuing a matter of collective interest (but not to the exclusion

of individual work). This would be movement away from rules and schedules imposed by authority, and away from teaching methods which present the same information to all students regardless of interest or ability while simultaneously isolating students from one another in their work (1965, p.363; 1976, p.108).

v. There is an initial increase in differentiation between the morality of "duty" to society from the morality of "good" based on mutual respect and reciprocity, with an eventual hierarchic integration of the former under the latter, until there is a re-convergence of the content of the two. In this progression, primitive society begins with all codified social norms being ones of arbitrary constraint ("legal prohibitions or taboos"), in opposition to the interpersonal relations of mutuality that "grow up between individuals" in an almost extralegal way. Gradually, these informal norms become differentiated in their own right as a "morality of good". With the development of society, "as ritual obligations diminish along with conformity, the morality of good wins against the morality of duty, and... comes to constitute the actual content of the duties themselves". At this point, however, the duties are no longer unilaterally imposed by the society on the individual, nor seen as arbitrary, but are seen as logically derived from the "good" (1965, p.352-353).

vi. There is a movement away from SOCIOCENTRISM, (or ethnocentrism) which is the manifestation of egocentrism at the

level of identification with the social group. Piaget observes that while it is "relatively easy to co-ordinate the points of view of individuals on a question of pure intelligence (for example, of putting into relation perspectives of different observers), and still relatively easy to co-ordinate them concerning a moral conflict, reciprocity and objectivity seem to become an insurmountable difficulty on the level of national feelings and in international life" (1976, p.131). Members of a developing society would increasingly be able, and in increasing numbers, to co-ordinate the viewpoints of different nations, races, groups, etc. in order to arrive at a co-operative solution.

vii. Within the sociohistorical institution of scientific thought, there is an increasing decentering and corresponding autonomy from egocentrism. Piaget charts the progression of astronomy, for example, beginning with the thought of the ancient Chinese, where "the Son of the Heavens [emperor] insured the seasons by his moving about". Next come the Chaldeans and Babylonians, who understood that heavenly bodies have a trajectory independent of human action, but who still conceived of the earth (first as a "great plateau, then as a hemisphere, and finally as a sphere") at the center of the universe. Then come the Copernican and Newtonian revolutions ("a most striking symbol of the victory of objective co-ordinations over the spontaneous egocentrism of the human being), which established the relation of the earth to the solar system, but

which held time and space throughout the universe to be identical to that of earth's. Finally, "still two more centuries were required for Einstein to teach us the relativity of time and space, depending on velocity, and to construct a tool of co-ordination much more subtle than that of classical mechanics, waiting to be surpassed in turn" (1976, pp.137-138).

C. Integration and Differentiation, and their Justification as a
Standard of Ethical Adequacy, in Lawrence Kohlberg's Stages of
Justice Reasoning

1. Introduction

Kohlberg, adhering closely to Piaget's framework, appeals to increasing integration and differentiation as an "internal standard of adequacy" for defining stage changes as developmental (DAE, p.157). [3] Although his own theory is limited to the domain of justice reasoning, he indicates that this standard would apply to all development that can be described in terms of cognitive stage advance (ibid.). Kohlberg recognizes the need for explicit ethical justification for this standard (p.151). He thus resolves the contradictions previously indicated in the work of Piaget and Werner. [4]

Kohlberg's justification is limited to demonstrating the increasing moral adequacy of successive justice reasoning structures characterized by increasing integration and differentiation. However, his metaethical approach within this

specific domain has implications for my attempt to justify orthogenesis as a definition of development in general.

My review of Kohlberg's work will be limited to those aspects most crucial to my thesis: his further elaboration of the content of orthogenesis and his ethical justification of it as a definition of development. My review is organized as follows:

Sec. 2: A definition of Kohlberg's domain of developmental study.

Sec. 3: A review of the ways in which Kohlberg's stage sequence, as well as his notion of "substages", is characterized by orthogenesis.

Sec. 4: A review of Kohlberg's grounds for justifying orthogenesis as a standard of increasing "moral adequacy".

2. Kohlberg's Domain of Developmental Study

Although Kohlberg's packages his theory as one of "moral development", he takes pains within his most recent formulation of it (CFT, p.224) to characterize it as, more precisely, a theory of the development of JUSTICE REASONING. In his earlier work, Kohlberg argues for a strict definition of the word "moral" as referring to justice reasoning only. He softens this position in his later work, saying that justice reasoning is the "central moral function" (p.216, Cf. the "core of the moral domain", p.236), but also that "the theory of justice reasoning (is) necessary but not

sufficient for defining the full domain of what is meant by moral development" (DRC, p.338).

Kohlberg aims to differentiate the cognitive, rational, and structural dimensions of morality from overt behavior, emotions, and social institutions (FITO, p.214). He assigns a nearly deterministic role to reasoning as 1) what it is that primarily develops in moral development, and 2) what it is that has greatest influence over thought and action in the resolution of human conflict. His theory may be seen as a reaction against emotivist, associationist, or other theories which attempt to minimize the role of reason as the source of moral differences or change, and which emphasize instead the role of unconscious forces, sentiments, societal conditioning, etc. Morality, in these theories, can be reduced to non-cognitive influences, even in the case of "humanistic" theories which emphasize a "natural" or "inner" moral knowledge (CFT, pp. 289-293; MSM, pp.196-198).

Kohlberg's definition of what constitutes justice reasoning is virtually identical with Piaget's. The development of justice reasoning is the parallel, in the subject-subject domain, to general cognitive development in the subject-object domain. Justice reasoning has two components: 1) a SOCIAL COGNITION component which is that of ROLE-TAKING. Role-taking is no different from Piaget's de-centering or Werner's perspectivism when applied to the social domain; 2) the specifically moral aspect of social cognition, that of the attempt to resolve or

equilibrate CONFLICT between individuals and within society as a whole (JR, p.191, 194).

Kohlberg conceives of human conflict as having to do with mutual expectations expressed in terms of RIGHTS and DUTIES, i.e., what individuals have a right to expect as their due from others, and what is an obligation of the individual toward others. Development of justice reasoning, therefore, includes development of one's conception of human rights and obligations as well as one's role-taking ability. Such development leads to JUDGEMENTS indicating resolutions of human conflict which are more "equilibrated" (JR, p.194; FITO, pp. 190, 193). For Kohlberg,

"the core of justice is the distribution of rights and duties regulated by concepts of equality and reciprocity. Justice recognized as a 'balance' or equilibrium corresponds to the structural moving equilibrium described by Piaget on logic. Justice is the normative logic, the equilibrium, of social actions and relations" (MSM, p.184, emphasis in original).

Kohlberg recognizes that there are other moral "orientations" besides justice, including ones relating to normative social rules, utilitarian welfare considerations of "the greatest good" or "harm to others", and conceptions of the "ideal self" (ibid.). He argues, however, that all these presuppose an implicit notion of "fairness" or justice, and that all make an implicit appeal to considerations of equality and reciprocity in human relations when confronted with the need to resolve moral conflict dilemmas (CFT, pp.310-313). He argues that only the justice orientation renders these "distinctively and fundamentally moral"

concerns explicit: "One can act morally and question all rules, one may act morally and question the greater good, but one cannot act morally and question the need for justice" (MSM, p.184). [5]

Kohlberg's appeal to justice reasoning as the "central minimal core" of morality is itself an attempt to resolve conflicts among an assumed plurality of moral views by locating what he sees as a factor implicit within and essential to all of them (CFT, pp.306-307). He recognizes that there are other dimensions to the moral realm, such as that of "charity, love, caring, brotherhood, or community", or "benevolence" (all of which Kohlberg groups under the general notion of AGAPE, or "responsible love"; CFT, p.227). But he argues that there are not "two separate general moralities", but rather that "special obligations of care presuppose, but go beyond, the general duties of justice, which are necessary but not sufficient for them" (p.229).

Kohlberg concedes that he focuses upon justice because it is the aspect of the moral domain most theoretically compatible with and empirically measurable within a cognitive-developmental theory of "hard structural stages" (CFT, p.238). He allows for "the possibility of extending the idea of stages of moral judgement to other and possibly broader conceptions of the moral domain" through the use of "soft stage" theories (such as Erikson's theory of life stages or Loevinger's theory of ego-development). Such theories capture "choices which go beyond duty and justice,

that is, dilemmas which elicit supererogatory choice", as well as changes in purpose or life-orientation (CFT pp.306-307).

3. Orthogenesis in Kohlberg's Justice Reasoning Stages

At the heart of Kohlberg's theory is his description of six invariantly sequenced and universal stages of justice reasoning. The account of these stages offered here will consist only of the bare bones necessary to illustrate the principal ways in which they constitute an orthogenetic trajectory. A full account of the stages can be found in a wide variety of Kohlberg's writings (FITO, JR, 1981 appendix, 1984 appendix A).

Kohlberg divides his six stages into three categories of pre-conventional (Stages 1 and 2), conventional (Stages 3 and 4), and post-conventional (Stages 5 and 6). At the pre-conventional stage, reasoning about deontological (rights and obligations-oriented) problems exhibits an egocentrism which cannot articulate social or cultural expectations as such. At Stage 1, the individual does not even conceive of himself as having rights or duties independently of the dictates of perceived authority or fear of punishment. At Stage 2, the individual is able to see rights and duties as a matter of egoistic instrumental exchange or reward.

At the conventional stages, the constituted norms of society or religion become the overriding arbiters of moral judgement. At Stage 3, the individual is able to put himself in the place of a concrete other. The Golden Rule becomes meaningful in concrete

situations, as do intentions. What is moral is defined as what is "nice", and as what is socially appropriate for people filling set social roles (parent, friend, policeman, etc.). At Stage 4, the formal concept of society or cosmic order emerges, and the individual defines rights and duties in terms of what will maintain the constituted rules of the social or religious order.

At the post-conventional stages, the understanding emerges that the social order itself derives its moral legitimacy from considerations which transcend or precede the mere fact of its authority. Therefore, socially-constituted conventions can be morally called into question. At Stage 5, individuals see society as based on the upholding of general and individual rights. This allows for the possibility of making changes in social rules so as to better fulfill this function. Rational law, based on agreement between people, becomes the arbiter of rights and duties. At Stage 6, universal ethical principles, as differentiated from particular laws or social arrangements, are the autonomous arbiters of rights and duties. Such principles form a "'second-order' use of the Golden Rule", (JR, pp.203-204, Cf. CFT, p.315) by formally and universally applying reciprocal role-taking and equity between all individuals as determining just relations at both the interpersonal and societal levels.

The orthogenetic trajectory from Stage 1 to Stage 6 is manifested in a variety of interdependent ways. First, there is an increasing integration of moral judgement in the personal realm

with moral judgement in the social or abstract realm. At Stages 1-3, judgement at the latter level is simply not possible. A Stage 4 individual might hold very harsh authoritarian views on abstract social matters, or about other social groups, yet apply the Golden Rule to his personal relations. Only at Stage 6 is there complete success at applying a degree of reversibility in judgement to social issues parallel to that applied in the context of concrete relationships. [6]

Second, there is increasing distinguishing (differentiation) of moral considerations from nonmoral or factual ones: at Stage 2, physical size or the "importance" or power of a person is seen as morally irrelevant; at Stage 3, hedonistic reward value and calculated "prudence"; at Stage 4, concrete conformity and the particular roles individuals play in society; at Stage 5, the need to maintain the particular constituted forms of society, and at Stage 6, all "legal" considerations and social-utility considerations.

Third, this increase in moral differentiation is complemented by an increase in the immunity-integrity (integration) of moral judgements in the face of environmental changes or "unbindings". Stage 1 reasons to refrain from doing something wrong would unbind if there were no anticipated punishment for doing it. Stage 2 reasons would hold in the absence of fear of punishment, but would unbind if there were no anticipation of advantage or exchange for not doing it. Stage 3 would hold in the face of considerations of prudence or gain, but

would unbind if other "nice" people did it. Stage 4 would hold despite the behavior of concrete others, but would unbind if the social order didn't care about it, or approved of it. Stage 5 would exert a partial check upon morally wrong behavior approved or ignored by society by leading to efforts to revise the social rules. In the absence of a clear social contract, however, the obligation to act rightly would be perceived as weak or absent. Also, considerations of overall social utility would weaken the Stage 5 resolve to act justly (thus capital punishment would be permissible if it really deterred crime). Stage 6 would hold despite contrary or absent social rules, and despite such social utility considerations. It would unbind only when universal ethical principles could not resolve the issue at hand.

Fourth, there is increasing differentiation and co-ordination of considerations of intentions and consequences in judging what is right. Here Kohlberg articulates more fully the general pattern set forth by Piaget and Werner. At Stage 1, there is an exclusive "focus upon irrelevant physical form of the act (e.g., size of the lie), or of the consequences of the act (e.g., amount of physical damage) " (SS, p.49) . At Stage 2, intention is still ignored, but consequences are seen in terms of their "human need-value" (ibid.), i.e., how they serve instrumental needs or prevent pain. At Stage 3, intentions are distinguished from consequences, and something becomes right if a "nice" person does it, and the person "means well", i.e., was not acting out of selfish or "mean"

motives. At Stage 4, the need for following impartial rules is paramount, and actions are judged bad if a rule is broken. "Meaning well" is still important, but not enough to excuse breaking a rule seen as necessary for the preservation of order. The general consequences "if everybody did it" becomes a meaningful consideration. At Stage 5, intention and consequence are more fully co-ordinated; someone can be held "legally" to blame for having broken a necessary rule, yet "morally" less to blame if the intention was a good one. Although an individual's intent may mitigate blame in a specific circumstance, it does not make something that is against the rules "right". At Stage 6, the intention to follow a universalizable moral principle is distinguished from simply having one's heart in the right place. It is right to obey the "self-chosen" moral principle even if it means breaking the rule if you must. There is a recognition that "moral principles don't allow exceptions any more than do legal rules" (p.51).

Fifth, there is increasing differentiation and autonomy of the "conscience" as a motivating factor in one's own moral action. At Stage 1, "conscience" is an irrational fear of punishment. At Stage 2, a more objective and pragmatic view of both reward and punishment develops. At Stage 3, concrete reward and punishment are subordinated to a concern about the approval or disapproval of concrete others. At Stage 4, the informal and concrete disapproval of others is subordinated to

formal concepts of "honor" and "duty", and to "guilt over concrete harm to others" (p.52). At Stage 5, concern over "institutionalized blame" is subordinated to concern for maintaining the rational respect of a community of equals and one's own self-image as a rational person. At Stage 6, concern for community respect and respect for oneself as "rational" is subordinated to the concern for maintaining one's own self-respect as an upholder of moral principles. [7]

Sixth, there is increasing de-centering with respect to one's capacity for role-taking, with a complementary increase in the ability to co-ordinate the various roles of others within a scheme of REVERSIBILITY. Reversibility is the power of a moral judgement to remain constant after taking the roles of all the actors involved. Therefore, full reversibility results in a judgement all parties could agree to as "fair". By representing an autonomous de-centering from a particular view, it results in a more stable and flexible equilibrium. Principles which imply a reversible solution to a problem are those of "distributive equality proportionate to circumstance and need" (equity) and "merit or desert, reward in return for virtue, effort, or talent" (reciprocity) (JR, p.201). By seeing reversibility as an "equilibration in valuing" (ibid.), Piaget and Kohlberg use it as an explanatory model for why people do tend to develop morally; it is an aspect of the immanent need for equilibrium.

Stages 1-6 chart a course of increasing reversibility. At Stage 1, there is no reversibility; morality is a one-way affair between power and obedience. At Stage 2, reversibility takes the highly unequilibrated form of favor for favor, blow for blow, leading potentially to "an endless cycle of retaliation" (CFT, p.316) without resolution. At Stage 3, there is reversibility in terms of the Golden Rule in interpersonal relationships. However, there is no conception of institutionalized rights independent of the motives or character of the concrete people involved. At Stage 4, reversibility extends to the notion of impartial societal norms. Even a mean person has the right not to be robbed, even by a well-meaning person, and is entitled to legal redress if he is. At Stage 5, rules themselves are hierarchically ordered according to an implicit principle of total reversibility. The duty to protect life becomes clearly more important than the duty to protect property, since even the person whose property was at stake would presumably agree with such a hierarchy if it were his life that was at stake. At Stage 6, universal principles become "the self-conscious operation of moral musical chairs in making just choices" (CFT, pp. 315-317, emphasis in original).

Seventh, with each stage there is an increasing opening of the moral universe to include a wider application of rights to a wider family of individuals. At Stage 1, only those with power have rights, at Stage 2, those who can give something in exchange, at Stage 3, concrete well-meaning others, at Stage 4,

those within the bounds of the constituted social order, at Stages 5 and 6, all individuals, with Stage 6 rights being more thoroughly universal and unconditional. Also, a key feature of development (CFT, p.251) is the opening of "social perspective": undifferentiated and egocentric at Stage 1, including two mutually aware actors at Stage 2, including a third-person perspective at Stage 3, including a member-of-society perspective at Stage 4, and finally, a "prior-to-society" perspective at Stages 5 and 6.

Eighth, there is an increasing integration of lower-stage problems within higher stages, and the incorporation with transformation of their salient elements. Stage 6 principles do not ignore the Stage 4 problem of maintaining society. This problem is co-ordinated more fully with the additional problem of maintaining all societies in an equitable relation to one another. Resorting to a Stage 1 "might-makes-right" ethic in dealing with foreign societies, justifiable within a Stage 4 morality of maintaining one's own order, would not be justifiable at Stage 6, since it does not lead to an equilibrated solution when applied universally. Similarly, Stages 3 and 4 do not ignore the Stage 1 and 2 problems of preserving oneself from harm or improving one's well-being. They integrate this problem within a more reversible scheme of taking the needs of others into account as well.

Ninth, there is a movement of justice considerations from an implicit (syncretically diffused) form toward an increasingly explicit (discretely articulated) form. At Stage 4, for example, the idea that rules must be upheld because of the consequences "if everyone did it" implies the fundamental consideration of equity in the form of everyone being treated equally. Since, however, this fundamentally moral consideration is fused with a need to uphold authority, even laws that treat some people unfairly are to be upheld. At Stage 5, the implicit moral reason for maintaining the society, to ensure equal treatment of all, becomes explicit, and there is a critique of social rules that impede this aim (CFT, pp.310-313).

Tenth, there is a thorough integration of rights with duties at the highest stage. At Stage 4, rights and duties are not strictly correlative, largely because they are mediated by the focus upon the social order. Because someone has a societal right to property does not mean that an individual has a direct duty to protect that right. Instead, one has a duty to maintain the society which protects that right (even if it doesn't in the case of certain individuals; the current case of forced Navajo resettlement being one example). At Stage 5, "for every right, society has some duty to protect that right. Duties to other individuals, however, are not clearly specified in the absence of either individual contract or social contract" (JR, p.217). Therefore, someone may have the right to, or be acting in accordance with what is right, if they

steal in order to save a life. But this does not mean the person is obligated to steal in order to save a life, especially if the person to be saved is a stranger. At Stage 6, however, "obligations are correlative to any right or just claim by an individual that gives rise to a corresponding duty for another individual" (p.216). One person's right is another person's duty to protect that right.

In this regard, Kohlberg addresses the problem posed by Stage 6 of how to choose between conflicting duties, since the "rational moral agent" cannot be an "omnipotent saint", protecting everyone's violated rights everywhere at once (p.219). He uses this dilemma to illustrate the differentiation between rules which dictate " 'Don't do that' or 'Do that'", and moral principles which are used as "guides" for either direct action, or for generating universally justifiable rules (pp.220-221). At higher stages, there is also increasing differentiation of such principles from concrete moral rules.

Finally, as in Piaget's work (See Sec.B 2cvi above), there is an increasing determination of the content of a moral decision by the structure of reasoning employed. Kohlberg is careful to distinguish the FORM of moral judgement, as expressed by his stages, from the CONTENT of the judgement, as expressed by a particular moral choice. In a dilemma posing a choice between the right to life and the right to property, for example, individuals give responses on both sides of the issue at every stage. What determines their stage is the kind of reasoning they

use to justify their choice. At Stages 5 and 6, moral reasoning articulates a hierarchy of values based on the contribution of those values to completely reversible solutions to moral problems. Therefore, in dilemmas pitting life against property, stage 5 individuals are more likely to side with the right to life. In dilemmas pitting the certainty or near-certainty of the loss of one individual's life against the mere possibility or higher probability of loss of life for a larger number of people, Stage 6 individuals are theoretically more likely than Stage 5 individuals to agree to protect the single but more endangered person. Stage 6 reasoners would treat each person's claim to life equally, by, for example, putting everyone in the place of the most endangered person. They would then see that giving everyone a 50% chance to live would be fairer than giving a 100% chance to most people and no chance to one person. It is in this sense that Kohlberg claims Stage 6 to be one at which "all reasonable people could agree" (JR, p.214).

The issue of differentiating form from content brings us to the issue of substages, a later addition to Kohlberg's theory (CFT, pp.250-257; 1984 appendix C). The substage theory was developed by Kohlberg to account for the widely differing "normative content" of subjects who were at the same formal justice reasoning stage in terms of their "social perspective" and structuration of duties and rights according to the "three justice operations: equality, equity, and reciprocity" (CFT, p.251).

Initially, Kohlberg followed Piaget in expecting that with stage development, individuals would become more autonomously oriented in their reasoning content as well in the formal features of their thinking. He found, however, that there were individuals at LOWER stages who made choices and gave reasons for them which were "intuitively" MORE developed than those of subjects at HIGHER stages!

The content of the answers of these lower-stage subjects was, from a Stage 6 viewpoint, morally more "correct". For example, they would condone stealing in order to save a life, or keeping one's word in the face of a parental order to break it. These subjects thus employed an intuitive hierarchization of values similar to that held by higher-stage subjects. Their judgements appealed to respect for the intrinsic worth of persons. They exhibited a higher degree of prescriptivity, i.e., an adherence to the "right" choice despite inclinations or pragmatic considerations. They were more universal, extending the right action to include all people, as well as more universalizable (all people could, without contradiction, act that way). Further, these lower-stage judgements displayed a higher degree of autonomy (reliance on one's own reason rather than on authority), as well as reference to relations of mutual respect between autonomous individuals (as opposed to relations of constraint or estrangement). They were more reversible and de-centered, considering others viewpoints. Finally, they were also

more constructive, showing an awareness that rules, and social institutions, are autonomously invented for reasons "derived from communication and co-operation between and among persons" (pp.253-256). Kohlberg refers to these distinctions as lying "midway between form and content"; for clarity's sake, I shall refer to them as "content" here.

The substage reflecting more heteronomous content is labeled "A"; the more autonomous one, "B". Enough of a gap exists between the two modes of response to lead Kohlberg to characterize them as distinct "types" (1984, appendix C). But it is not clear whether Kohlberg considers movement from A to B as a continuum, or a discontinuous shift from one substage to the other, more similar to between-stage movement.

As indicated above, form determines content to a greater extent at the highest stages. Therefore 75% of subjects at Stage 5 give type B responses, with the percentage being theoretically higher at Stage 6, the stage at which intuition and self-conscious reasoning are held to converge. But in introducing the notion of substages (or "moral types", see appendix C, p.663), Kohlberg adds a non-structural dimension to his otherwise "hard structural" theory. It is allowed that superior moral content can be consistently determined by something other than a "hard" cognitive structure.

Kohlberg's substages introduce a variety of developmental pathways into an otherwise unilinear theory. Although Kohlberg

contends that individuals do not regress from substage B to substage A within the same stage, they can and do move from, for example, 3B to 4A. At first, this prompted Kohlberg (1984, appendix C, p.663) to hypothesize that movement from A to B within each stage represented a consolidation of stage gains. The facts did not bear this out, however. While some individuals did move from 2A to 2B to 3A and so on, some individuals maintained a type A orientation throughout their stage progression, while others maintained a type B orientation throughout (ibid., also CFT, p.255). Movement from A to B would thus appear to be its own developmental pathway.

Not only is there a pathway of "intuitive" (CFT, pp.260-261) development, but what makes movement from substage A to B "developmental" is change according to orthogenetic criteria of increasing autonomy, de-centering, universality, prescriptivity, etc. Kohlberg thus in effect concedes that the orthogenetic criteria for defining development can be used without tying them to a formal structural framework. [8]

4. Kohlberg's Grounds for Justifying Orthogenesis as a Standard of Moral "Adequacy"

To be precise, Kohlberg does not set out to directly justify orthogenesis as a "formal internal standard of adequacy" in psychological development. What Kohlberg justifies is his claim that judgements generated at increasingly integrated and

differentiated stages represent a hierarchy of "moral adequacy" (FITO, p.213).

These judgements are phenomenal reflections of psychological structures which are increasingly equilibrated. Integration and differentiation are, for Kohlberg, formal criteria which describe the level of equilibration achieved at this internal, psychological level. Thus, by justifying the judgements at each stage as more adequate, he is indirectly justifying increasing integration and differentiation as valuable also.

There are two approaches that Kohlberg uses to justify moral stages as increasingly valuable. The one that he appeals to most explicitly is FORMALIST. Within this approach, "the formal standard of cognitive-developmental psychological theory [i.e., orthogenesis] is not itself ultimate, but must be elaborated as a set of ethical and epistemological principles" (DAE, p.158). Orthogenesis is not such a principle, but rests upon other principles which are "prior" to it. These principles are those of the "formalist" school of philosophy. Kohlberg explains his choice of formalism as follows: "We are arguing that a criterion of adequacy must take account of the fact that morality is a unique, sui generis realm. If it is unique, its uniqueness must be defined by general formal criteria, so our metaethical conception is formalistic (FITO, p.215, emphasis in original). Among the formal criteria Kohlberg appeals to are "impersonality, ideality, universalizability, preemptiveness" (ibid.). Within this metaethic,

it is these "formal criteria which make judgements moral" (ibid., emphasis added).

Kohlberg outlines a specific "parallel" between integration and differentiation and two of these criteria: universality and prescriptivity (pp.216-217). The increasing psychological integration "maps into" increasing formal universality, while differentiation maps into prescriptivity. Each moral stage is justified as more moral because its judgements are more:

a. UNIVERSAL - they are applied equally to a more inclusive class of beings, and can, by their very nature, be so applied self-consistently (without self-contradiction; FITO, pp.184-185)

b. UNIVERSALIZABLE - all actors could act according to such a judgement without self-contradiction (in keeping with Kant's "categorical imperative").

c. PRESCRIPTIVE - moral reasons for acting are differentiated from nonmoral ones, one ought to (is prescribed to) act irrespective of considerations (fear of punishment, hope of gain, affection, moral considerations of a lower order, conformity, etc.) held increasingly to be irrelevant.

Increasing integration and differentiation, which creates a more psychologically equilibrated stage, can be seen as explaining why judgements at that stage are more morally equilibrated, i.e., conforming more closely to the formal ideal of perfect universality, universalizability, and prescriptivity. But their

Justification as more moral appeals to the formal ideal, and not to the explanation. In keeping with this view, Kohlberg justifies increasing moral adequacy teleologically: "a higher stage is a better stage because its judgements more closely approximate Stage 6 judgements", which serve as the ideal formal standard (JR, p.192).

Now, as Eddy (1986, p.75) has indicated, Kohlberg hints that there is another form of justification undergirding these very formal principles. As Eddy implies, Kohlberg does not undertake to integrate this other justificatory route with his formalism. This other route I call GENETIC-FUNCTIONAL since it considers the origin and purpose of moral thought as relevant to its justification (Cf. "functional-genetic", DAE, p.128).

According to this strand of justification, moral adequacy depends upon the increasing ability of psychological structures, and the overt judgements rendered by them, to resolve problems or conflicts by producing agreement among people:

"[Martin Luther] King's morality was a more integrated and differentiated moral system than that of most people. It was more adequate because if all people adopted King's morality, it would resolve for everyone moral problems and conflicts unresolved by lower-stage moralities (DAE, p.158); "each higher stage...addressed problems unrecognized by, or unresolved by, lower stages" (FITO, p.214); "Stage 6 principles...structure an imaginative process in the individual's mind which attempts to produce an ideal moral dialogue for resolving conflicts. The adequacy of the conflict resolution is determined by the achievement of social consensus under dialogic conditions" (CFT, p.303).

Within this line of justification, universality, universalizability, and prescriptivity derive their moral authority from their reflection of the more fundamental criterion of reversibility: "Our philosophic theory stresses the criterion of reversibility as the ultimate criterion of justice" (CFT, pp.308-310). Kohlberg appeals to reversibility when he "elaborates the way in which I believe the substance of Stage 6 principles of judgement to be better than the substantive principles of lower stages, not just the sense in which they are formally 'more moral'" (JR, p.193, emphasis added).

Reversibility, for Kohlberg, seems to hold a dual status. It is on the one hand a formal criterion for assessing moral judgements independently of any psychological statements, like universality and prescriptivity. On the other hand, it directly reflects the orthogenetic psychological process of autonomous de-centering. Reversibility is the act of each person freely placing himself in the other person's shoes and co-ordinating the other's viewpoint with his own to arrive at a "reversible" solution. Moral principles, therefore, are not only better because they approximate a formal ideal, but because this formal ideal is itself a "map" of "substantive" orthogenesis qua reversibility.

If all people reasoned at Stage 6, the stage of self-conscious and systematic reversibility, then, given "common agreement on facts and probabilities", they would "eventually agree on the 'right' solution in concrete situations" (JR, p.193). Kohlberg is not

resting this claim upon the tautology that if everyone held the same views, they would all agree. As Piaget points out, generality of agreement is not identical to morality; Huxley's *Brave New World* is based on universal brainwashing for universal agreement. Stage 6 is a "structure or method" (ibid.), not a conclusion. It is held to be parallel to the "scientific method" for seeking truth in the nonmoral scientific realm (CFT, p.272). [9]

Kohlberg's hypothesis is that if the method of Stage 6 were universally employed, agreement on the resolution of specific conflicts would be more likely. Kohlberg is not always careful to differentiate between the value of sheer agreement, as the resolution of substantive conflict, and the ultimate value of the method itself as reflecting and causing a psychologically-specific kind of agreement, namely autonomously de-centered agreement. I think it can be assumed, based on Kohlberg's liberalism, that this is a distinction implied in all his work. [10]

In one sense, what Kohlberg seems to be saying about agreement is this: the more people are psychologically autonomously de-centered, the more they are hypothetically capable and desirous of co-ordinating each other's views to arrive at a mutually agreeable solution. However, his important addition to this somewhat obvious point is that Stage 6, as a formal operational representation of this process, is capable of imagining an "ideal moral dialogue" among such individuals. It is able to use such an abstract "dialogue" to arrive at equilibrated (reversible)

solutions to both real and hypothetical dilemmas of a complexity extending all the way to the just arrangement of entire societies, following Rawls (JR, pp.193-201).

Kohlberg thus supplements his explicit formalist metaethic with a genetic-functional metaethic implicit in his views on reversibility and conflict resolution (agreement). Within the latter scheme, formal ethical criteria are not themselves ultimate, but derive their authority from their "mapping" of psychological orthogenesis qua reversibility. The value of reversibility is in turn derived from the way in which it resolves conflict, the search for such resolution being seen as the origin and function of the justice domain.

This, however leaves us with a lack of integration between these two justificatory schemes which Kohlberg never resolves. Do universality and prescriptivity derive their justifying power from their internal logical purity and consistency, following a Kantian formalist view? Or do they derive their justifying power from their description of judgements which in turn reflect a more integrated and differentiated psychology and more equilibrated social consequences, following a Deweyan genetic-functional view? Kohlberg never consummates a "marriage" of these two approaches.

D. The Orthogenetic Principle in John Dewey's Conception of Growth

1. Introduction

Dewey does not attempt to define all manifestations of growth[11] within a single unifying principle. He does, however, provide bountiful examples of what he means by growth. By presenting a range of these examples found throughout a variety of Dewey's works, I intend to show that they conform to, and enrich, the notion of orthogenesis presented so far.

Like Kohlberg, Dewey sees all determinations of what constitutes "growth" as involving an ethical evaluation. For Dewey, however, growth in the way one makes such ethical evaluations, i.e., "moral development", is not a fixed realm to be held separate from other aspects of growth. Nor is there is a fixed set of issues which are held to be uniquely "moral" ones. Rather, any growth, even growth in, say, mathematical ability, can be seen as "moral" growth when looked at from the point of view of evaluating its effect upon both the subject's character, and the objective world. In making these evaluative judgements, a scientific, i.e., objective and thorough, assessment of inner and outer consequences cannot be completely separated from the "moral" aspect of the judgement, since "the system of science.. is absolutely dependent for logical worth upon a moral interest: the sincere aim to judge truly" (1946, p.227).

Comparison with Kohlberg's approach may make Dewey's approach clearer. Kohlberg makes a fixed distinction between attaining a certain stage of "cognitive" development as opposed to attaining a comparable stage of "moral" development. Kohlberg defines development as "moral" ONLY when it involves judgements resolving SOCIAL conflict. Further, increasing principled reversibility of justice reasoning is his SOLE measure of this "moral development". For Dewey, the "moral" point of view enters in as soon as we consider any kind of "better or worse" choice between ends which is focused upon the CHARACTER or ongoing disposition of the agent:

"What sort of agent, of a person, shall he be? This is the question finally at stake in any genuinely moral situation: What shall the agent be? What sort of a character shall he assume? On its face, the question is what shall he do, shall he act for this or that end. But the incompatibility of the ends forces the issue back into the question of the kinds of selfhood, of agency, involved in the respective ends. The distinctively moral situation is then one in which elements of value and control are bound up with the processes of deliberation and desire; and are bound up in a peculiar way: viz., they decide what kind of a character shall control further desires and deliberations." (1908, p.210)

"Character" for Dewey includes affective considerations as well as the rational-logical ones with which Kohlberg is exclusively concerned. The "psychological" reference to effect upon character does not take place in isolation, but is complemented by a "sociological" reference to consequences in the environment. These two points of reference are held in "reciprocity" within a moral judgement (1946, pp.247-248).

For Dewey, all action-situations are potentially moral ones when looked at from a standpoint of "regulated activity", (1946, p.248), in which case the act "has reference to conscious control of the nature of the change (i.e., deliberate change), and thereby gets ethical significance" (p.249). Thus, all manifestations of growth are potentially moral when consciously assessed from this standpoint.

Kohlberg agrees with Dewey that "moral" growth includes "cognitive" growth, but thinks that the reverse isn't so. For Dewey, cognitive growth, even growth in a child's ability to perform mathematical operations, has ethical import. All we are doing when we assess such growth "cognitively" as opposed to "morally" is temporarily taking the ethical issues as "presupposed" or constant. We are "holding off" questions of the child's (or teacher's) values in pursuit of this ability, or of the psychological and social consequences to result from it. As soon as these questions are brought into consciousness, we are dealing with this "cognitive" ability in an ethical light (pp.230-231).

Dewey's broader definition of the moral allows us to see moral implications in situations that fall outside those included in Kohlberg's definition. For example, a scientist conducting an experiment may not be directly involved in any justice conflict, but as soon as attention is directed to his choice of methods as serving a particular kind of truth-seeking character, or a

particular set of welfare-producing consequences, we are looking at the situation from a moral point of view.

If all manifestations of growth can be looked at through an ethical lens, so to speak, the value of ethical principles themselves are to be judged by their contribution to growth. What this means is that when we are looking at a particular aspect of growth ethically, what we are really doing is looking at its larger consequences for growth in general. For Dewey, "growth itself is the only moral 'end'" (1950, p.141).

Sensitivity to CONTEXT in determining what constitutes growth is more central in Dewey's work than it is within the organismic paradigm. Context, for Dewey, includes the widest possible range of cultural and sociohistorical factors that might enter into a determination of what is problematic in a situation. Dewey's idea of growth, as the solution to a defined problem, might be more likely to include changes in the society as well as in the individual.

According to Dewey, "examination discloses three deepening levels or three expanding spheres of context" (in Bernstein, 1960, p.108), which need to be considered in assessing growth. The first is the individual's unique situation. The second is the individual's culture, including all historical forces shaping the sociocultural situation. The third is the "general understanding of the workings of human nature" (p.109). This involves "the make-up of experience itself" (ibid.). In order to make the most general

statements about growth, one must base them upon the actual attributes of experience at the most general level. [12] In the following section I shall summarize Dewey's analysis of this most "pervasive and inclusive context of experience" (p.110).

2. Attributes of the Experiential Context

a. Overview

An analysis of several of Dewey's writings reveals four interrelated yet distinguishable characteristics which are truly universal in the strict sense of being inevitable aspects of what it is to be human. They are "natural" in the sense that they are not dependent upon certain kinds of human experience or intervention, but rather set the inescapable context, or "groundrules", of all experience. One might say that they constitute our experiential "biology" - our "human nature".

These four attributes do not of themselves tend towards growth without some level of individual and social regulation. This regulation may, under some sociohistorical or individual conditions, become so much of a "habit" that it appears to have a claim on being "natural". This, however, is an illusion of sorts caused by our suppression of a context that we take for granted in the ordinary course of affairs.

Dewey sometimes makes statements which indicate a belief that this experiential context is "violated" (1938a, p.42) by changes or attitudes which are not growthful. But such

statements are rhetorical shortcuts. Their point is that pursuing growth without taking into account these fundamental principles of experience is doomed to failure because it "violates" the principles in the same way that an airplane that crashes does so because its design "violates" the principles of aerodynamics.

What is inherent in nature is the experiential context within which growth must be defined if it is to fulfill its regulative function as a value. Growth is not a mere translation or extrapolation of this context. It is rather an adaptive, regulative response of the organism to what is "problematic" or obstacle-producing about it (Gouinlock, p.xxx). Consciousness and valuation arise out of this response; in a sense, they ARE the response. While all responses, all acts of consciousness or valuation, are inevitably shaped by the problems inherent in experience, they are not all equally or inevitably growthful.

b. The Four Attributes

i. Continuity

Continuity is simply the principle that "every experience both takes up something from those which have gone before and modifies in some way the quality of those which come after" (1938a, p.35). Continuity conditions our definition of growth by forcing us to consider the effect of an experience in the present upon those to come. The dimension of time implicit in continuity sets, in effect, a problem which can only be resolved by an

appeal to consistency. Something cannot be considered an adequate or consistent response if, by "resolving" a problem in the current moment, it sets up an even worse problem for the future. Each "present" is, in addition to being just itself, the "future" of some past moment, and the "past" of some future moment. Since all time, in this sense, is collapsed into each present moment, the only adequate, or "growthful" experiences are those which can command consistency without self-contradiction over time:

"That a man may grow in efficiency as a burglar, as a gangster, or as a corrupt politician, cannot be doubted. But from the standpoint of growth as education and education as growth the question is whether growth in this direction promotes or retards growth in general. Does this form of growth create conditions for further growth, or does it set up conditions that shut off the person who has grown in this direction from the occasions, stimuli, and opportunities for continuing growth in new directions?" (p.36)[13]

In addition to consistency in a given direction over time, continuity also appeals to consistency across various dimensions of growth, since change in one direction has an influence upon change in other directions. For example, for a burglar to advance in burglary, he must also advance in his disregard for others' rights, which in turn narrows and renders antagonistic his interactions with others, etc. Thus, "only when development in a particular line conduces to continuing growth does it answer to the criterion of education as growing. For the conception is one

that must find universal and not specialized limited application" (ibid., emphasis in original). [14]

Dewey is quite clear that continuity, by itself, is not a force for growth. What matters is how we take continuity into account in determining our values and actions. This is what Dewey means by using it "as a criterion by which to discriminate between experiences which are educative and those which are mis-educative" (p.37):

"...there is some kind of continuity in any case since every experience affects for better or worse the attitudes which help decide the quality of further experiences, by setting up certain preference and aversion, and making it easier or harder to act for this or that end";... "while the principle of continuity applies in some way in every case, the quality of the present experience influences the way in which the principle applies"; ... "there is no paradox in the fact that the principle of the continuity of experience may operate so as to leave a person arrested on a low plane of development, in a way which limits later capacity for growth" (pp.37-38, emphasis in original).

ii. Interaction

The principle of interaction means that every experience is influenced simultaneously by subjective and objective conditions. These conditions determine the quality of experience in a mutually influential way:

"Experience does not go on simply inside a person. It does go on there, for it influences the formation of attitudes of desire and purpose. But this is not the whole of the story. Every genuine experience has an active side which changes in some degree the objective conditions under which experiences are had. The difference between civilization and savagery, to take an example on a large scale, is found in

the degree in which previous experiences have changed the objective conditions under which subsequent experiences take place. . . we live from birth to death in a world of persons and things which in large measure is what it is because of what has been done and transmitted from previous human activities. When this fact is ignored, experience is treated as if it were something which goes on exclusively inside an individual's body and mind" (p.39).

Just as the principle of continuity sets a problem which can only be resolved by taking consistency of movement over time into account, interaction sets a problem which requires us to take the regulation of both subjective and objective conditions into account. In Dewey's view, such a solution would have to avoid the trap of SUBORDINATING one set of conditions to the other. Spoiling a child by allowing him to do whatever he wants in spite of the consequences to others would be an example of subordinating objective conditions to the child's subjective ones. Forcing a child to conform to a pre-determined and fixed set of scholastic procedures and contents with no regard for his unique interests and needs would be committing the opposite practice of subordination. Like continuity, then, interaction operates in any case, for better or worse, growth being "a particular kind of interaction" , namely one which "assigns equal rights to both factors in experience - objective and internal conditions" (p.42). Dewey indicates that continuity and interaction "intercept and unite" to form "the longitudinal and lateral aspects of experience" (p.44).

iii. Dependence

According to this principle, all individual experience is conditioned from birth by the utter dependence of the individual upon natural and social forces. Not only do language, thought, and personality depend upon social influence, but physical survival itself:

"In fact, the human young are so immature that if they were left to themselves without the guidance and succor of others, they could not acquire the rudimentary abilities necessary for physical existence. The young of human beings compare so poorly in original efficiency with the young of many of the lower animals, that even the powers needed for physical sustenance have to be acquired under tuition. How much more, then, is this the case with respect to all the technological, artistic, scientific, and moral achievements of humanity!" (1916, p.4).

What human beings depend upon most fundamentally is COMMUNICATION, and, as an outcome of communication, some level of CONSENSUS (pp.4-5). At the most basic level, the infant must be able to make its needs known, and evoke some kind of co-operative response from another human being, or survival itself is impossible.

The "helplessness" of the individual is not looked upon as something merely negative, for it is precisely this need for others that forces the child to exercise his power of communication, of reaching out to others. Children are "gifted with an equipment of the first order for social intercourse", and the use of this equipment functions as a "compensating power" for the fact of dependence (pp.42-43).

Dependence, then, as accompanied by the basic power to communicate, is an aspect of experience which sets up the potential for growth, by setting up a problem for the individual which can only be overcome by increasing independence:

"...if helplessness were all there were in dependence, no development could ever take place. A merely impotent being has to be carried, forever, by others. The fact that dependence is accompanied by growth in ability, not by an ever increasing lapse into parasitism, suggests that it is already something constructive. Being merely sheltered by others would not promote growth. For it would only build a wall around impotence" (p.43).

Here again, Dewey intimates that dependence is inherently or immanently growthful, but at the same time, he also implies that it is only potentially so by giving a concrete example of how it might not tend in a growthful direction. If an individual does respond to the fact of dependence by seeking to maintain or increasing his dependence upon others, then this does not adapt to the problem in a way that does away with the problem, but in a way that simply "builds a wall" around it. Conversely, Dewey warns that:

"there is always a danger that increased personal independence will decrease the social capacity of an individual. In making him more self-reliant, it may make him more self-sufficient; it may lead to aloofness and indifference. It often makes an individual so insensitive in his relations to others as to develop an illusion of being really able to stand and act alone – an unnamed form of insanity which is responsible for a large part of the remediable suffering of the world" (p.44).

Both increasing "parasitism" and the increasing "illusion" of "self-sufficiency" are regressive adaptations to the problem of dependence; the former reinforces it, the latter denies it. The growthful response to dependence is some form of increasing INTERDEPENDENCE, wherein an individual increases both his autonomy and his sensitivity, openness, and responsiveness to others (ibid.).

Dependence and interaction seem nearly identical; both point to the basic problem of subject and object in experience. One subtle distinction to be made might be to say that the principle of dependence explains, in a functional, causative fashion, the "structure" of interaction, i.e., the need to weigh and fuse both "internal" and "external" conditions in defining growth.

iv. Plasticity

Plasticity is the "power to modify actions on the basis of the results of prior experiences, the power to develop dispositions" (p.44, emphasis in original). Just as dependence explains the source and mechanism of interaction, plasticity explains the source and mechanism of continuity (1938a, p.35). It relates to what Piaget calls the "bursting of instinct" in human beings, the fact that we are not programmed to follow a specialized pattern of change, but rather have a vast capacity to modify ourselves in the face of changing conditions. Plasticity involves the "power of

acquiring variable and novel modes of control" (p.46). These modes of control Dewey calls HABITS. Habits are not innate, nor formed by the environment from without, but are rather formed by the organism in interaction with the environment (like Piagetian "schemes").

Plasticity means that habits of thought and action, even ones which are heavily conditioned by long-enduring sociohistorical context, are never completely fixed. There is always some degree of "elasticity". On the other hand, a habit represents an "active preference and choice for the conditions involved in its exercise", so as to form an "intellectual disposition" (p.48). The nature of plasticity as elastic habit creates the possibility of growth by allowing the organism to not only learn from the environment, but to acquire "the habit of learning". Such learning is capable of undergoing further modification, transformation, and even abandonment.

Like the other inherent aspects of experience, plasticity frames a problem for growth to resolve, namely, the problem of balancing the power to learn and the power to modify prior learning. The conflict arises from the fact that the very habit-forming power that makes learning possible is the same power which makes resistance to future learning possible. This forces any definition of growth to take into account the kind of habits formed, and their influence upon later habit-formation and

reconstruction. This is the sense in which the problem of plasticity is the source of the problem of continuity.

Without the formation of regular habits, there can be no "economical and effective control of the environment", no "ability to use natural conditions as means to ends" (p.46). But while habits may provide "powers so well established that their possessor always has them as resources when needed", they may also "mean that something has a fixed hold upon us, instead of our having a free hold upon things", they may lead to "ruts, routine ways, with loss of freshness, openmindedness, and originality" (p.48). Any growthful direction, then, must resolve this conflict by allowing for the formation of habits, but also providing for some kind of reconstructive check upon them. In Dewey's view, reflective reason and affective impulses combine forces to exert such a moderating influence upon habit.

3. Orthogenesis in Dewey's Examples of Growth

a. Overview

Dewey is cautious about the possibility of organizing all aspects of growth within one universal principle. He is concerned that such a principle would become some sort of Kantian formal imperative, disconnected from concrete experience. And yet, a universal principle of growth, although not a Kantian one, is at least partially articulated by Dewey, complete with warnings against reliance upon such a principle:

"Progress means increase of present meaning, which involves multiplication of sense distinctions as well as harmony, unification. This statement may, perhaps, be made generally, in application to the experience of humanity. If history shows progress it can hardly be found elsewhere than in this complication and extension of the significance found within experience. It is clear that such progress brings no surcease, no immunity from perplexity and trouble. If we wished to transmute this generalization into a categorical imperative we should say: 'So act as to increase the meaning of present experience'. But even then in order to get instruction about the concrete quality of such increased meaning we should have to run away from the law and study the needs and alternative possibilities lying within a unique and localized situation. The imperative, like everything absolute, is sterile. Till men give up the search for a general formula of progress they will not know where to look to find it" (1922, p.283).

The "multiplication of sense distinctions as well as harmony, unification" to which Dewey refers is identical to the notion of differentiation and complementary integration, i.e., the orthogenetic principle. Dewey expresses this principle tentatively because he does not wish to court the risk of limiting either its potential multilinearity or its contextual sensitivity. Nor does he wish to imply any ideal state which would close the door to further growth. Nonetheless, his examples of growth consistently demonstrate this principle at work.

b. Growth as Progressive Adaptation to Problems Within the Universal Context of Experience

I will summarize the orthogenetic qualities of what Dewey considers to be growth-responses to the universal experiential conditions of continuity, interaction, dependence, and plasticity:

i. In response to the fact of CONTINUITY (i.e., that each experience reflects the past and affects the future), Dewey sees growth as the increasing integrative co-ordination of diverse experiences. Experiences are growthful to the extent that they lead to continued and expanded growth. Taken in isolation, this is essentially an appeal to integration qua universality and self-consistency.

ii. In response to the fact of INTERACTION, Dewey sees growth in the increasing equilibration of organism and environment in a virtually Piagetian sense. This involves increasing de-centering and opening of the individual towards an increasingly differentiated (varied, extended, and articulated) environment, coupled with the increasing autonomy and co-ordinative power of the individual with respect to the environment.

iii. In response to the fact of DEPENDENCE (upon other people and nature), Dewey sees growth as an increasing interdependence wherein increasing autonomy is complemented by increasing awareness of, and responsiveness to, one's connectedness to others and nature. [15]

iv. In response to the fact of PLASTICITY (i.e., that habits possess both the power of self-modification and the power of resistance to modification), Dewey sees growth as an increasing co-ordination of increasingly varied and complex habits by an autonomous power of reconstruction (or "habit of growing").

Growthful habits confer both an autonomy-immunity gained from ease of execution and resistance to interference, and a de-centering-opening gained from a wider environment and more flexibility in the face of new conditions. The "stable-flexible" concept found in both Werner and Piaget comes to mind here.

c. Personality: Love, Will, and Thoughtfulness

Dewey's complex view of what constitutes growth in personality, or CHARACTER, may be succinctly expressed in terms of what he calls the virtues of LOVE, WILL, and THOUGHTFULNESS, which correspond to growth in feeling, action, and thought respectively (1908, pp.422-423).

In the idea of thoughtfulness, also expressed as REFLECTIVENESS, Dewey reiterates many of the qualities of cognitive orthogenesis previously examined in Werner, Piaget, and Kohlberg: a) consideration of an ever-larger environment of inner and outer consequences; b) differentiation and hierarchization of such considerations; c) de-centering from personal bias and other egocentric, sociocentric, or egoistic distortions; d) co-ordination of thought within general principles. In the idea of love, also expressed as SENSITIVENESS or SYMPATHY, Dewey expresses the affective side of thoughtfulness. For him, the affective side of increasing role-taking or perspectivism in growth is highly relevant, since it is our increasing affective sensitivity to others, and to objective considerations in general, which gives rise to our sense of the problematic, and engages our problem-solving

faculties. Love is an increasing opening and de-centering process, and an increasing integration of the object as a matter of sympathetic concern to the subject.

In the idea of will, also expressed as COURAGE or PERSISTENCE, Dewey captures the integration of thought and feeling within action, and the integration of the subject's internal state with the objective conditions through action. Will involves the co-ordinative power of the subject to act upon the products of his de-centered, far-ranging, and articulated thoughts and sympathies despite the obstacles of fear or ingrained prior habits. As with Piaget and Kohlberg, will functions as an affective-cognitive differentiation (de-centering) of the subject from those habits of thought and feeling which would otherwise impede action. [16]

As growth proceeds, love, will, and thoughtfulness are increasingly "harmonized" (integrated) within the subject's experience, but in a non-syncretic (differentiated) way, so that they operate harmoniously, yet exert a sort of check upon one another. For example, growth in reflection would provide autonomy from affective prejudice, while growth in sympathy would make one uneasy about rationalized prejudice (causing one to focus further reason upon it). Thought would be exercised to examine motives for action, and thus decrease self-deception by forming "the habit of reading 'motives' in the light of persistent, thorough, and minute attention to the consequences which flow

from them" (1908, p.258). On the other hand, will would be exercised to ensure that thoughts and feelings do in fact "regulate the overt acts" performed, since growth in character "means intelligent forethought of ends and resolute endeavor to achieve them" (pp.244-246). Dewey defines the thorough integration of love (sensitiveness) and thoughtfulness (reflectiveness) with will as "conscientiousness" or "wisdom" (p.418): "genuine moral knowledge involves the affection and the resolute will as well as the intelligence" (p.423).

Character growth, for Dewey, is growth in certain habits: "Wide sympathy, keen sensitiveness, persistence in the face of the disagreeable, balance of interests enabling us to undertake the work of analysis and decision intelligently" (1950, p.133). It also includes the growing ability to see the interactive implications of particular habits for growth in general.

d. Habits, Skills, and Interests

However, Dewey says it is not only possible but desirable to temporarily suppress these ethical considerations in growth, i.e., the relation of particular habits to the entirety of growth. We can in this case define growth within the formation of the particular habits, skills, and interests which manifest individual personality. [17] These include habits of thinking and learning, of artistic expression, of craft, of economic endeavor, and so on. Dewey appeals to orthogenetic criteria in defining what is growthful in such formation. With growth:

* Habits which affect behavior become more available to explicit control by consciousness, and thus more subject to reconstruction. This includes habits of thought and social organization determined by individual and social context, which may be taken for granted. Growth involves the power to examine all habits in terms of their contribution to growth. The growth-aim is to become increasingly autonomously de-centered from unconscious habits (1916, pp.19, 29) so that habits become increasingly INSTRUMENTAL, i.e., co-ordinated by the individual's larger purposes. The individual thus acquires "the possibility of release from submergence in the merely given" (1925, p.270).

* Habits (including skills and interests) increase their "active capacities to readjust activity to meet new conditions" (1916, p.52) while at the same time, they retain "executive skill, definiteness of interest, and specific objects of observation and thought". With growth, flexibility is not gained at the expense of articulation or concentration. Rather, "habit is formed in view of possible future changes and does not harden so readily. . . By a seeming paradox, increased power of forming habits means increased susceptibility, sensitiveness, responsiveness" (1925, p.281).

* Habits, skills, and interests increase their mutual "interpenetration", co-ordinated by the increasingly integrated character of the individual. They are organized so as to support one another, and not function at cross-purposes, or in an

"isolated compartmental" state (1922, in Gouinlock, p.101).

However, this is by no means done at the expense of the number, variety, or uniqueness (differentiation) of habits, skills, or interests, which also increase with growth (1925, pp.280-281).

Increase in both variety and interrelation is what distinguishes the growing individual from one who is becoming more

"pigeonholed" in his habits, or else subject to mere

"predetermined regularity" (1922, in Archambault, pp. 82-85).

Growth allows for "emergence of unexpected and unpredictable combinations" (1925, p.281).

* Artistic ability increasingly reflects both the artist's unique individuality and perspective (originality), and his power to communicate a vision which can be shared and appreciated socially. There is also growth in sheer skill, an increasing power of sensitivity to and control over the environment which would describe growth in any ability. But orthogenesis in artistic ability is distinguished simultaneously by its "manifestation of individuality" (in Bernstein, p.242), and by its power to communicate with, enlarge the experience of, and evoke the individuality of others, to "disclose the meaning of the individuality of others to those others" (p.243). For Dewey "Art is not the possession of the few who are recognized writers, painters, musicians; it is the authentic expression of any and all individuality" (ibid.).

e. Individual and Society

Dewey's notions about the relationship of the individual to society, and how this relationship defines what constitutes growth for both individual and society, are very similar to Piaget's. Like Piaget, Dewey does not harbor some fixed or reified notion of society as transcending individuality; society is nothing other than an association of communicating and interdependent individuals. On the other hand, just as society cannot be separated from individuality, individuality cannot be separated from society; like Piaget, Dewey maintains that "every actual self is a self which includes social relations and offices, both actual and potential" (1908, p.380). Without society, there can be no personality, no individuality.

The simultaneous existence of a person as both a unique individual and as a member of a social organization forms a problem in experience which it is the very function of the growth-process to resolve in a progressively adaptational way, a way which increasingly does away with the terms of the problem. The growth-path Dewey charts is virtually identical to Piaget's "two kinds of de-centering", a path which avoids both social conformity and egoism. Growth-paths, and the values which direct and regulate them, are judged by the degree to which they "release individual potentialities of desire and interest, and [do] so in a way that contributes to MUTUAL

REINFORCEMENT of the desires and interests of all members of a group" (1939, p.60, emphasis added).

This "release of individual potentialities of desire and interest" is essentially what Dewey defines as FREEDOM (See also 1922, pp.304-306). The "mutual reinforcement" of freedom within society is, however, a matter of social ORGANIZATION. Dewey recognizes that there are "seeming" conflicts between freedom and organization; his point is not to offer a fixed solution, but to outline both the terms of the problem and the general growth-direction in which resolutions ought to be sought:

"I have no desire to add another to the cheap and easy solutions which exist of the seeming conflict between freedom and organization. It is reasonably obvious that organization may become a hindrance to freedom; it does not take us far to say that the trouble lies not in organization but in over-organization...the relation of individual freedom to organization is seen to be an EXPERIMENTAL affair. It is not capable of being settled by abstract theory" (1922, p.307, emphasis added). [18]

Dewey makes it clear that growth for each individual and growth for society qua all individuals are mutually interdependent:

"It is true that the aim of education is development of individuals to the utmost of their potentialities. But this statement in isolation leaves unanswered the question as to what is the measure of the development.

A society of free individuals in which all, through their own work, contribute to the liberation and enrichment of the lives of others, is the only environment in which any individual can really grow normally to his full stature. An environment in which some are practically enslaved, degraded, limited, will always react to create conditions

that prevent the full development even of those who fancy they enjoy complete freedom for unhindered growth" (in Archambault, p.12).

Thus, growth is defined as that process which has the power to ensure the "mutual reinforcement" of growth among all individuals. Taken in the abstract, this leaves us again with the principle of universality or consistency, this time across all individuals rather than merely within each individual. Again, to reveal what kind of mutual reinforcement is growthful, we must resort to more specific examples. These examples turn out to be manifestations of the orthogenetic principle qua autonomous de-centering.

This means that for each individual, growth has two faces. Insofar as an individual grows out of egocentrism or egoism, he increasingly "forgets" himself, and concentrates upon how he can benefit others, both directly and terms of shaping the social organization:

"The acquisition of skills is not an end in itself. They are things to be put to use, and that use is their contribution to a common and shared life. They are intended, indeed, to make an individual more capable of self-support and of self-respecting independence. But unless this end is placed in the context of services rendered to others, skills gained will be put to an egoistic and selfish use, and may be employed as means of a trained shrewdness in which one person gets the better of others" (in Archambault, p.11, Cf. pp. 427, 430; 1908, p.394).

On the other hand, however, this concern for others is also de-centered from any fixed notion of social organization to which they must conform. It is thus imbued with the concern for

preserving and enhancing each person's autonomy: "regard for the happiness of others means regard for those conditions and objects which permit others freely to exercise their own powers from their own initiative, reflection, and choice" (1908, p.302, emphasis in original). Dewey's "ultimate and unified standard" for educational practice is "the extent and way in which a study brings the pupil to consciousness of his social environment, and confers upon him the ability to interpret his own powers from the standpoint of their possibilities in social use" (in Archambault, p.121, emphasis added). The individual is increasingly helped to free himself from narrow egoism by leading him to a concern for others, but is at the same time encouraged to create his own interpretation of how to best serve others.

Now, of course, a growing person remains concerned with preserving his own individuality, and with seeing that others learn to become more socially oriented. But it is precisely the hallmark of growth in the individual-society relationship that the individual is free to focus more upon his own de-centering because others are increasingly looking out for his autonomy, and he is more free to look out for others' autonomy because they are increasingly looking to their own de-centering.

Thus, with growth, individual and social aims "merge", but at a dialectically higher plane than the syncretic and rigid "submergence" of the individual into society found in primitive cultures as defined by Werner. The individual's need for

autonomy (individuality) is increasingly adopted by society, and the society's need for de-centering (social responsiveness) is increasingly adopted by the individual. The social organization is itself increasingly DEMOCRATIC, in that all individuals are expected to play a direct role in shaping the society through active communication and mutual agreement.

In a less developed (but still post-primitive) individual-society relationship, more concern on the part of each individual is directed towards safeguarding his own autonomy, and social organization is more directed towards getting people to behave according to a fixed social plan. Hence the conflict between individual and society. Dewey rejects paths of either increasing "individualism" or "statism" as solutions to this conflict. Both solutions are regressive, not progressive adaptations to the individual-society problem in that they reinforce, rather than overcome, its terms (1916, pp.91-98; 1908, pp.225-226).

With growth, by contrast, the individual, by focusing on social aims rather than purely egoistic aims, gains autonomy from the internal demands and insecurities of his own ego. Simultaneously, the society, by preserving individual autonomy, hence variation among socially equal individuals, reinforces the individual's efforts to overcome egoism or sociocentrism by exposing him to a plurality of perspectives and influences. Thus we arrive at the progressive "mutual reinforcement" that Dewey has in mind.

Such mutual reinforcement depends upon COMMUNICATION, CO-OPERATION, and SHARED EXPERIENCE as its medium. De-centering is not merely distant appreciation or tolerance for another's perspective, but an active willingness to engage in dialogue and mutual exploration of perspectives. Autonomy is not merely freedom to go off by oneself to do one's thing, but freedom from egoistic or sociocentric barriers against others, and freedom to form the greatest possible variety of associations.

Dewey, in this regard, presents two complementary criteria for defining growth for social groups within a society, as well as for entire societies themselves. These criteria are related to intra-group and inter-group integration and differentiation, respectively. The first criterion is the number and variety of interests in the group which are shared in common by members of the group. Dewey compares a band of thieves, in which the common interest is limited to that of the loot to be shared, with a family in which "there are material, intellectual, aesthetic interests in which all participate and [in which] the progress of one member has worth for the experience of other members". Similarly, in a "despotic state", the interests shared between ruler and ruled are few, whereas in a democratic state, they are many and varied.

The second criterion relates to the number of "varied and free points of contact with other modes of association", i.e., other groups. While the band of burglars acts in necessary secrecy, the

family is connected to all sorts of business, religious, political, etc. groups in which it takes an active part through shared interests with others. In a class-based society, members of one class share few interests with those of another, whereas in a more developed society, differences between varied ethnic or occupational groups do not prevent them from engaging in dialogue or having a number of interests in common (1916, pp.83-84). [19]

Notes

1. One may consider, however, that each new developmental advance brings with it a new set of problems which define the direction of the next advance. Thus the alienation of the individual from society which exists in more advanced cultures could be seen as a sort of "price" paid for development out of primitivity. Healing this rift without regression back to primitivity would become a problem to be solved by further development.
2. Werner does not pursue the notion of a higher level of development, transcending the exploitative and alienated relationship to nature which might be seen as the "price" of development out of primitivity.
3. Initials refer to articles by Kohlberg, most of which are included in The Philosophy of Moral Development (1981) and The Psychology of Moral Development (1984). In some cases (DAE, FITO) the page references are to earlier printings of the work, (see Bibliography) rather than those included in the abovementioned volumes. Here is the "code":

CD:	"Continuities and Discontinuities in Childhood and Adult Development" (1984)
CFT:	"Current Formulation of the Theory" (1984)
CP:	"Capital Punishment, Moral Development, and the Constitution" (1981)
DAE:	"Development as the Aim of Education" (1978)
DRC:	"Synopses and Detailed Replies to Critics" (1984)
FITO:	"From Is To Ought" (1971)
JR:	"Justice as Reversibility" (1981)
MJMA:	"The Relationship of Moral Judgement to Moral Action" (1984)
MSM:	"Moral Stages and Moralization" (1984)
QSS:	"Moral Development, Religious Thinking, and the Question of a Seventh Stage" (1981)
SS:	"Stage and Sequence" (1984)

4. Such recognition stems partially from Kohlberg's desire to "translate" his psychological theory into prescriptions for educational practice (DAE, p.129, CFT, p.275). He is eager to differentiate his theory from maturationist and associationist theories which purport to derive educational "oughts" from psychological "facts", thereby committing the "naturalistic fallacy". His aim is to develop an independent philosophical rationale for why educators should favor his psychology over others.
5. Kohlberg's statement that justice as a principle at higher developmental stages "takes precedence over law and other considerations, INCLUDING WELFARE (FITO, p.220, emphasis added) seems peculiar at first glance. After all, the concern ultimately behind the quest for thorough equality and reciprocity in human relations is not logical elegance, but giving each person his "due", which certainly implies each person's welfare. Kohlberg's use of the word "welfare", however, seems to refer more specifically to the utilitarian notion of "greatest good for the greatest number". His point is that at lower stages, an individual's rights might be sacrificed if this were thought to contribute to the welfare of a larger number of people (e.g., in the case of capital punishment). Higher (more reversible) stages of reciprocal role-taking would entail a more principled recognition of the individual's right to life no matter what "good" the individual's death might be held to produce for others (CP, pp.252-253, JR, pp.205-209).

6. In this respect Kohlberg distinguishes his moral theory from Piaget's. Piaget interprets the difference between co-operative relations among adolescent peers and their more authoritarian thinking about society as having to do with intergenerational constraint. He assumes social authoritarianism is an ongoing vestige of "Stage 1" thinking explained by the difference between peer and child-adult relations. Kohlberg, seeing such adolescent thinking as compatible with Stage 4, distinguishes its law-maintaining orientation from the Stage 1 law-obeying orientation (FITO, p.199). Stage 4 thinking, rather than being an internalization of societal or parental taboos, is a rational and constructive attempt to see oneself abstractly as a "member of society". Use of Stage 4 for resolving moral issues at the level of society would be presumably quite compatible with continued use of a co-operative Stage 3 ethic within concrete personal relations. The fact that in some cultures, adolescents respond towards their peers in one way and to adults in another is a "dimension... sensitive to a wide variety of cultural and subcultural influences which cannot be analyzed in rate-of-development terms" (SS, p.43).

7. Kohlberg emphasizes the more negative emotions in this account of motivational change within justice reasoning. One explanation for this is that Kohlberg wishes to demonstrate that it is cognition as distinct from affect that develops in moral development. The emotion of anxiety is thus held constant from stage 1 to stage 6, and development is shown to be a matter of that anxiety becoming cognitively associated with self-disapproval as opposed to physical punishment or social ostracism. Insofar as Kohlberg speaks of positive affective motives such as compassion or love, he tends to associate them with AGAPE as being elaborations upon justice rather than central elements of it. One positive affective motivation implied in Kohlberg's theory might be a love of rational order. It seems, however, that justice reasoning might be seen to develop with empathy rather than fear being chosen as the affective constant. Movement from fear-motivation to empathic-motivation, while not a moral movement in Kohlberg's narrow sense of the word, might be considered a dimension of psychological development with some bearing upon the moral domain.

8. Kohlberg makes it clear that his theory of justice reasoning is designed to be compatible with a hard structural stage model defined in terms of hierarchic integration of one structure by the next, invariant sequence, and structured "wholeness" (CFT, pp.237-238, 244-247). A sub-theory of intuitive moral types is not easily integrated into such a model, and I don't see where Kohlberg has made a systematic attempt to do this.

He does say that "moral action stems from responsible choice guided by an intuition of moral values and is not necessarily dependent on stage sophistication" (p.261). Only at Stages 5 and 6 does a "full, rational, and principled justification" for such action occur (ibid.). So one could perhaps say that moral intuition is an extra-rational force (although perhaps "cognitive" in the broad sense of the term) impinging upon moral judgement as a spur to reason, as well as a domain of development in its own right. The exact relations between the substage (or moral type) dimension and the "stage sophistication" dimension are not made clear. Nonetheless, one could at the very least conclude from Kohlberg's addition of the substage theory that moral education is not only a matter of leading students to move stage-wise, but also a matter of leading them from type A to type B at a potentially earlier age than one would expect them to reach Stages 5 or 6!

9. In his earlier work, Kohlberg claims that increasing agreement at higher stages is shown by his research: "The general claim that the higher the stage, the more the determination of content by structure, and the more agreement among people, is elaborated empirically" (JR, p.193). In his later work, he maintains that Stage 5 subjects agree more than Stage 4 subjects (CFT, pp.272-273). But he asserts, due to lack of empirical verification of Stage 6, that "we are in no position to claim the empirical psychological truth that there is substantive moral agreement reached at the terminus of moral development". Rather, moral agreement is held to be a "metaethical ideal" (ibid.).

10. Without crystalline differentiation of these two values, mere "agreement" or "conflict resolution" can be very scary as moral aims, or as justifications of moral adequacy. This is of course the whole point of dystopian novelists such as Huxley, Orwell, and Zamiatin, who portray worlds which achieve complete agreement at the expense of autonomy and critical doubt. Limiting putative moral discourse and agreement to "rationally moral" people (JR, p.193) does not, in my opinion, substitute for such differentiation.
11. Dewey uses the term "growth" as his descriptive term for the constant direction of desirable change or adaptation in human beings. In some works, Dewey uses the term "development" interchangeably with "growth" (e.g., 1916, Ch.4). In others, however, (in Bernstein, p.237), he uses "development" to refer to both good and bad adaptive change, presumably reserving "growth" to describe the progressive form of "development". Since I have defined "development" in this thesis as progressive (desirable) ontogenetic adaptation, and since Dewey does not consistently use it that way, I will confine myself, in this section, to the word "growth" to describe what elsewhere in the thesis is described equally as "growth" or "development".
12. One may ask to what degree one can make statements about the general workings of experience without these simply reflecting bias introduced by one or both of the first two levels, namely personal and/or cultural bias. Dewey's answer to this is that the only "correction of biases" to be had is "through acquaintance with the experience of others, contemporary and as recorded in the history of the race". The wider the scope of one's "sympathetic intercommunication" with people of different cultures and times, the better chance one has of overcoming egocentrism and sociocentrism in one's generalizations (in Bernstein, p.109).
13. Here, obviously, Dewey is stretching the word "growth" to include all kinds of change, so as to allow for "bad growth" as well as "good growth". This is a deviation from Dewey's usual use of the word as implying the desirable direction of change. It doesn't affect his point, and should be overlooked.

14. Dewey implies that the criteria of universality and consistency as a response to the fact of experiential continuity relieves us of the need to "specify the direction in which growth takes place" (1938a, p.36). This is a puzzling implication, for here Dewey's apparent desire to avoid any principled generalization of the direction of growth leaves him in effect defining growth in terms of even more abstract notions. Elsewhere, Dewey explicitly rejects mere universality and self-consistency as sufficient to define an ethically acceptable direction of change (1908, pp.316-317).

The fact is that Dewey does repeatedly "specify the direction in which growth takes place", through very concrete examples. Without direct reference to these examples and their consequences, Dewey would not entertain for a moment the abstract idea that growth can be defined solely in terms of its tendency to "create conditions for further growth" (1938a, p.36), although he would deem this a necessary criterion.

My interpretation, drawn from the wider context of his ideas, would be that continuity is only a partial (necessary but not sufficient) description of the context of experience. Therefore, increasing universality and consistency, as a response to the problem posed by continuity, is only a partial description of growth. To render it complete, it must be complemented by responses to the other aspects of the experiential context: interaction, dependence, and plasticity.

15. See Colwell (1985) for an interpretation and thorough review of Dewey's sensitivity to modern "ecological" concerns, especially humanity's interdependence and interconnectedness with the global environment.

16. With respect to the role played by fear in character development, it is important to contrast Dewey's theory with the Piaget-Kohlberg approach. Because Piaget and Kohlberg focus exclusively upon the cognitive side of development, affective factors are held constant; there is no idea of affective growth per se. All that matters is growth in the cognitive structures to which the affective "energies" are attached. Thus for Piaget and Kohlberg there is no need to overcome fear as a central motivating force. Rather, it is sufficient for the cognitive object of the fear to change: from fear of authority, to fear of the opinions of peers, and finally to fear of losing one's own self-respect.

For Dewey, as a person grows, he replaces motivation by fear, no matter what its object, with motivation by sympathetic appreciation of the needs of the situation: "it is necessary that the child should gradually grow out of this relatively external motive, into an appreciation of the social value of what he has to do for its own sake, and because of its relations to life as a whole" (in Archambault, p.119). Dewey is aware that "Fear is a motive which is almost sure to enter in - not necessarily physical fear, or of punishment, but fear of losing the approbation of others" (ibid.). But growth out of fear is necessary if one is to "shift the center of ethical gravity from an absorption which is selfish to a service which is social" (p.120). Movement from fear-motivation to empathy-motivation thus seems to be an affective de-centering to complement the cognitive de-centering stressed by Piaget and Kohlberg. For Dewey, the growth of both affect and cognition are mutually dependent and reinforcing.

Dewey recognizes that a shift in the cognitive object to which fear is attached makes a developmental difference: "...fear need not be an undesirable factor in experience. Caution, circumspection, prudence, desire to foresee future events so as to avert what is harmful, these desirable traits are as much a product of calling the impulse of fear into play as is cowardice and abject submission" (1916, p.84). But in this case, fear is checked not only by cognition but by other affective impulses as well, so that "the appeal to fear is [not] isolated" (ibid., emphasis in original).

Kohlberg's "Stage 6" reasoner, motivated purely by a fear of falling in his own opinion of himself if he were to violate his self-chosen universal principles, would be seen by Dewey to be suffering from a flaw in ethical character. Dewey would

say that only sympathy as a motivation is going to lead this person to obtain the "moral knowledge" he needs to make adequate intellectual judgements:

"Sympathy widens our interest in consequences and leads us to take into account such results as affect the welfare of others; it aids us to count and weigh these consequences as counting for as much as those which touch our own honor, purse, or power... Sympathy, in short, is the general principle of moral knowledge, not because its commands take precedence of others (which they do not necessarily), but because it furnishes the most reliable and efficacious intellectual standpoint" (1908, pp.334-335, emphasis in original).

17. The following quote explains Dewey's position on this point more fully:

"It is not necessary nor advisable to be always considering the interaction of habits with one another, that is to say the effect of a particular habit upon character - which is a name for the total interaction. Such consideration distracts attention from the problem of building up an effective habit. A man who is learning French, or chess-playing or engineering has his hands full with his particular occupation. He would be confused and hampered by constant inquiry into its effect upon character. He would resemble the centipede who by trying to think of the movement of each leg in relation to all the others was rendered unable to travel. At any given time, certain habits must be taken for granted as a matter of course. Their operation is not a matter of moral judgement. They are treated as technical, recreational, professional, hygienic, or economic or esthetic rather than moral. To lug in morals, or ulterior effect on character at every point, is to cultivate moral valetudinarianism or priggish posing. Nevertheless any act, even that one which passes ordinarily as trivial, may entail such consequences for habit and character as upon occasion to require judgement from the standpoint of the whole body of conduct. It then comes under moral scrutiny. To know when to leave acts without distinctive moral judgement and when to subject them to it is itself a large factor in morality. The serious matter is that this relative pragmatic, or intellectual, distinction between the moral and non-moral, has been solidified into a fixed and absolute distinction, so that some acts are popularly regarded as forever within and others forever without the moral domain. From this fatal error recognition of the relations of one habit to others preserves us. For it makes us see that character is the name given to the working interaction of habits, and that the cumulative effect of insensible modifications worked by a particular habit in the body of preferences may at any moment require attention" (1922, pp.39-40).

18. It is an error to think, as have critics such as Callan (1982), that Dewey harbors some fixed notion of "democracy" as an ideal society to which individuals would conform in order to obtain a fixed and compromised measure of "freedom". As Callan points out, the danger in such a fixed view is that unpredictable eccentricities of individuality which threatened the ideal balance might be subject to a social disapproval as inhibiting as more egregious forms of oppression. It is

precisely in order to safeguard the continuously reconstructive nature of individual interests that Dewey rejects the temptation to erect such a fixed notion of democratic society.

19. Now obviously Dewey does not think that organized crime is better than isolated crime because of its wider network of connections. To the extent that this might be construed from the paragraphs cited, it is yet another example of the dangers of interpreting Dewey out of context. Dewey has a habit of setting forth general criteria for growth as if they were sufficient unto themselves. I think this is because he takes it so fully for granted that they are not, that they presuppose certain ideas such as, for example, those related to growth in "character".

One cannot rely upon his criterion of growth as what "conduces to further growth" without reference to additional criteria which specify the direction of growthful subject-object interaction. One cannot rely upon his criterion of growth as what is "mutually reinforcing" between individual and society without reference to additional criteria which specify the direction of growthful individual-society interaction. Similarly, one cannot rely upon his criteria of the number and variety of interests within or between groups without reference to additional criteria which specify the growthful direction of such interests.

CHAPTER III

JUSTIFICATION FOR ORTHOGENESIS AS A DEFINITION OF GROWTH OR DEVELOPMENT

A. Introduction

To re-state the definition given in Chapter 1, orthogenesis is a direction of change in the organism with respect to its environment. This direction is characterized by increasing integration with complementary differentiation. Integration-differentiation comprises three pairs of complementary qualities. The first is increasing DISTINGUISHING of elements with an accompanying CO-ORDINATION of the elements distinguished. Piano technique develops as harmonies and fingerings emerge from an undifferentiated spread of fingers and keys. At the same time, each fingering constitutes a pattern co-ordinated for the purpose of getting from one place to another on the keyboard. The ability to distinguish between two notes in a trill depends upon the ability to co-ordinate them to produce the trill sound. Likewise, there can be no co-ordination of the trill without a crisp distinction between the two notes.

At the minute scale involved in the development of a trill, it is easy to see how distinguishing and co-ordination are interdependent. On a larger scale, such as the playing of a composition, it may appear as though development see-saws

between distinguishing and co-ordination. Thus we alternate drill, which isolates elements of technique, with interpretation, which brings the whole piece together. But on this scale as well, there can be no growth until co-ordination and distinguishing go hand-in-hand. Every growthful distinction relies upon some co-ordinative scheme. Exercises are growthful only as they contribute to the playing of the piece. Fingering drills are developed with the demands of compositions in mind.

Distinguishing is thus advanced by virtue of a co-ordinating context; lack of co-ordination stifles the ability to make distinctions.

At the same time, the growth of co-ordination reflects an increasing distinguishing of elements. Interpretation involves co-ordinating distinctions in rhythm, dynamics, tempo, accent, and so on. This includes the distinction between a lifeless sequence of techniques, however precise, and a flowing drama of phrases. To stress interpretation is not to muddle distinctions of technique. It is rather to make even finer and more subtle distinctions, and co-ordinate them more carefully. Without such distinctions, attempts to play the piece as a "whole" will result in bad playing. In the effort to play a piece well, we may emphasize drill when fingering is sloppy. Or we may emphasize playing the piece straight through, mistakes and all, if we need to get the "feel" of it. We achieve good playing, however, only when interpretation and technique are mutually reinforcing.

Where growth is thwarted, failure to distinguish and failure to co-ordinate coincide. A racist appears to distinguish between people: blacks are different from whites. But he fails to see all blacks and whites as individuals sharing the common right to have their individuality respected. Because he lacks any co-ordinating notion of equality or individuality, he actually fails to make essential distinctions between persons; to him, all blacks are the same. Personality and skin color are not distinguished, nor are they co-ordinated. They are syncretically fused, confounded. As skin color changes, so does personality.

The paired qualities of DE-CENTERING and AUTONOMY distinguish development from this kind of error. To de-center is to gain greater objectivity. It is to assess the objective world more fully and truthfully because of a freedom gained from subjective distortion. Such distortion may be caused by our sensori-motor equipment, as in the case of optical illusions. Or it may be caused by cognitive immaturity, as in the case of the infant who cannot conceive of a toy's existence independently of his ability to see or grasp it. It may be caused by emotional bias and social conditioning, as in the case of the racist whose sense of security is attached to a belief in racial superiority. Or it may simply be the result of insufficient information, or a failure to think things through thoroughly, as when a theory is proved wrong through the discovery of new facts.

With every act of de-centering, there is a corresponding autonomy gained. One becomes free from habits, thoughts, feelings, external forces, and beliefs which constrain choice along fixed lines while isolating it from the objective world. One becomes free to respond fully to the objective requirements of a situation, whatever these may be. De-centering allows a person to perceive what these requirements are more accurately. One is not swayed by authority, fixed social roles, emotions, or habitual inclinations where these are irrelevant. One partakes in a political demonstration because one concludes that the cause is just, not to enhance one's prestige in the eyes of friends. De-centering confers the ability to look at matters from a variety of viewpoints, and to co-ordinate these views instead of seizing upon just one. When the white man takes the viewpoint of a black person, when he understands the history of racist beliefs, when he detaches his anger from its misplaced object, he overcomes his racism. By virtue of his de-centering, he is free to respond to the real individuality of black human beings.

Development is stymied when an apparent but false "de-centering" takes place without a corresponding gain in autonomy. A teenager may slavishly adopt the musical tastes of his peers without ever considering his own. Development occurs when he can distinguish his tastes from those of his friends, remain sensitive to both, and choose freely based upon his wider appreciation. His choice is then uncorrupted by matters having

nothing to do with music, such as a need to conform. Conversely, there is no growth when an apparent but false "autonomy" is devoid of any corresponding de-centering. By doing as one pleases without regard for the feelings of others or long-term consequences, one closes out the environment, and identifies with a narrow and fleeting set of desires and habits. One is in effect held in thrall by one's internal environment.

With development, the individual exerts increasing power over his environment through the purposeful co-ordination of finer and more varied elements. At the same time, the exercise of such power is liberated from subjective attachments which defeat the needs of the situation as objectively determined. Thus a politician distinguishes and co-ordinates various abilities to wage a successful campaign: he gauges the popular mood, articulates ideas, and stirs people emotionally. His aim is not, however, to seek egoistic glory or dominate others. It is rather to evoke enough common sentiment among people so that their will may be mobilized to effect positive change in the society. An artist co-ordinates technical skill with knowledge of the human condition and the history of art to produce an original work. This work achieves an independence from artistic habits of the past, yet it speaks out clearly in a moving language beyond words. Despite its unique and autonomous individuality, the artwork communicates in a way that all can understand. The mountain climber, through a co-ordination of will and muscle, attains the peak. To

do so, he must gain autonomy from feelings of fear and thoughts of failure, while merging his concentration with every contour of the rock face.

The overall effect of increasing co-ordination with distinguishing, and autonomy with de-centering, is to bestow an IMMUNITY from the environment (internal as well as external) alongside an OPENING to it. Immunity and opening are the third pair of complementary qualities. The politician is thoroughly open to all kinds of opinions. He is sensitive to his need for adequate food and rest. He is aware of the morale of his staff. Yet he is able to choose and co-ordinate his responses to the environment according to his most de-centered and far-reaching goals only. He is immune to the catcalls of reporters; he smiles graciously. He is immune to fatigue from repetition; he gives a speech with genuine passion even though he is giving it for the hundredth time. He is immune to pressure from narrow constituencies; he keeps the general welfare in mind. His immunity is not gained by ignoring the environment or walling it off. Rather, it is gained by virtue of an openness to whatever the environment presents. Out of this openness, he distinguishes egoistic and self-defeating goals from goals which, if achieved, would really solve problems for all the people. He then remains immune to the former while autonomously choosing the latter.

Within development, immunity reinforces opening. Because the mountaineer is not pulled around by his fear, he can expose

himself to danger. He does not, however, ignore his fear. Rather, he uses it to keep him alert and prudent on the climb. Because he is not controlled by his fear, he can remain open to it.

Likewise, opening reinforces immunity. Those who study history expand their environment to include the recorded past. They thus become immune to the belief that dictators stay in power for ever, and that there is no use in trying to unseat them. To overcome ignorance is to open oneself to what is actually so, while knowledge of the truth renders one immune to falsehood.

An apparent but false immunity gained at the expense of opening is not growthful. To be "immune" to the suffering of others is actually to be at the mercy of one's egocentrism, laziness, and unwarranted beliefs: "it's not my problem", "there's nothing I can do", "the poor will always be with us". On the other hand, attempts at "opening" without corresponding immunity disintegrate the organism. One may well sink rather than swim. We do not hurry to expose young children to knowledge of all the evils of the world when we can avoid it. We know that this will not be growthful for them, since they have no commensurate ability to master their anxiety or exert influence upon the world. They may succumb to fear, losing all power to deal with the world by co-ordinating emotion and thought. Or they may try to protect themselves by reducing their sensitivity to others. Growthful opening takes place without loss of internal co-ordination or external sensitivity.

Co-ordination with distinguishing, autonomy with de-centering, immunity with opening: each pair is indivisible within development. It is not as though we stress autonomy sometimes, and de-centering at other times. Each true de-centering brings a corresponding autonomy, and vice versa. Also, all three pairs merge within actual development. Thus autonomous de-centering is achieved by virtue of co-ordination and distinguishing. De-centering from a selfish view to take the role of another leads to an autonomous judgement based on the claims of both persons. Such judgement involves the ability to distinguish the two views while co-ordinating them within a larger purpose, that of justice or compassion. The growing person opens himself to the other person's claims as well as his own; at the same time, he remains immune to the dictation of his acts by his own selfishness or by outside authority. The term integration represents the combined qualities of co-ordination, autonomy, and immunity; the term differentiation represents the combined qualities of distinguishing, de-centering, and opening. All true development is characterized by complementary and mutually reinforcing integration and differentiation, captured by the term orthogenesis.

The orthogenetic principle can be used to help assess whether proposed pathways of change meet the developmental criteria outlined above. It thus serves as a negative check upon actions which would decrease a person's autonomy, narrow his sphere of interactions, or reinforce his egocentrism. From the

principle, we can also infer criteria for the kind of inquiry into individual situations which will lead us to judge the most growthful response to that situation. Inquiry which is itself developmental must seek to distinguish and bring into awareness the widest and most subtle variety of factors influencing the situation. Thus a war between two nations may have to do with the personalities of the leaders, mistaken beliefs, economic conditions, religious differences, and specific acts of hostility. Inquiry must appeal to some co-ordinating idea or purpose to differentiate those matters which are essential from those which are not. Thus if we seek the security and prosperity of the nation, we can see that the lives of tens of thousands of young people may be more essential than the possession of a few square miles of territory. To be thorough and inclusive, inquiry must be objective, de-centered. Otherwise one party to the war may list all the wrongs committed by the other side, while ignoring or justifying its own. Inquiry must throw itself open to the objective situation while remaining immune to anything that would sway it off course or cause it to stop short. (The criteria for growthful inquiry aimed at judging what constitutes development in a given situation are outlined further in Chapter IV below.)

This, however, is as far as the principle will take us. The web of forces, interactions, probabilities, and outright unknowns involved in human ontogenesis is virtually infinite. Thus the orthogenetic principle can be a controlling guide to evaluative

inquiry, but not a pre-emptive route to its conclusion. The principle will not tell us in advance of inquiry into a particular and unique situation what the most growthful thing to do in that situation will be. It is a constraining framework for thorough and objective inquiry as the basis for a judgement which reflects the unique qualities of the situation-in-context. It can never substitute for such judgement.

Orthogenesis describes only the most general criteria which all developmental changes must meet. To know anything more about what would constitute development for a particular person demands a thorough and objective examination of the person's situation-in-context. To see why this is so, let us recall Dewey's three contexts within which all experience must be understood (Ch.II, Sec.D1 above). The most particular context is the unique personal history of the individual. This history occurs within a sociohistorical context which includes not only the influence of the society and time to which the individual belongs, but the influence upon these of societies and historical periods to which he does not belong. At the most universal level, there is the structure of human experience itself. Orthogenesis, as an abstract principle, is on a par of generality with this most "inclusive and pervasive context" (Dewey, 1960, p.110). It speaks to the problems inherent in the basic structure of human experience. Knowledge of such problems, and their most general solution, aids us to identify the problems of particular individuals in particular

situations, to see them as examples of a general case. But we cannot know in advance how these conflicts will manifest themselves. Therefore we cannot suggest solutions in the absence of the most exhaustive analysis of the problematic situation. Such analysis would need to take all three contexts into account.

Since the correct application of the orthogenetic principle depends upon thorough and objective inquiry into situations, it depends upon the ability and willingness of the user to engage in such inquiry. Also, the principle requires the judger to hold simultaneously in the mind bi-polar qualities which are at first glance opposed to one another. Thus, as with any principle, its correct use depends upon the developmental level of the user. Kohlberg gives the example of trying to teach the Golden Rule to Stage 2 subjects only to have them translate it as "do unto others what they do unto you". In applying the orthogenetic principle, pitfalls of this sort abound.

For example, one must simultaneously hold an idea of increasing power over one's environment, and of increasing responsiveness to the needs and views of others even in the face of one's initial inclinations. Now, a pre-operational child has trouble co-ordinating changes in both the length and thickness of a stretching piece of clay. He therefore tends to "center" on one or the other (See Ch.II, Sec.B2b above). The orthogenetic principle likewise challenges formal operational thinkers to co-ordinate two seemingly opposite ideas at once. Why might it not be

"development" to turn a jungle into a superhighway? Aren't we exercising greater control over our environment, and opening up new vistas to the Coca-Cola Company? Why might it not be "development" to unify our country totally behind a single fearless leader, putting aside our personal desires in the service of the higher purpose of the state? Aren't we co-ordinating our efforts, and becoming less selfish?

The first example "centers" on the idea of expanding one's environment. It does not co-ordinate this idea with a de-centered sensitivity to environmental consequences, or to the effect of changes imposed upon indigenous peoples. The second example "centers" upon unification of purpose, detachment from selfish wants, and the taking up of another's views as one's own. But it does this at the expense of autonomy from external domination, detachment from the need for conformity, and variety (differentiation) in the social order. To use the principle correctly, the judger must overcome a tendency to center upon one quality while excluding its paired complement.

B. Genetic-Functional Justification for the Orthogenetic Principle

1. What Genetic-Functional Justification Entails

To justify something genetic-functionally is to show that it functions to resolve a problem. This problem is the origin (genesis) of valuing in that context. According to Dewey's theory of valuation, the act of valuing arises out of our perception of

some need, conflict, or problem, and our desire for means of resolving it. Dewey argues that such desires OUGHT to be evaluated in terms of the degree to which they IN FACT do away with the problem qua problem. A desire which tends to eliminate a problem at its source, which transcends or nullifies its very substance, is held to be more desirable, i.e., more of a value, than one which tends to reinforce, deny, reshuffle, or merely compensate for the problem which generated it in the first place. (1939, pp.34, 46-48).

Thus in Kohlberg's theory, the origin of the domain of justice valuation is social conflict. Justice reasoning stages are more "adequate" according to the degree that they resolve social conflict by means of a universally applied system of mutual role-taking. When each person in a situation takes up the role or viewpoint of another as if it were his own, this gets to the bottom of the source of the conflict. Whatever the substance of the conflict is about, mutual role-taking creates conditions for a stable and satisfying resolution. To the extent that Kohlberg implicitly justifies his stages as representing a hierarchy of "moral" adequacy on these grounds, he employs a genetic-functional justification.

If we see valuing as an adaptation, then systematic mutual role-taking is a more PROGRESSIVE adaptation to social conflict than arbitration, or sulking, or fighting it out. Arbitration adapts to the conflict by submitting it to mutually recognized authority,

which is more progressive (better) than sulking or fighting it out, but which still leaves the terms of the conflict in place. Sulking adapts to the conflict by nursing one's emotional hurt, but by doing nothing to address the conflict. It might thus be termed a more STATIC adaptation. Fighting it out reinforces the conflict (except perhaps where this is a limited and mutually respected ritual form of arbitration) and sets the stage for revenge and escalation. It is thus the most REGRESSIVE of adaptations to social conflict.

In this section, I will justify orthogenesis as a definition of development using genetic-functional criteria. To do this, I will pinpoint the most fundamental problem in the human condition out of which the very notion of development as a value arises. I will show that without this problem, no meaningful idea of human development could arise. I will then show how orthogenesis functions as the uniquely progressive adaptation to this core problem.

2. Requirements of the Problem

The critical step in the inquiry is the framing of the problem. It is an easy matter to justify any solution if the true nature of the problem is left unquestioned. If we accept Iran's contention that the source of all conflict between Iran and Iraq is Hussein, the Iraqi head of state, then it is easy to justify Iran's proposed solution: Hussein's removal from office. The best way to

refute a solution is to show that the situation it purports to resolve is not really the problem at all. Thus we can point to other factors in the Iran-Iraq conflict that would not be resolved by Hussein's removal from office: lack of tolerance for racial and religious differences, historical enmity, dispute over control of the Tigris and Euphrates river mouths, and so forth. Iran's framing of the problem is inadequate because it fails to include everything that is essential to the conflict. If we adopted the solution implied by the problem thus framed, we would still have the conflict on our hands.

Problems are adequately framed only when they meet the criteria of INCLUSIVITY and ESSENTIALITY. These criteria refer to the totality of our experience of a problem-in-context, what Dewey calls an "unsettled situation" (1938, p.106). An interpretation of a problem cannot be correct if it cannot include everything that is relevant to, or generating, the actual conflict. If my car still won't start after the battery has been replaced, then the problem is not only the battery; it may be the starter as well. Also, problems are not correctly framed if they cannot exclude what is not essential to the conflict; perhaps the battery was fine in the first place. The first step in justifying a solution is to show that one has framed an inclusive and essential problem. Only such a problem can generate a progressive solution, one that really does away with the source of whatever is unsettled, lacking, or in conflict about the situation.

My definition of that problem to which orthogenesis is the progressive solution is not held to be a raw empirical discovery. It is rather a deliberate interpretation of the facts. This means that my definition of the problem openly invites scrutiny and possible refutation. If this is understood, then it shouldn't matter that the solution seems foreordained once the problem is defined. Once I have really put my car through all possible tests, and determined that it is the starter and only the starter that is the problem, I can replace the starter without further ado. Nevertheless, I must submit both problem and solution to the final test of the open road.

In order to be inclusive and essential, a problem must distinguish correctly between those aspects of a situation which are CHANGEABLE (i.e., subject to regulation) and those which are GIVEN (i.e., not subject to regulation). Any problem, to be a problem, must present both kinds of aspects.

The GIVEN conditions are the problem's context. They are frequently left in the background and taken for granted when a problem is framed. In the problem "Joe's roof leaks when it rains", one given is that Joe requires shelter from the elements. Sometimes what we think are given conditions are in fact changable. Joe's problem, framed as "the drip bucket is overflowing", takes the very thing for granted, namely the leaky roof, that can and should be fixed. But without some givens, there is no selection of desire, attention, or effort; one aims to

change everything at random. Instead of a problem, there is a diffuse uneasiness, or a "complete panic", leading to "blind and wild overt activities" (Dewey, 1938, p.105). Without givens, there are no constraints upon the situation. A problem cannot arise, since there is nothing for it to push against, so to speak.

The given conditions explain a problem's history insofar as they represent adaptations to prior conflicts. In the problem of Joe's leaky roof, the roof is such a given. At one point, Joe had the problem of getting shelter; the solution was to move into a house with a roof. Now, however, there is something about the roof that is insufficient, problematic: it leaks. Two things make the leak a genuine problem. First, it is at odds with Joe's need to keep dry. It thus defeats the very function of the roof. Second, Joe can do something about the leak: he can fix it. The leak is the changeable aspect of the situation.

To qualify as the core of a problem, a condition must be changeable as well as lacking. If Joe couldn't do anything about the leak, then it would behoove him to frame the problem around something he could do something about. Once we have interpreted every conceivable aspect of a situation as an immutable given, we have eliminated the possibility of framing a problem just as surely as if we had allowed for no givens at all. It becomes impossible to envision any solution that is not simply a fantasy. As Dewey says, "Statement of a problematic situation in terms of a problem has no meaning save as the problem

instituted has, in the very terms of its statement, reference to a possible solution" (1938, p.108).

To have a problem, we must have a set of conditions which is changeable and a set of conditions which is given. The changeable conditions are the focus of the problem; the given conditions are its immediate context. It is with respect to the given conditions that the changeable conditions are unsettled, lacking, in conflict. The leak is only meaningful as a problem when seen within the context of the roof, and Joe's need to stay dry. [1]

For a problem to be inclusively and essentially framed, the changeable set of conditions must require regulation if the conflict is to cease. If the leak fixed itself, then no problem would arise. If Joe could conveniently stay dry without fixing the leak, then the leak would not be the essential problem. Further, the regulation of those conditions must be sufficient to resolve the conflict. If Joe's whole roof is falling apart, fixing one leak won't do much good.

Framing a problem inclusively and essentially also requires accuracy in distinguishing what is subject to regulation from what isn't. Taking what is given in a situation to be changeable leads to useless complaint and wishfulness, or misdirected effort. By contrast, taking what may be changeable in a situation as given, especially if this coincides with (or consists of) our own

desires and outlook on the situation, leads to complacency or unimaginative approaches to conflicts.

Now in everyday problem-solving, things are relatively given or changeable. Deciding what conditions will play the role of the fixed and which the role of the fixable is the essence of creative judgement. Some problem-solution complexes will be more inclusive and essential than others, and so do a better job of doing away with conflict. Joe may accept the leak as a given, and buy a drip bucket so large that it takes up half the room. Or he may see the whole roof as the thing to change, and replace it entirely at great expense. The first idea swaps one annoyance for another equally as bad; moreover, the room will still be damp. The second idea does more than is necessary, adding a non-essential strain on Joe's finances. As adaptations, they are not as progressive as simply fixing the leak. Nevertheless, in many situations, there may be a variety of ways in which problem-solution complexes can be framed with comparably good results.

To frame that problem-solution which defines human development, however, is a far more general matter, and therefore a less flexible one. Unlike Joe's roof, what is held to be given must be truly irremovable. If it were potentially changeable, no matter what the effort involved, this would mean that the definition unduly limited the true scope of human development. It would ask human beings to take for granted the very things they ought to dream of transcending. It would

exclude real possibilities for growth, while including, as essential constraints, factors which were either changeable or irrelevant. It would thus fail to meet the criteria of inclusivity and essentiality.

The conditions held to be both lacking and changeable must be just as inclusive and essential. They must be truly changeable, or else the definition of growth will be tinged with fantasy, including non-essential matters about which we can do nothing. It must be essential that we change those particular conditions in order to uproot conflict, and changing them must be sufficient to do so. Otherwise the definition will exclude possible solutions which are equally growthful, or even necessary for growth. Finally, in order to change, the conditions must require human intervention. If such change is inevitable, then we have not defined growth as a value at all.

3. The Problem of Human Development

Let us first examine the context of the problem: the given conditions. On the broadest scale, all human beings must adapt to two cosmic laws. One is the law of ceaseless CHANGE in environmental conditions. From the molecular level to the galactic, things are in a state of constant transformation. Some things last longer than others; the life of a human being is short compared to the life of a civilization, or a star. But even a star is

changing from moment to moment in small ways which will eventually add up to produce larger and more dramatic changes.

The other law is that of the organism's DEPENDENCE upon environmental conditions. Air enters our lungs to make breathing possible. Language enters from our culture to make thought and speech possible. We are bombarded by ultraviolet light and by countless microorganisms. If these exceed certain limits, we perish. We are also awash in a sea of images, assumptions, and expectations held by those around us. Without these, we could hardly fashion any frame of reference for our own ideas and feelings. We have evolved in interactive concert with specific conditions of gravity and climate. If we are to venture into space for long periods, we shall depend upon an artificial environment to simulate those conditions.

The law of change and the law of dependence are sublimely indifferent to human endeavor or human constructions. We may struggle to stave off change, but it comes anyway. We may succeed to some extent in decreasing our dependence upon nature only to increase our dependence upon technology and social harmony. People can think or imagine what they will; the law of change and the law of dependence operate nonetheless.

For any living organism, human or non-human, to exist, it must adapt to these two laws. Life is possible only when it solves the problem of how to maintain a stable, distinct, and self-regulating organization given the reality of change and

dependence. Life cannot sustain itself if it succumbs completely to the random alterations and penetrations of the cosmos. It must maintain some kind of ongoing integrity. On the other hand, it cannot sustain a state of FIXITY or ISOLATION. Isolation is impossible given dependence upon the environment. Since this environment changes, the organism must find some way to roll with the punches, so to speak, without being knocked out.

The most general form of this adaptation is the same for all life. Life adapts to change and dependence by evolving some sort of mechanism for CONTINUITY and INTERACTION. This is the progressively adaptive solution to what might be called "the problem of life". Continuity allows for change. It provides, however, a compensating power to repeat, from one moment to the next, whatever it takes to maintain organization in the face of change. The pupil of the eye expands and contracts according to the amount of light present, thus ensuring a constant range of light necessary for seeing and undamaging to the retina. Instinct permits a bird to find its winter quarters each year despite changing weather or the passage of time. Interaction allows for dependence upon the environment. But it compensates by exerting its own constructive influence upon the environment, thus shaping the terms of that dependence. Thus the human eye and the avian instinct have rules of their own. When light is dim, the pupil alters its environment by expanding. When winter comes, the robin alters its environment by flying south; when

spring comes, it alters its environment by building a nest.

Continuity and interaction embrace change and dependence, but within an organized system rather than a random, entropic one.

Like change and dependence, continuity and interaction are given conditions with respect to the problem of human development. How they manifest themselves may be subject to change, but that they manifest themselves in some way is not. A human being (or a frog, or a geranium) cannot even begin to exist unless he interacts with the changing environment in such a way as to assure continuity of his essential functions.

Continuity and interaction represent a prior adaptation to change and dependence, one that makes life itself possible.

As organisms evolve phylogenetically, their mechanisms for ensuring continuity and interaction become more complex.

Compared to the amoeba, the bird continues a wider variety of functions in the face of a wider and more varied environment.

Evolution extends the organism's means for maintaining life in a changing environment upon which it depends. At the same time,

it multiplies the frequency and variety of changes and

dependencies. Human beings have evolved distinct and highly sophisticated ways of ensuring continuity and interaction. In a

practical sense (as opposed to an absolute or theological sense),

these qualities define what it is to be human. They are the

attributes of PLASTICITY and COMMUNICATION.

As defined earlier (Ch.II, Sec.D2biv above), plasticity is the power to form alterable habits. Habits of thought, feeling, or action operate with varying degrees of conscious effort. In many cases they function with no conscious effort at all. This leaves consciousness free to deal with what is most in flux without sacrificing an underlying continuity or stability. For example, while giving a speech, one can concentrate on the reaction of the audience without worrying about how to pronounce words.

What distinguishes human plasticity is the extent of its power to alter, redirect, or create habits, again with varying degrees of conscious effort. Instead of being locked in by instinct, humans can consider the consequences of their habits, and change them so as to produce new consequences. Humans form habits initially in response to certain conditions. If there is a change in any aspect of the conditions prompting and maintaining the habit, the habit can likewise be changed to suit. We do not pollute the earth out of some blind irrevocable urge. We do it because we have not yet taken the consequences seriously enough to propel us to change our ways. It might take a great effort to change, and we might not do it, but we have the potential to do it. Because of plasticity, LEARNING plays the dominant role in human change.

Within human communication, sensori-motor powers are augmented by and integrated with the power to form symbols and images. This gives rise to thought, language, and

imagination. It permits flexible social co-operation, unlike the pre-programmed social patterns of bees or geese. Planning, organization, and technology become possible, leading to increased mastery over the environment. Ideas and symbols co-ordinate both the internal environment of impulses, desires, and habits, as well as the external social and physical environment.

Communication has an affective as well as a cognitive side. It includes an extended power of empathy as well as an emotional need for complex interactions with others. Communication enables us to observe and test the environment so that our thoughts about it can conform more closely to what is actually so. Like plasticity, communication yields potential. We may fail to listen to others, we may fail to envision the future, or we may fail to escape superstition. Nevertheless, we have the biological potential to succeed.

Plasticity and communication provide each person with an extremely wide potential environment, one that can include other times, far-away places, and the ideas of others as well as his own. More variety means more potential for varied change. Plasticity and communication also render humans more dependent upon social conditions as well as natural ones: upon affection and role models as well as food and climate. Yet plasticity and communication give human beings an equal potential to adapt progressively to their dependence upon this changing environment. If the climate changes, humans can work

together to form new ways of living, new technologies, new priorities. If mutual hatreds lead to mutual destruction, humans can reflect upon the results and achieve deeper understanding. Thus the human organism has the potential to be enriched rather than threatened by the inescapable facts of change and dependence.

Like the cosmic law of change and dependence, and the biological law of continuity and interaction, the human potential conferred by plasticity and communication is a given condition within the problem of human development. Human beings, like it or not, are "wired" for plasticity and communication. Even severely autistic persons rely upon powers of learning, empathy, and imagination that are distinct from those of other life forms.

Plasticity and communication form the most immediate context of the problem of human development. For although the potential to develop conferred by them is a given, their employment to that end is not a given at all. To refer to our earlier metaphor, plasticity and communication are like Joe's roof. The roof has the potential to keep Joe dry. But in Joe's case, the roof is not quite up to the task: it leaks. It will not keep the rain off Joe unless he takes some kind of action.

Similarly, plasticity and communication do not extend themselves automatically in a progressive direction. That is, they do not inherently work in the direction of eliminating conflicts with the environmental givens of change and dependence.

Rather, they are just as likely to provide the basis for adaptations which are regressive. Such adaptations reinforce conflict with the environment by moving in the direction of increased FIXITY and ISOLATION. Efforts at fixity are, sooner or later, self-defeating in an environment which will change despite those efforts. Likewise, efforts at isolation are ultimately self-defeating in an environment upon which one is nonetheless dependent.

These regressive tendencies are not, however, alien to plasticity and communication. Rather, they are a flaw within plasticity and communication, as the leak is a flaw in the roof. Just like the leak in the roof is at odds with Joe's need to stay dry, these tendencies within plasticity and communication are at odds with the need to adapt to change and dependence in a way that is not self-defeating. This problem is genuine because it is by no means a given, but subject to human remediation. It constitutes the problem to be solved by development.

Let us examine this problem. Plasticity, the power to form and re-form habits, is beset by a ongoing tendency towards ATTACHMENT. Once habits are formed, they are hard to break. This is so even when we can see that they are damaging. Sometimes we refuse to acknowledge the damage. Rather, we interpret the environment so as to reinforce existing habits. Physico-chemical addiction (to nicotine, alcohol, etc.) is the most obvious kind of attachment. The addict may adopt all kinds of

false beliefs ("I can stop anytime") so as protect his habit.

Attachment is the sheer need or tendency to continue or repeat a behavior pattern, thought, feeling, attitude, belief, or image, irrespective of other considerations. We keep eating ice cream even if it makes us fat. We keep beating our children, even it makes us unhappy as well as them. We continue to believe that the sun revolves around the earth, in the face of evidence to the contrary. We continue to waste resources and pollute the planet despite knowledge of the current and potential consequences. We continue to believe that people of a certain race are lazy even when we meet people of that race who are industrious.

Communication is equally frustrated by a tendency to form habits which constrict or collapse the environment. One way we shrink the environment is by fusing things together, by confusing them. An imagined personality is fused into a tree or a snake, as in primitive cultures or early childhood (see Ch.II, Sec.A3 above). Belief in a certain religion is confused with being a good person. One identifies one's worth with possession of symbolic prestige objects, such as a Porsche automobile or a Rolex watch. We also form habits which close off some aspect of the environment, rendering it alien to us. We identify with our own desires while blocking out the expressed desires of others. Or we identify with another's desires while blocking out our own. The term EGOCENTRIC here includes all habits which wall off or collapse the environment in a fixed way. It denotes a "centering" of

environmental interaction around our subjective constructions. [2] Just as attachment hampers plasticity, so egocentrism distorts communication. The environment is seen only from a narrow viewpoint, one that refers to, and must conform to, habits which are isolated from that environment.

Attachment adapts to change by generating and thriving upon attempts at fixity. Egocentrism adapts to dependence by generating and thriving upon attempts at isolation. Attachment and egocentrism, like plasticity and communication, are mutually reinforcing. Plastic habits are formed and re-formed owing to communication with the environment; communication occurs only by virtue of such habits. Likewise, attachment reinforces egocentrism: in an intimate relationship, as attachment replaces affection, so receiving replaces giving. One is less concerned about the other person, and more concerned about losing the familiarity and security of the relationship. Egocentrism reinforces attachment: if a primitive tribe is convinced that a ritual dance brings the rain, they will strongly resist any attempts to alter or abandon the ritual. The fixation of habits leads to, and is reinforced by, the distortion of the environment. The term "egocentric attachment" encompasses this idea.

Egocentric attachment manifests itself "laterally" across all human experience. Learning any complex skill requires effort precisely because older, more limited habits must be unlearned and overcome. In learning to swim, one has to breath in a

conscious and regular way, and get used to the idea of exhaling with the face submerged in water. The thoughtless breathing of everyday life must be abandoned; this is difficult until swimming in turn becomes a habit. Emotional maturity requires effort because of attachment to desires and views which are immediate, narrow, and fixed. If one is attached to having the whole cookie, it is tough to share it with one's younger sister. If one is attached to one's own ideas, it is difficult to listen to the ideas of others. If one identifies utterly with one's ability to write, it is no easy thing to take criticism. Ingrained habits of thought and social tradition must be overcome in order to gain knowledge. Thus modern science was born in a struggle against the authority of religious dogma.

Egocentric attachment, in keeping with Piaget's view (Ch.II, Sec.B2d above) also reappears in new and more sophisticated forms with each developmental advance. It thus extends "longitudinally" through human ontogenesis, posing more complex problems with each new solution to prior problems. For example, infantile egocentrism, exemplified by an inability to see the world as separate from immediate needs and perceptions, is overcome by the formation of the notion of a distinct "self" as opposed to what is "other". This creates a higher battleground upon which egocentric attachments must be vanquished if development is to continue. A person must learn to co-ordinate the "self's" perspective with the perspectives of others in spite of the

tendency to fix his worldview in terms of this constructed self (most of us spend our lives on this battleground!). Each new level of development thus frames its own new problem in terms of egocentric attachment. It does not follow from this that there is no increase in resolution of the problem. This would be like arguing that since I wrestle with musical difficulties today as much as I did at age nine, that consequently there has been no development in my musical skill. Each new problem simply builds upon, while taking for granted, problems that have already been solved. The developmental vector of the successive solutions is one which progressively resolves the general organism-environment problem within which the specific ones are framed.

Egocentric attachment presents new challenges in exact step with the level of development achieved. The need to meet these challenges through reflective intervention, i.e., education, increases with development. This is so because the interactions required for development to continue become more sophisticated, and can be taken for granted less and less. Growth thus becomes increasingly contingent upon education, and thus upon ethical deliberation.

I am not arguing that egocentric attachment is, empirically speaking, the dominant human tendency, and that all development is an uphill struggle against it. Its status as an ethical problem requires no such idea. The domain of ethics arises when there is some question of regulation requiring choice (See

Ch.II, Sec.D1 above). Egocentric attachment can be overcome, i.e., development occurs, in the context of human interventions that can frequently be taken for granted. Prior progressive adaptations (development), embodied in both the child and the social milieu in which a child grows, serve to diminish the power of egocentric attachment. In these cases, development seems to occur "naturally", and the ethical issue is not as pressing, since there is no problematic situation. Thus an infant may learn to run and speak with relative ease when a certain degree and kind of feeding, love, and stimulation can be taken for granted. Even at early levels, however, the need for education leaps back into focus as soon as we can no longer take necessary environmental interactions as given. A starved and abandoned child may remain trapped for several years in a world of crawling and incoherent sounds. Development during childhood may appear automatic when a minimum of conventional teaching by adults can be taken for granted. Development during adolescence, however, might require societal permission to question those teachings. If such permission cannot be taken for granted, ethical issues rise to the surface.

The function of adaptation is to resolve conflict between the organism and a changing environment upon which it depends. All human adaptations employ the attributes of plasticity and communication to this end. Egocentric attachment is a barrier to this effort. As a problem, it has no meaning outside of the

context of possibilities presented by plasticity and communication, any more than a leak has meaning outside of the context of a roof.

Unlike the leak in the roof, however, egocentric attachment is built into the human condition; it is there from the start. It defines our humanity as fully as do plasticity and communication. It manifests most pervasively as the problem of IGNORANCE. Human beings are thoroughly dependent upon and affected by their environment. We are not separate from nature, we are an integral part of it. Yet we begin by knowing next to nothing about this natural universe, not even about our own bodies and minds. We perceive ourselves as isolated entities. Yet we have the potential to know the world and ourselves as a part of it. In the exercise of this potential, we must grope our way through a succession of myths, superstitions, delusions, and mistaken ideas. Knowledge does not fall into our laps. We must earn every crumb, and still continue to doubt what we supposedly know.

On the social plane, we are thoroughly dependent upon each other for the very form of our thoughts and feelings. Yet we do not know one another. We perceive ourselves as isolated from other human beings, as having interests which run counter to others' interests. These conflicts are so essential to our human character that we simply take them for granted. Yet they are conflicts only because the potential for knowing, and thus the

desire to know, is there. To seek love, truth, or beauty is to exercise the capacity for the formation and re-formation of habits for entering into observation of and communication with the environment. Egocentric attachment presents an ongoing obstacle to such attainment. It thus sets the problem to be overcome by development.

The function of ethics is to choose between or regulate adaptations to conflict. It is to sort progressive adaptations which really get at the heart of the conflict from regressive ones which do not. Development is the name given to that direction taken by progressive adaptations. This is the basis for Dewey's claim that development is the inclusive and essential ethical function, the "only moral 'end'" (See Ch. II, Sec. D1 above). All adaptations must take place within the context of plasticity and communication. Egocentric attachment, the barrier to plasticity and communication, is what generates the need to regulate such adaptations. If there were no egocentric attachment, our habits of interaction with the environment would form and re-form without thought, resistance, or effort of any kind. Our communication with the environment would be total; all barriers between organism and environment, subject and object, would be removed. What, then, could possibly develop? The problem of egocentric attachment within a context of plasticity and communication thus gives rise to both the ethical domain itself and to development as its prime value.

All regressive adaptations reinforce or increase egocentric attachment. They operate in the direction of fixity and isolation. This increases the conflict between human beings and their environment. It leads towards the negation of those very powers of plasticity and communication which make distinctively human life possible. The very power of egocentric attachment to distort interaction with the environment can cause it to be perceived as a solution to conflict: if one could only get one's own way, the conflict would be over, wouldn't it? But the maintenance or enhancement of egocentric attachment ultimately contradicts larger, more thorough adaptive efforts. It increases the very organism-environment conflict it strives to resolve. We destroy an enemy to gain security, only to reinforce the true source of our insecurity: the notion that we are alone, separate, and independent from other human beings.

All progressive adaptations work to transcend or do away with the operation of egocentric attachment in a particular situation. Such adaptations, described as a consistent direction of change over time, constitute development. All such adaptations conform to the orthogenetic principle, as set forth in the introduction to this chapter. Orthogenesis thus serves as a definition of development. As mentioned earlier, the problem of egocentric attachment resurfaces at a new level with each new developmental advance. Therefore orthogenesis must be described as a direction, a process, and not as a single event.

4. Orthogenesis as the Progressive Adaptation to Egocentric Attachment

Orthogenesis adapts to change by seeking an organismic continuity which is flexible and not fixed. It seeks an intimate connection with the environment, but one that diminishes attachment. It adapts to dependence upon the environment by achieving autonomous self-direction without isolation.

Attachment fuses habits, including concepts, ideas, images, feelings, actions, and purposes. For example, one fuses a notion of one's "self" with one's looks, one's race, or one's occupation.

Orthogenesis overcomes attachment by distinguishing habits while co-ordinating them within a larger scheme of thought, feeling, purpose, or action. The "self" is seen to be something more inclusive than a collection of appearances, achievements, and possessions. These things have their place, but they can be kept in that place. They can change and be changed without calling the "self" into question. The larger and more inclusive of differentiated elements the scheme, the more developed it is.

Thus we can speak of the "development" of a racist or a cancer only by failing to assess the racist in the context of a larger society, or the cancer in the context of the entire body. Since "racist" and "cancer" derive their very meaning from these contexts, our view of the extension of racism or cancer must be co-ordinated within them. Within the context of society, the

extension of racism is regressive; likewise the extension of cancer within the context of the body. Thus to hold a view of the extension of either as "development" is itself regressive: it is to move away from a more co-ordinated viewpoint. Egocentric habits distort efforts to distinguish and co-ordinate by closing off communication with the larger environment. The thief may have an inclusive concept of "victims" within which various kinds of victims are distinguished, each with a unique sort of loot to be stolen. But this view is "centered" around, attached to, the thief's desire for loot. It fails to empathize with others. It sees people, not as they are, but within the constricted stereotype of "victim". It fails to appreciate the larger implications of a society based on thievery. Indeed, the thief does not consider the consequences of his actions upon the quality of society, which affects him as well. Finally, he does not look inside himself, at his own attachments, to question whether his freedom and power are ultimately served by a life of thievery. In fact, he is imprisoned by his desire for loot and his isolation from the world of others' feelings.

Within orthogenesis, co-ordination and distinguishing overcome egocentrism through increasingly DE-CENTERED interactions with the environment. The power and AUTONOMY gained through co-ordination is thus employed in a way that is sensitive to larger concerns: others' rights and feelings, the quality of the whole society, the balance of the natural

environment, and so forth. We can build vehicles which free us from the constraints of time and distance, while remaining sensitive to their impact upon natural beauty and social intercourse. In contrast to egocentrism, which fosters isolation, de-centering leads to a widening embrace of the environment with greater autonomy from distortion by fixed and self-enclosed habits. Distinguishing of environmental aspects from each other becomes more objective. Essential distinctions are preserved, non-essential ones abandoned. We can, for example, distinguish the different skin color of two people without making any distinction between them with respect to their rights.

Within orthogenesis, OPENNESS to the environment replaces attachment to it. We can consider opposing political views without feeling moved either to blind conformity or compulsive rejection. If we take sides, it is because we have objectively considered the potential consequences of each view. It is not because we are afraid of rejection by our friends who think that way, or because one view better serves our narrow and selfish interests, or because we confuse disloyalty to the nation with acceptance of the other view. Orthogenesis brings an autonomous IMMUNITY to these non-essential considerations without thereby encouraging egocentric isolation from them. A person can notice, and not simply push out of awareness, the fear rising within when he is about to take an unpopular stand. Seeing this fear in himself can render him more compassionate to others in a similar

position, even if their views are different. Yet he can still choose to act out of other motives, and not be run by his fear. Within development, independence from the environment and connectedness to it are not only compatible, but mutually reinforcing. The person can remain both aware of and immune to his fear because he is equally aware of the larger needs of the situation: unless he speaks out, an injustice may be done, or a falsehood accepted as truth. He is able to autonomously distinguish these considerations as being more essential to his welfare and that of others.

Such examples may mask a point that bears repetition: the orthogenetic principle only indicates the most general characteristics of any developmental course. It cannot prescribe the most growthful course to take in a particular situation in advance of a thorough and objective examination of that situation. Until we have examined the situation, we don't know what is really given and what is really changeable about it. Further, we don't know how egocentric attachment is most inclusively and essentially at work in that situation; in other words, we're not sure what the problem is. The man in the above example may have no difficulty overcoming his fear. Rather, he may have a tendency to shoot his mouth off too often and at the wrong time, making him an ineffective vehicle for an unpleasant truth. Is it more growthful for him to speak, or to control his impulses and let others speak for him? Whatever the

path indicated within a hypothetical example, it must be understood that a real situation-in-context may include facts which lead us to recommend a different path. Nonetheless, to justify any chosen path as developmental, it must be shown how it overcomes egocentric attachment through orthogenesis.

C. Formal Justification of Orthogenesis as an Ethical Principle

1. Formal Justification: Definition and Limits

I hold that orthogenesis prescribes the desirable, valuable direction of human ontogenesis. It is an ethically normative principle. One way to justify it as such is to refer to formal metaethical criteria. I accept (see Ch.I, Sec.C, Sec.F above) Kohlberg's criteria of UNIVERSALIZABILITY, UNIVERSALITY, and PRESCRIPTIVITY as definitive of such formal justification (see Ch.II, Sec.C4 above).

Formal justification is not divorced from genetic-functional justification. Formal criteria act rather as a kind of "shorthand" for what kinds of solutions to problems will be most INCLUSIVE and ESSENTIAL (see Sec.B2 above). The criteria of universalizability, universality, and prescriptivity are valuable because they test whether principles help us frame problems and solutions progressively, i.e., in a way that will really do away with the source of the problem.

A UNIVERSALIZABLE principle is one that everyone in a society can follow without destroying the very social context which gives meaning to the principle. "Expect government services but evade taxes" is not universalizable, because if everyone followed it, there would be no services and no evasion. Acts which are not universalizable, like lying, seek some

egocentric advantage within a social context that is taken for granted. But in a society where everyone lied all the time, communication itself would disintegrate. This would defeat whatever "advantage" one hoped to gain by lying.

Universalizable principles, on the other hand, are SELF-CONSISTENT and SELF-REINFORCING when EVERYONE follows them. "Help others", unlike "steal from others", resolves the problem of insecurity in a way that INCLUDES everybody. It also addresses what is most ESSENTIAL about our problems: if people know they will be helped by others, they have less need to steal. Universalizable principles acknowledge that we depend upon each other for security, knowledge, language, personality, life. They adapt to this progressively, by promoting DIALOGUE. Non-universalizable principles promote self-defeating egocentric isolation.

Universalizability tests whether principles require the individual to respect DIALOGUE within society. UNIVERSALITY complements this by testing whether principles oblige society to respect VARIETY among individuals and situations. "To be polite, eat with a fork" is not universal because it excludes cultures in which it is polite to eat with the fingers. "Do not take the life of members of your own nation" is not as universal as the principle, "Respect the right of all individuals to life". Guides for action that are not universal may reflect a sociocentric bias: being human gets confused with being white, or being friendly with shaking

hands. Bias may be idiosyncratic as well as sociocentric: "Be productive" may get confused with "Sacrifice everything to your job". The latter statement takes too narrow a view of the individual. Universal principles seek to include not only varied individuals and situations, but a wide view of what an individual comprises. To include the widest variety of individuals and aspects of individuals, they must hit upon what is most ESSENTIAL to human welfare. Thus "always obey the law" leaves unsolved the problems of individuals oppressed by the law, as in the case of Rosa Parks. It fails to address what is essential about law: its promotion of individual welfare.

A PRESCRIPTIVE principle is one that holds itself up as a general "prescription" to "cure" problematic situations. It prescribes what ought to be done to eliminate the problem. A prescriptive principle does not "give up" in the face of a tough problem. "Safeguard human rights" takes on more meaning, not less, in a world plagued by violence. It cannot merely describe the problem: "Look, people have always been starving" is no prescription for world hunger. Yet it must refer to the current problem to be solved. Thus it cannot justify itself solely as an extension of previous conditions, although these may shed light upon our present situation. For example, it is not prescriptive to justify loving others solely by referring to a prior instinctual drive for love. Without reference to the way in which love

operates to resolve conflict, the same "naturalistic" argument could be used to justify aggression or lust.

A prescriptive principle must INCLUDE what is ESSENTIAL to solving a problem, while excluding all else. It must not include matters which are irrelevant to the problem, or neglect facts which are. For example, Piaget's child subjects, judging the degree of wrongdoing, focus on the size of the stain and ignore the intentions of the stainer. The rule "make smaller stains" is not a prescriptive principle in the way that "take care to avoid damaging things" is. It misses the point, so to speak. "Express your ideas unless nobody else does" includes an injunction to conform which sabotages the fight against intellectual sterility. Prescriptive principles, like "defend the right of free speech", maintain their force even when one disagrees with the speaker, or when such defense is unpopular. "Maintain order by punishing demonstrators" misses what is truly essential to maintaining long-term order: wholehearted popular consent to a just government. I aim to show that the orthogenetic principle defines, in an ethically universalizable, universal, and prescriptive way, what it means to grow or develop. This means only that orthogenesis captures the most general traits to which all problem-solutions must conform if they are to be called developmental or growthful. It states that all growth involves greater distinguishing of environmental elements from each other alongside a greater co-ordination of those elements; increasing

autonomy of choice alongside a greater de-centering of the perspective from which choices are made; and increasing immunity from the vicissitudes of the environment alongside a greater opening of interaction with the environment.

Such a principle can aid educational inquiry (i.e., inquiry aimed at promoting development) in several ways. First, we can deduce from it general standards for the development of inquiry itself. To develop, inquiry must become more THOROUGH and OBJECTIVE (Cf. Dewey, 1922, p.246, "broad" and "impartial"). Thoroughness engenders the widest, most OPEN view of causes and consequences, and seeks to CO-ORDINATE these within judgement. Objectivity aims at IMMUNITY or AUTONOMY from egocentric or sociocentric bias. It strives to DISTINGUISH matters which are essential to a problem from those which are not, and to DE-CENTER from cultural conditioning, and fixed or unwarranted beliefs. (In Chapter IV, I shall explore guidelines for thorough and objective inquiry in education).

Second, the principle can help us recognize and criticize changes which run counter to development. We can be more alert to influences which reinforce egocentrism or sociocentrism, which fuse essential distinctions, which constrain autonomy or awareness, and so forth. Third, it provides a principled basis on which to justify, debate, or reflect upon the growthfulness of specific changes we are planning, or which have already occurred. How will the change render the student more immune

to environmental changes while opening him up to the environment? How will it increase his autonomy while giving him a more de-centered perspective? Fourth, it can stimulate us to see connections and analogies between different avenues of growth. In Piaget's work, the mental reversal of mathematical operations and the mental reversal of roles in social conflicts are linked by the idea of de-centering (Ch. II, Sec. B2b-c above). What might growth in artistic ability have in common with growth in scientific ability? The orthogenetic principle gives us an ethical language for exploring such questions.

In no case, however, does the orthogenetic principle allow us to predict what will be most growthful in a particular situation. Only thorough and objective inquiry into that situation can achieve this. Within each unique situation, each effort to promote growth will be guided not only by principles, but by the educator's global frame of reference, including intuitions and concrete perceptions. Each actual problem-solution will be unique to that situation. The orthogenetic principle acts as a check upon isolated judgement by providing universalizable, universal, and prescriptive guidelines. But it cannot substitute for judgement based on the totality of experience.

2. Orthogenesis as Universalizable

Orthogenesis, qua increasing AUTONOMY with DE-CENTERING, is universalizable because it works to transcend conflict between individuals as unique on the one hand and members of society on the other. As they develop, individuals become responsive to the needs of others, and society as a whole. They de-center from a narrow, isolated view of themselves. Society, for its part, becomes responsive to the autonomy of individuals. Further, the growing individual learns to promote his own autonomy, whereas the growing society learns to promote the de-centered social sensibilities of its members. Thus the aims of individual and society merge without one simply being submerged by the other.

When autonomous de-centering is valued by everyone, the conflict between our unique and communal natures is progressively resolved. Increasing autonomy of differing individuals to make original choices leads to greater VARIETY among people. People are less constrained by the state, or by fixed beliefs, to become peasants or doctors or Christians. At the same time, however, increasing de-centering prevents variety from disintegrating society. Increasingly de-centered individuals seek out DIALOGUE with others, even with those of other religions, jobs, or races. Increasing empathy, and the taking of others' viewpoints, lead people to autonomously seek agreements

which keep their habits and desires from harming others. I may want to play music at 11pm on the first floor; you may want to sleep on the second floor. Autonomous de-centering leads both of us to weigh each claim equally, and seek a creative solution we can both accept.

De-centering from the need for conformity or fixed routine breeds tolerance, thus creating more room, so to speak, for the varied choices of others. Heterosexuals can learn to respect homosexuals; anti-abortion activists can learn to use reason rather than invective in their discussions with Planned Parenthood workers. Dialogue does not stop at tolerance, however. De-centering (in concert with OPENING, another aspect of orthogenesis) involves an active effort to know others, to find some common ground with them. Variety in turn prevents dialogue from lapsing into static conformity. If I live in a community of people from many cultures, I can learn new languages, break prejudices, and reflect on what is most essential about being human. My powers of de-centering expand, as well as my power to make varied choices.

With de-centering, people perceive and respond to the common needs of society. People see that their own growth is bound up with the growth of others. They want to ensure that society is doing its best to promote growth for everyone. Autonomy implies a person's power to influence the organization of society, and to choose his own way of contributing to society.

When universalized, autonomous de-centering is valued within our social organizations. Systems of government, economics, education, and so forth, encourage autonomy and de-centering among people. They assist every person to autonomously advance his unique interests and abilities. At the same time, they promote dialogue among individuals regarding how their powers might be best used to benefit others.

As Dewey points out (Ch.II, Sec.D3e above), there are bound to be conflicts between the individual's freedom to pursue original interests and the social need for organization. A talented engineer may wish to become a hermit or an eccentric clown just when a there is a critical need for a dam to be repaired. Orthogenesis does not prescribe a fixed solution to such conflicts. It prescribes the direction of change which will tend to overcome such conflicts. As society grows, it comes to value the engineer's autonomy, and respect the original process of judgement by which he has decided to abandon engineering. Others become willing to persuade the engineer to change his mind, but only through reasoned and compassionate dialogue. They aim to avoid coercion, including ostracism. Society also seeks to promote such variety and wealth of talent that it can fill the engineer's place with little strain (In this sense, it becomes more immune to the varied choices of its members). As the engineer grows, he takes social needs into account. He may conclude that he can contribute most to others through meditation, laughter, or a

sheer demonstration of non-conformity. He will be open to the relevant arguments of others, while remaining immune to considerations of mere popularity. When the values of autonomy with de-centering, immunity with opening are universalized, conflicts are not forestalled, nor are their solutions foreordained. But a context is created wherein conflicts are more likely to find progressive resolution.

3. Orthogenesis as Universal

a. Across Individuals and Cultures

Orthogenesis describes the universal direction that adaptations must take to do away with a problem common to all human beings. Dewey (Ch.II, Sec.D1 above) describes human experience as occurring within three contexts. First, there is a unique context varying from individual to individual. To know precisely what is most growthful for a particular individual at a particular time requires thorough and objective inquiry into this context. Second, there is a context which the individual shares with members of his own culture and his own historical time. To know what would be most growthful for Japanese society, or Nigerian society, would require us to make essential distinctions between cultures.

Third, there is a general structure of experience which all people share. All people shape and re-shape habits in order to interact with changing conditions. All people depend upon others

for their emergence as a personality, and are endowed with powers of empathy and language to communicate with others.

Plasticity of habit allows people to learn new ways of perceiving and acting as they confront new realities. Children learn that objects remain in existence even when they cannot be seen. Scientists learn that the earth goes around the sun, even when the Catholic Church says it doesn't. White people learn that black people can make compatible co-workers, even when their parents taught them otherwise. Yet for all people, this plasticity is impeded by ATTACHMENT. We cling to habits even when they reinforce conflict with the environment. We shut out interaction with the environment that threatens those habits. For example, politicians allow deficits to mount rather than break the habit of procuring government projects for their own districts. People continue to invest power in corrupt politicians rather than take a chance on new sources of leadership.

Our powers of communication enable us to co-operate with each other to form civilization. Language, science, music, and so forth, are all products of co-operation. Families and social groups presuppose some degree of mutual respect and understanding. Yet communication is distorted by EGOCENTRISM. One way we manifest this is to see ourselves as isolated from one another. We turn differences of race, nationality, or religion into reasons to attack each other. We constrict the scope of our empathy and deny the interdependence inherent in human relations.

Orthogenesis is universal because it is an antidote to this most fundamental problem in human experience. With growth, people open themselves up to a wider view of the environment. They put themselves in other people's shoes. They seek ways to co-ordinate opposing views within a more essential set of values. Differing interpretations of the Koran, for example, get co-ordinated within the notion that being bombed and gassed is not good for anybody. People distinguish habits which reinforce conflict with the objective world from those which don't. They gain immunity from egocentric, superstitious, and biased beliefs. They also gain autonomy to choose more de-centered habits. A real-estate developer gives up reaping excessive profits from low-income housing at the expense of the people who need that housing. Compassion replaces his attachment to money. A scientist gives up distorting the results of an experiment so that they will conform to a pet theory. The quest for truth replaces his attachment to proving himself right.

Orthogenesis prescribes an immunity from fused, egocentric, and narrow habit-attachments. It prescribes an ongoing search for more distinguished (differentiated), de-centered habits which permit more open and objective interaction with the environment. It prescribes the co-ordination (integration) of these habits by an increasingly autonomous individual. Yet it cannot prescribe, in advance of inquiry, precisely what egocentric attachments most require changing for a unique individual in a

particular culture. In fact, it prescribes that inquiry into these particulars must be thorough and objective so as to avoid egocentric or ethnocentric bias. It encourages us to consider, for example, that growth in America might begin by educating individuals to pledge more allegiance to social welfare, whereas in China, stress might be placed on educating government to respect individual freedom. Orthogenesis can present universal ethical guidelines and still be culturally relative. We can safely say that it would be growthful for men in India to abandon the traditional practice of burning wives who cannot pay a sufficient dowry. Yet an educational program with this aim would need to take into account an entire range of cultural factors unique to India.

We may worry that any ethical principle's claim to universality across individuals and cultures harbors an egocentric or ethnocentric blindness. We may worry that such a principle will fail to respect an autonomous process whereby each individual or culture chooses values out of their unique experiences. These concerns are themselves orthogenetic in nature. Orthogenesis enjoins us to de-center from unquestioned cultural conditioning, or from a need to compel others to conform without autonomous reflection on their part. It safeguards variety by prescribing thorough and objective inquiry into individual and sociocultural contexts before designing any educational plans.

b. Within Individuals

The value of orthogenesis includes all aspects of human growth. I shall make a case for this simply by reviewing examples of orthogenesis across a variety of such aspects. The reader should refer also to examples given from the work of Werner, Piaget, Kohlberg, and Dewey (Ch.II: Sec.A3-4; Sec.B2; Sec.C3; Sec.D3 above).

With growth, skills co-ordinate (integrate) an increasing array of distinguished elements. A figure skater not only learns a complex series of leaps and turns, but can mesh these within a larger routine. Autonomy comes from the power to focus upon the refinement of some habits within a global act while allowing others to proceed without attention. An actor can concentrate fully on his expressions of the moment, confident that his next line will "come to him" when needed. His power of concentration also brings immunity from irrelevant distractions like the crying of a baby in the audience. The openness to reconstruction of each distinguished habit prevents skill from becoming rigid. The actor retains the power to improvise, and to deepen his sense of the character during a run of performances. The co-ordination of habits allows for a greater opening to the environment. A carpenter's autonomous power to create a building goes hand in hand with his sensitivity to his tools, his materials, and the objective requirements of the project.

Emotional growth brings an ability to de-center from and reshape emotional impulses and patterns, while co-ordinating them with wider social and personal considerations. A child ceases to throw a tantrum when asked to share his toys. He drops his attachment to controlling all the toys, and constructs new enjoyment out of playing with another child. Growth entails sensitivity and accessibility to one's emotional experience, which becomes more varied and finely shaded. Mike is angry at Fred for being slightly late. Upon probing his feelings, he uncovers an underlying fear that Fred does not care about him. Instead of screaming at Fred, or sulking through the evening, Mike expresses his underlying fear to Fred. He does so in a calm way while retaining access to his unsettled feelings. Growth brings immunity from being at the mercy of one's emotions without closing emotions off. It brings de-centered sensitivity to the emotions of others, and an enhanced power to express emotions truthfully.

Cognitive growth frees the individual from egocentric distortions and confers the ability to co-ordinate a wide range of environmental changes through ideas. A child gains the ability to classify objects into a variety of sets and subsets. For example, in a box of brown and white wooden beads, he can see that there are more wooden beads than brown beads even when there are more brown ones than white ones (See Ch.II, Sec.B2b). Cognitive growth permits symbolic thinking which avoids magically fusing symbols and their referents. A voodoo doll is not seen as an

actual part of the person it represents. Cognitive and emotional growth are integrated as one seeks an objective perception of the world, even if this means reshaping emotionally-charged prejudices. Black human beings are seen as they are, and not as something between an animal and a person.

Orthogenesis includes overcoming habit-attachments which are chemical as well as psychological. Autonomy and immunity from addiction to alcohol, nicotine, or drugs, for example, opens the individual's environment. He need not center his activities around obtaining his "fix".

Extended knowledge of science, history, anthropology, mathematics, and so on, creates a more open and less sociocentric worldview. Growth brings the ability to see accurate connections between events: we can learn from the past two World Wars to seek new ways of resolving conflicts in Europe today. Growth always involves autonomous control merged with de-centered responsiveness. In science, growth must bring not only the seeds of technology to control the environment, but understanding of the human effect upon a delicate planetary ecology.

With development, moral ideas and feelings become increasingly de-centered and autonomous. Unfettered empathy, mutual role-taking, and universalizable principles guide judgement and action. Egocentrism holds less sway in ethical decisions. One becomes more immune from considerations which

do not do away with underlying conflict, be they ethnic prejudice, narrow personal advantage, fear of others' opinions, or fixed social conventions. Social attitudes become more tolerant of diversity. At the same time, people seek an essential social consensus through democratic dialogue among equals.

Aesthetic or artistic growth brings the power to connect one's sensory experience to ideas, memories, and analogies. An author conveys the smells of the beach in his writing by calling up images of seaweed and suntan lotion. A mime conveys the texture of an imaginary rope. Growth involves an autonomy from fixed aesthetic notions, and an openness to original and more immediate experiences. At the same time, a tap dancer can improvise and create fresh steps within an established form. The ability to distinguish yet co-ordinate harmonic, chromatic, linguistic, or other nuances increases with growth. Thus the artist extends the intimacy and complexity of his communion with the environment. As discussed earlier (Ch. II, Sec. D3d above), artistic growth involves a simultaneous increase in originality, stressing the unique vision of the artist, alongside a communicability stressing an expression of shared human experience.

Religious and philosophical questioning, with growth, becomes more autonomous. It becomes distinguished from authority, social conventions, dogma, and even fears about death or judgement. The desire to "know God", or oneself, out of one's

own experience, becomes more essential, focused, and free from egocentric distortions. The removal of doubt becomes a more sufficient reason for faith; faith ceases to hinge on the promise of other rewards, e.g., being reunited with loved ones after death. Questioning comes to include all existence, and a wider sphere of one's own experiences, even those of an everyday nature. Thus one's questioning about the "larger" things becomes more integrated with one's daily experience of the "smaller" things. The experiences and teachings of others become increasingly appreciated at the same time that one becomes less dependent upon them, and more directly attuned to one's own actual experience. [3]

Variety and dialogue express the idea of differentiation and integration within the person, just as they do in social relations (see Sec.2. above). Growth does not fix upon a single adaptational mode; it fosters a variety of experiential pathways. At the same time, growth extends one's power to have these paths discourse with one another, and become co-ordinated in a mutually enriching way. Scientific theory can thus enhance aesthetic insight, and vice versa, without one being confounded with the other.

4. Orthogenesis as Prescriptive

Orthogenesis prescribes a progressive solution to the problem of egocentric attachment: this is its function as a value. All

growth is growth out of egocentric attachment; when beset by egocentric attachment, what we ought to do in all cases is grow out of it. Three facts are essential to orthogenesis' justification as a value. First, egocentric attachment is a problem. It generates conflict between human beings and their environment. Second, this problem is susceptible to progressive regulation by orthogenesis, which tends to do away with these conflicts. Third, orthogenesis cannot be counted on, like gravity, to occur without some conscious human intervention.

Orthogenesis is prescriptive because its justification does not rely upon facts which are not essential to its function. Thus, orthogenesis is not justified as an "alignment" with the forces of "evolution", "nature", or "life", which exist prior to human consciousness. Certainly, we may draw poetic inspiration from prior evolutionary struggles, especially those resulting in the evolution of humanity. Further, the very concept of "development" owes much to the Darwinian idea of evolution, and the analogies drawn from phylogenesis to human ontogenesis by authors such as Piaget.

Yet life, nature, and evolution are not ethically selective: they include bubonic plague as well as butterflies. Nature acts according to its own rules when viral infections or human overpopulation cause misery. To justify growth through a mere appeal to "life" is to abdicate our ethical responsibility to choose among life's possibilities. When we appeal to "respect for life" or

"respect for the planet" as ethical principles, we implicitly mean respect for an ecological balance which sustains variety, takes the welfare of other life forms into account, and supports human development.

The point is that action to maintain a vast variety of living things, and to extend our sympathies to include non-human as well as human life, is a progressive adaptation to the bare fact of human interdependence with all life. It takes on ethical significance because it is an adaptation which requires regulative effort in the face of human tendencies towards egocentric isolation and attachment to desires (e.g., for unlimited consumption) which are objectively self-defeating in an ecological context. When we extol "life" or "nature" as an ethical source of justification, what we are implicitly appealing to is a vision of life as intelligently and compassionately regulated. There is no ethically sound way to abdicate the responsibility for choosing how to use the human power to regulate, which, after all, is just as "natural" a phenomenon as any other.

Orthogenesis cannot be justified by appealing to nature because nature includes too much: what isn't growthful as well as what is. Likewise, it cannot be justified or refuted by an appeal to scientific descriptions which exclude too much, especially untapped efforts of education. A study may show that only 2% of a given population show no evidence of racial prejudice. This would not justify abandoning growth out of racism

as a value. Science has not proven, once and for all, that racial prejudice is an ineradicable part of human nature, and that we might as well not bother valuing its abolition. Such a judgement would fail to include all unexplored educational possibilities and sociohistorical arrangements which might overcome racism. Of course, any educational program would do well to heed such a study, so as to properly gauge the measure of its task.

Similarly, scientific proof that people develop at a particular rate, or in a particular sequence, or under particular conditions, has important implications for assessing the value of specific educational practices. Educational practices which do not take existing facts into account will not promote growth. Requiring my 5th graders to read Moby Dick is not likely to open their environment to include great American literature. But such evidence does not throw doubt upon orthogenesis as a definition of the desirable direction of change.

In fact, the very desirability of orthogenesis should lead us to accept "scientific" statements about human limitations with respect to its pursuit in a temporary and relative way only. This is because the educational means at our disposal, and thus the variables affecting these limitations, are themselves subject to sociohistorical developments which cannot be completely accounted for within a scientific inquiry. Even the outlook of the scientists designing the inquiry and drawing conclusions from it is bound to be conditioned by such development. What may be a

"given" today, in other words, may become subject to regulation tomorrow. Only through constant pressure of inquiry upon supposed "givens" can we combat that tendency toward narrowed vision imposed upon us by our particular time, culture, and individuality.

Notes

1. I restrict my definition of "given" conditions to those which provide the context for a problem, without which the problem (e.g., the leak) would have no meaning. These include unchangeable conditions which stand in opposition to the problem (e.g., Joe's need to avoid the rain) as well as conditions which represent prior adaptations to the former, and thus are required in order to explain the problem-at-hand (e.g., the roof).

Obviously, there may be many other unchangeable or unproblematic aspects of a situation which are not necessary to lend significance to what is changeable and lacking. Joe may prefer red shirts to blue ones; this is simply irrelevant. Maybe Joe lives in the desert; this would certainly be relevant to whether the leak is a problem at all. But it is not needed in order to explain why the leak is a problem; it would be more relevant to explaining why it is not a problem. If Joe's consumptive mother were coming to visit, however, this would add urgency to Joe's need to do something about that leak. It would contribute to the context of the problem qua problem, and would be considered a given condition within the framing of the problem. In order to frame a problem inclusively and essentially, we must distinguish conditions which meet these criteria from those which do not, just as we must distinguish between the given conditions and the changeable ones.

2. My definition of egocentrism is to be distinguished from the more specific concept of infantile egocentrism found in Werner's work, and in much of Piaget's work (although his looser usage of the term is close to my own). Within Werner's psychology, the term egocentrism (See Ch. II, Sec. A3bvi above) is limited to those isolating distortions which characterize very early childhood. The inability to take another's point of view, even that of a loved one, is due to cognitive-structural factors, and even maturational factors, which operate relatively independently of affective/motivational ones. A child's egocentric behavior, thus defined, is therefore no indication of his overall character. Further, since such behavior is relatively independent of the nature of the child's social context, it is no indication of the "character" of the society. In other words, even a loving and well-meaning 2-year-old with highly developed parents in a highly developed society cannot help but exhibit "infantile egocentrism".

The distinction between infantile egocentrism and adult egocentrism (called egoism by Werner) has been of great practical educational importance. It has discouraged the adult egocentric act of considering infantile egocentric behavior as an indication of general character. Such a distinction leads us to define the specific problem of infantile egocentrism properly so as to lead to its inclusive and essential solution. Thus cognitive and social stimulation in a controlled environment, combined with the meeting of basic affective and physical needs, might be deemed a more effective and appropriate "cure" for infantile egocentrism than moral reprobation aimed at a structure of understanding that isn't there.

My use of the term egocentrism is meant to include all distortions which render the organism more isolated from the environment, and thus represent a "closing", rather than an "opening", of the organism-environment system. Cognitive egocentrism, regressive habits, affective egoism, cultural sociocentrism and prejudice, and all other "centering" tendencies fall within the same inclusive concept.

This does not blur distinctions between different kinds of egocentrism. The progressive solution to a 2-year-old's cognitive egocentrism will be different from the progressive solution to the egocentrism of an adult bigot. Yet both egocentrisms are remediable, and in both cases such remediation depends upon human intervention. Thus they

are both subject to ethical evaluation: how are they problematic, and how ought they to change? In the case of the infant, the onus for promoting growth falls upon the parent or the society, not upon the infant. Therefore to examine the infant's egocentrism through an ethical lens is by no means to hold the infant ethically responsible for it, whereas we would hold the adult responsible for his bigotry (See Ch.IV, Sec.D6 below).

3. As I stated at the outset (Ch.I, Sec.F above), I make no claims for orthogenesis as a definition of "spiritual development" as a sui generis notion. My purpose is not to disparage or deny the existence or value of spirituality. It is to avoid reducing questions of faith and direct experience by attempting to capture them within a conceptual scheme of any kind.

To the extent that "spiritual development" is defined as the global whole of all development which is greater than the sum of its parts, then it is served somewhat by a discussion of those parts and their interpenetration and mutual reinforcement of one another. "Spiritual development" is thus addressed by a reference to development in all those realms (cognitive, affective, etc.) in which it is seen to be immanent. Spiritual matters can also be defined in terms of a unique set of questions, such as the meaning of life and death or the existence of God. In this case, the notion of spiritual development is captured by applying orthogenetic criteria to the development of reflections, feelings, and cultural-historical assumptions regarding such questions. Fowler's "faith stages" (1981) essentially reflect such development, as do the examples I have indicated in the paragraph preceding this footnote.

But to the extent that spirituality deals with direct apprehension of that which is both ETERNAL and UBIQUITOUS, it denotes that which transcends-yet-includes the context of change and interpenetration which is the fundamental frame of reference for our notion of development. Spirituality in this regard is a matter of non-symbolic faith and immediate experience. I make no pretense of "including" this matter within a conceptual framework such as this.

CHAPTER IV

THINGS TO CONSIDER WHEN APPLYING THE ORTHOGENETIC PRINCIPLE

A. Introduction

The orthogenetic principle prescribes thorough and objective inquiry to determine what will be most growthful for a particular person or group in a unique situation (See Ch.III, Sec.A above). In this chapter, I use the orthogenetic principle to deduce guidelines for what constitutes thorough and objective inquiry. Such guidelines can help educators devise plans that effectively promote growth. Thus they are both ethically and practically significant. [1]

The guidelines offered in this chapter fall into two categories. The first addresses how educators can make ethical use of psychological theories and concepts as tools for inquiry. The second explores general requirements of thorough and objective inquiry into educational problems.

B. The Orthogenetic Principle Regulates the Use of Psychological Assumptions about Development.

The orthogenetic principle enjoins educators to differentiate between the widest variety of growth-pathways for a person, co-

ordinating these wherever possible. The educator is therefore encouraged to make an eclectic use of psychological models of development. One model may describe development as the attainment of a cognitive stage. Another may describe it as the extinguishing of undesirable behaviors and the reinforcement of desirable ones. Yet another may describe growth as re-experiencing, then being able to choose between, previously unconscious feelings and ideas learned in early childhood.

A given model of developmental psychology usually incorporates assumptions about what growth means that set it apart from other models. One model may define growth solely in terms of a discontinuous leap to a new stage. Another may define it solely in terms of a continuous accumulation of behaviors. Psychologists use guiding metaphors to orient their inquiry into development. For Piaget, the metaphor is biological evolution. For Kohlberg, it is philosophical argument. For information-processing theorists, it is the computer program. Such paradigms are useful, perhaps even necessary, for the scientist. They mark off his territory of inquiry, and make precise experimentation possible.

Yet if there is any useful metaphor for the educator to describe the growing person, it is the elephant in the ancient Sufi tale of the blind men (Shah, p.25). In this tale, a group of blind men hear of a new beast possessed by a royal entourage passing through their city. They seek to learn of its nature by placing their hands upon it. One, feeling the elephant's leg, concludes

that the elephant is like a pillar. Another, feeling its ear, concludes that it is like a rug. Yet another, feeling its trunk, concludes that it is like a hollow pipe. Each one is partly right, yet no one is able to grasp the whole.

Educators are responsible for the growth of a real and complete "elephant". So if they use psychological theory to "see" the elephant better, they should be ready to grab on to more than one place. Educators can use even conflicting theories because it is usually possible to "borrow" practical tools from a theory without confining oneself permanently to a theory's worldview. Thus we can refer to stage sequences or reinforcement schedules without being obliged to define growth exclusively in terms of either stage advance or outward behaviors.

When applying psychology in educational practice, we should consider the different aims of scientists and educators. Scientists seek truth through generalizations and probabilities. In the psychological sciences, if 90% of the responses in an experiment conform to a theory, that may be considered fairly strong confirmation of that theory. For scientific purposes, the errant 10% may not detract from the general value of the theory. Educators, on the other hand, must ethically be concerned with each individual. They must be as prepared to educate the individual who stumps the theory as they are to educate the individual who confirms it. Flexibility to choose

among even seemingly conflicting theories may be essential to describing what is most growthful for a unique individual. So, from an ethical standpoint, educators must avoid the "blindness" that accrues from over-reliance on a single model. As Schwab comments, in his discussion of education as a "practical art":

"The particularities of the practical, merely by existing, constitute one difficult problem for the practical arts. The problem is to see them - to take note that each is there and to honor it as possibly relevant to our concerns. This is difficult because we normally see only what we are instructed to look for and we are instructed by theory" (1971, p.496); "if education is to be good for students...educators must attend to the problems posed by the inadequacy of borrowed theory: the incompleteness of their subjects and the incomplete view which each takes of its incomplete subject" (p.501).

Schwab seeks to solve this problem through the use of multiple theories. He also encourages the educator's use of an "immediate perception" outside theory, and the enhancement of his accessibility to such perception (p.497). This is like Werner and Dewey's idea that development in our outlook may rely on our ability to return to a more concrete level of perception, one less dominated by a set of formal structures. Schwab also points out that education is not informed by psychology alone, but also by epistemology, sociology, anthropology, economics, and political science (p.501).

The orthogenetic principle gives educators an ethical basis for borrowing practical ideas from a variety of theories without taking on assumptions within the theory which might inhibit

growth. It does this by prescribing metatheoretical assumptions which do not inhibit growth. Or it rejects, metatheoretically, assumptions which might inhibit growth. The orthogenetic principle prescribes that it is ethically prudent to make certain assumptions, and to reject others. For example, it is prudent to reject the assumption that growth is an inherent tendency, because this may cause us to gloss over the outer conditions required for growth to occur.

Of course, empirical research might support an assumption that, for ethical reasons, we would rather reject. It might indicate, for example, that violence between people is biologically inevitable. But the desirability of a non-violent society compels educators to place a "burden of proof" (Toulmin, 1981, p.257) upon the scientist. For educators to accept violence as inevitable, science would have to show that all possible conditions of education and society under which non-violence might be possible had been accounted for. Such a burden of proof would be virtually impossible to meet. Educators' plans would still be influenced by the obvious preponderance of violence in existing society. But violence would still be seen as subject to educational and ethical regulation. It would not be placed, out of adherence to psychological theory, in the untouchable realm of the "given".

The point is that orthogenesis can prescribe what it is ethically prudent to assume, or refuse to assume, about development, in the absence of truly incontrovertible evidence to

the contrary. Ethical examination of psychological assumptions is key because of the danger that such assumptions may themselves work against growth. Wartofsky argues:

"...psychological theories of learning, of growth, of development themselves contribute to shape the modes of learning, growth, development which they are about and...therefore, the psychological theorist bears the burden of constituting, in part at least, how child development, or human development, as an actual phenomenon or practice will take place...human beings themselves create and transform the norms of development and...such norms effectively influence (though they do not fully determine) how infants, children, and the rest of us will, in fact, develop" (1986, p.114, emphases in original).

Wartofsky's claim is not hard to support if we consider how such "influence" is exercised. Our assumptions determine what is relevant, what is given and what is subject to regulation when we undertake our problem-framing inquiry. Considerations which we assume to be irrelevant or given will be included neither in our inquiry, nor in the framing of the developmental problem to be solved. How we frame the problem in turn, as I have shown (Ch. III, Sec.B2 above), determines its proposed solution, which in turn guides educational practice. For example, if we assume that genetic make-up fixes set limits on a student's mathematics ability, we may not bother with educational plans which aim beyond those limits. We will assume the limits to be given, and inquiry into teaching methods to be irrelevant.

Within education, the ethical prescriptions of orthogenesis take precedence over the emphases introduced by theories within

other disciplines. They regulate such theories to ensure that orthogenesis is not violated by their application. In this way, for example, educators may use behavior modification technique as long as they remain committed to the student's eventual autonomy from a particular set of extrinsic reinforcers.

Education that adheres to any one psychological model might thwart development by emphasizing emotions only, or cognitive structures only, or extrinsic "reinforcements" only, or "information-processing" programs only. Educators have an ethical interest in refusing to limit themselves to any narrowly deterministic view of development, no matter how convincingly modeled and supported by empirical study. Psychological experiments do not usually offer conclusive proof of the exclusive value of a model. When such a burden of proof is placed upon the psychologist, we find that his evidence usually presumes acceptance of the particular lens through which he looks at people.

The categories of assumptions about development examined in the next section are of this type: they are "lenses" through which the psychologist looks at development. They are not easily susceptible to conclusive empirical confirmation or refutation. As Werner points out, for example (1957), whether we see growth as a continuous line or as discontinuous spurts depends somewhat on what we look for. For each category (e.g., continuity vs. discontinuity), I will use the orthogentic principle to prescribe the

assumptions which would be ethically prudent for the educator to make or reject.

C. What Assumptions about Development are Consistent with the Orthogenetic Principle?

1. Time

The following guidelines can help the educator distinguish assumptions about time which promote growth from those which don't:

- * Don't assume that time causes growth.

Sometimes we refer to the passage of time as if it were the agent of growth: "time heals all wounds". We must not forget that such a reference to time is figurative only. It is not time that causes change, but what happens over time. Time is the medium of growth, not its cause. If we assume otherwise, we are liable to forgo thorough and objective inquiry into precisely what it is that happens during a period of time to produce growth. Following such inquiry, we may conclude that a "hands off" approach is best. The unplanned encounters we take for granted in our culture may do more for an adolescent's emotional growth than a series of parental lectures. But without such inquiry, we impute vague powers to time which dull our sensitivity to human variety. One person's "year" is not another's when it comes to growth. Orthogenesis asks us to de-center from a fused, mythic

notion of time toward a more differentiated view of what happens over time for each individual.

* Don't assume that growth is irreversible just because time is. Athletic skills wither from disuse. Cognitive skills may be impaired by disease. A writer who is inspired in his 30's may lose his spark in his 50's. If we take growth to be irreversible, we will be less alert to how subsequent influences may undo it.

* Don't assume that the past influences the present in a fixed way.

To have a meaningful notion of habit or continuity in development, we must assume that the past influences the present. Yet this "past" may influence an individual differently over time. As Lewin points out:

"the psychological field which exists at a given time contains also the views of that individual about his future and past. The individual sees not only his present situation; he has certain expectations, wishes, fears, daydreams, for his future. His views about his own past and that of the rest of the physical and social world are often incorrect, but nevertheless constitute, in his life space, the 'reality-level' of the past" (1943, p.303).

Orthogenesis prescribes that we differentiate between a person's "life-spaces" at different times. We should not assume that the past exerts a fixed "hold" upon a person that we can take granted: "the method of determining the properties of a situation by testing them at that time avoids the uncertainties of historical conclusions" (Lewin, p.304). A child may be terrified of dogs, as a result of a past experience, but also as a result of his

ideas about that experience, and about himself. Yet he may then have a positive experience with a dog that not only changes his attitude about dogs in the present, but his view of his past experience. If all the adults around him avoid testing whether his phobia is still in force, and assume that it is, this may weaken the child's developmental gains.

* Don't assume that normative chronologies of growth can replace individualized inquiry into each unique situation.

To safeguard the autonomy of the individual, and variety within the society, we must consider variations in growth-time between individuals. We must inquire thoroughly and objectively into the particularities of each individual in each new situation. Educators may make use of normative chronologies for the sake of convenience, or to take cultural norms into account. We might, after reflection, decide it was better to let a child begin organized sports at age 7 with all his friends even if, cultural norms aside, he would be better off waiting until age 8. Yet undue devotion to theoretical chronologies may stifle the direct and many-faceted observation of particular people in particular situations.

* Assume that consistency over time serves as one test for development.

Orthogenesis entails the autonomous power to shape and re-shape habits which do away with conflict with the environment. To constitute development, an adaptation must attain the status

of a habit: it must be consistent over time. (Although not all habits are developmental!) To quote Bronfenbrenner:

"development involves a change in the characteristics of a person that is neither ephemeral nor situation-bound; it implies a reorganization that has some continuity over both time and space" (1979, p.28). Time measures continuity; it is thus a useful, though insufficient, indication of the autonomy conferred by a habit. For example, if a child can refrain from hitting someone for a year, this shows more growth than if he can only refrain for a week.

* Assume that rhythm and timing play a role in growth.

Growth may be affected by the length of time previous habits have been in place. The amount of time available for education, the amount of time changes take, or the timing of some changes in concert with others may all influence educational choices. Even the student's perception of the flow of time can be taken into consideration. Our view of the role of time in development should sensitize us to such variables. In all cases, time is looked at as a flexible medium to be "worked with" in the pursuit of development, not as something exerting an inherently good or bad force in all situations.

* Don't make fixed assumptions about how limits on time place limits on growth.

Anderson (1957) sees time as an "inhibiting" force in development. Our limited lifespans force us to choose among

developmental pathways. We don't have time to develop every skill there is. Also, the development of some habits may work against the development of others. If I spend the first fifty of years of my life becoming a great chess player, this may cramp my ability to become a great weight-lifter during the next thirty. This introduces the element of selection into development (see Sec. D7 below). Anderson perceives time as exerting a "narrowing" force upon development, due to "consecutive binary choices" that must be made.

The need to select among growth pathways may be inevitable. Yet if the educator sees time limitations as exerting too "narrowing" an influence, he is liable to forestall creative adaptations to these limitations. We don't always know what the limits of what people can do in a given time span are. Our very life expectancies are changing with time. With sociocultural development, and development of the art and science of education, future generations may come to learn in an exponentially more rapid and flexible way. We may radically alter our current notions of "career", "lifespan", or time itself.

Further, being obliged to choose between growth-paths due to time limits is not merely "narrowing" or inhibitory. The need to be selective can enhance growth by leading a person to make wise choices. It drives a person to ask: "What is most growthful for me at this time? With limited time to grow, what kind of growth is most inclusive of and essential to my welfare and that

of others?" One may not have the time to learn many skills. One may still grow, along perhaps more essential lines, by seeking the originality of expression and losing-of-self through profound concentration that comes with mastery of any single skill. Part of the educator's job is to use time constraints to encourage not merely narrower goals, but deeper ones.

2. Form and Content; Inner and Outer Changes

Both Werner (1937) and Dewey (1946) stress that development should be measured simultaneously and equally with respect to inner and outer results. Inward "forms" (thought structures, habits, stable emotional attitudes) are held to arise only through transactions with the world and adaptations to the "content" of outer consequences. So inner form and outer content are seen as interdependent. Werner, Piaget, and Kohlberg emphasize the differentiation of form from content. They do this to combat the idea that development can be assessed by merely observing outward behaviors without reference to what these mean to the subject. Dewey places more emphasis on an integrated view of inner and outer results when assessing growth.

What assumptions about the relations between inner habits (including rational "forms" or structures) and their larger social-environmental consequences are most conducive to promoting orthogenesis?

Orthogenesis is progressive change in the transactions between an individual and his environment. Changes are assessed according to whether they confer increasing power to co-ordinate yet remain open to that environment. How can this be done without referring to how the individual affects his environment, including his social environment? Yet orthogenesis is also assessed by whether changes confer increasing autonomy from the environment, coupled with an ability to make essential differentiations within it. How can we do this without reference to a set of inner abilities (habits, ideas, thought structures, skills, "programs", etc.) evidenced through discussion, emotional expression, reason, and other "subjective" information? The very ability of the individual to provide such information about his own experience is something which, if it were missing, would call the subject's autonomously de-centered personality into profound question.

Orthogenesis aims at harmonizing the subjective and objective worlds without syncretically fusing them. So we must see both inner and outer changes as essentially relevant in assessing growth. Reference to inner habits prevents a preoccupation with outer behavior that devalues the autonomous reflection of the individual and his subjective power to co-ordinate environmental distinctions. Reference to outer consequences prevents a preoccupation with rationalization, and deductions about development based on speech, which devalues

the person's power to open up to and act upon his environment to objectively render it more conducive to his own and others' welfare.

As Werner, Piaget, and Kohlberg stress, similar outer consequences might be the result of different underlying habits. If we pay attention to reasons given for actions, we are less likely to draw erroneous conclusions about inner abilities from a look at situation-bound behavior alone. On the other hand, it is precisely the inconsistent, inadequate, and irrelevant nature of behavior that tips us off to a lower level of inner development than speech would indicate. We may believe a teenager obeys a rule because of the principle behind it. He may even understand the principle, and be able to explain it. It is only when his parents go away for the weekend, and the rule is broken, that we discover how much his adherence to the rule really depended on heteronomous factors.

The educator should be prepared to test both inner and outer signs of growth. As long as educators pay attention to both inner and outer consequences, they can draw upon inner-oriented theories like Piaget's and Kohlberg's as well as outer-oriented ones such as behaviorism. The different problems posed by individuals may make the tests or tools provided by one preferable to those of the other. For a student who "behaves well", but whose autonomy from extrinsic reinforcement is in doubt, a Kohlbergian approach may be more useful. For a

student who "knows" the good but cannot "do" it consistently, psychotherapy or behavior modification aimed at the extinction of unconscious or reason-resistant habits might be indicated.

An approach to development consistent with the ethical prescription of orthogenesis differentiates inner habits, or deductions about them made from rational speech, from outer results. This way we do not automatically predict outer consequences from subjective accounts, nor subjective experience from outward behavior. At the same time, we seek development in the integration of inner habits and their outer consequences. We assume that over time and across situations, development of the one is bound up with the development of the other. Therefore the educator must employ a "binocular" vision in this respect.

3. Adaptation

I define adaptation as behavior (including thought, feeling, and other internal action) aimed at resolving problems in organism-environment interaction. Orthogenesis is adaptation which is progressive, which tends to do away with the root of the problem. The organism is not defined as an envelope of biological organs or a list of mental events. Nor is the environment defined as a fixed set of physical objects or social practices outside the epidermis. Organism and environment are seen as opposite yet interdependent poles within an ever-changing universe. That which is the organism, or individual, is that which regulates the

environment. The environment is anything being regulated by the organism. We need not isolate, once and for all, a fixed entity which is ultimately "in charge" of the organizing and regulating.

Human organisms have the power to regulate the environment intelligently, using special capacities for learning and communication. Following Dewey's metaethics, the domain of ethics arises from this power. To be consistent with orthogenesis, our idea of adaptation should open up the scope of what we consider to be environment, of what can be potentially regulated. It should not rule out in advance, for example, the idea that we may regulate the functioning of our own organs, or the activities of the mind itself.

Looked at this way, the question of whether the organism should accommodate to the environment or whether it should attempt to assimilate or alter the environment to fit "itself" is off the mark. The pertinent question is: Which aspects of the environment are the essential and inclusive source of the problem, and therefore require regulation? Should we build a road through the mountain, or should we stop being in such a hurry to get to the other side? Should I get an easier job so I can sleep more? Or should I keep the job, and take up a meditation practice which will train my body to sleep less? Relatively "internal" environmental factors and relatively "external" ones affect and, over time, mirror each other. My exhaustion mirrors

the sloppy work getting done on the job. Thus we can assume that it will be a rare problem that can be inclusively and essentially framed without reference to both kinds of factors.

Now the trick, of course, is that how we frame problems depends on our judgement about what is subject to change in a situation as opposed to what is not. It also depends on our judgement, to be borne out or not by subsequent events, as to what changes will really eliminate conflict. We may decide that our desires, if executed, will create growth, and that we ought to regulate outer conditions which obstruct them. Or we may decide that our desires themselves require regulation if growth is to occur. But if we consider everything as potentially an aspect of the environment to be regulated, without egocentric attachment to a particular set of thoughts, desires, social arrangements, etc., then we will be less hindered from an inquiry which considers and weighs all factors without bias. Such a view of adaptation itself contributes to a de-centered autonomy from the environment, whether internal or external.

4. Equilibrium and Disequilibrium

Both equilibrium and disequilibrium have a place within development. For Piaget, "equilibration" is a dynamic cycle which includes the child's puzzlement when faced with the contradictions in his own thought, as well as his satisfaction upon arriving at an unshakeable logical conclusion. For Dewey, growth

involves a "rhythm" between "loss of integration with environment and recovery of union" (Ch.I, Sec.D above).

The educator should not assign any inherent value to either equilibrium or disequilibrium. The question is how the balance between stability and mobility in habits, security and uncertainty, acceptance of things as they are and desire to change them, etc., affect and reflect the individual's overall relationship with the environment. In some cases growth may suffer from an excess of equilibrium, and in some cases it may suffer from an excess of disequilibrium.

With orthogenesis, the co-ordination of distinguished habits allows for both equilibrium and disequilibrium. Growthful disruption of some habits can occur within a context of other habits which don't need to be disturbed. For example, emotional composure allows one to embrace intellectual uncertainty or social change. Well-organized work routines can run smoothly in the face of necessary emotional turmoil. The measure of development is the degree of integration and differentiation, and not the degree of equilibrium per se. [2]

5. Constructivism and Interactionism

We may not know exactly how construction of habits through interaction with the environment takes place. But for orthogenesis to mean anything, the educator must assume that it can take place. Unless the student can learn to construct habits,

choose how he will respond to environmental happenings, and choose which happenings he will respond to at all, the idea of autonomy or immunity from the environment is voided. If, on the other hand, we assume that change is pure construction, and that "interaction" is mere fuel for a pre-programmed unfolding, then de-centering and opening are likewise emptied of significance.

The educator may consider a variety of theories as to how interaction occurs between a student's habits and the habits of others, not to mention cultural or geophysical realities. But in order to respect both autonomy and de-centering, the educator must consider the student's own constructive powers, as well as the interactive influence of new environmental forces.

6. Stages and Structures

The orthogenetic principle requires the assumption that people can construct habits which integrate activity. Though not all habits are developmental, all development involves habit. The only way educators can know that growth is happening, not random change or reflex, is to note whether behavior falls into some kind of a habit-pattern. To quote Bronfenbrenner:

"To demonstrate that human development has occurred, it is necessary to establish that a change produced in the person's conceptions and/or activities carries over to other settings and other times. Such demonstration is referred to as developmental validity" (1979, p.35).

When we assume that many habits change more or less together with time, that they fall into a pattern with a common and essential core, and that this core determines a broad swath of "conceptions and/or activities", we have the makings of a theory of developmental STAGES. Psychological theories vary as to the claims they make for such stages. Piaget and Kohlberg maintain that stages are more than mere typologies; they reflect holistic underlying thought-STRUCTURES which exert a powerful regulatory influence upon global thought and action. On the one hand, a structure sets definite limits to what can be thought or achieved at a given stage. On the other, the highest structure attained acts to bring all thought and action into conformity with it.

What assumptions about stages and structures support orthogenesis, and which do not? Let us first examine how thinking in terms of holistic stages and underlying structures can promote growth.

Stage and structure theories heighten awareness of patterns in behavior. They emphasize the possibility of integrating habits, of transferring gains in one area to another. If a student can imagine what a grouping of blocks will look like from a different angle, maybe he is ready to imagine how an argument looks from his friend's point of view. They provide a point of departure for hypotheses about what a student, given his ability in one area, will be able to do or not do in another. They alert us to the

value of higher-order integrative abilities as a counterweight to the mere accumulation of isolated task competencies or bits of information. They encourage us to check "outer" manifestations of development against the student's "inner" conceptions (See Sec. B2 above).

Structural theories like Piaget's enable us to look for systemic rules governing growth. One proposed rule is that all possibilities for adaptation within an existing structure are exhausted before a new structure is elaborated. Another rule is that structures within a system are specialized to deal with certain kinds of problems. Each structure buffers others against problems outside their "fields". Thus autonomic nervous structures handle problems every second without disturbing conscious thought. One can compose an original tune while taking a cultural structure of tones and rhythms for granted. Another rule is that structures extend themselves, forming new habits which conform to and confirm them. Once we know how to industrialize one nation, we seek to industrialize others. Through this very process of extension, the environment is changed, posing new problems like pollution and over-population. Thus structures, through their own action, contribute to the exhaustion of their adaptive possibilities, encouraging the elaboration of new structures.

Stage and structural theories sensitize us to discontinuous leaps in development. They prepare us for the possibility that

new habits may be constructed rapidly once a stage-threshold has been crossed. Thus they deter assumptions about the future pace of growth based on past or present behavior. They also promote the educator's de-centering by leading him to consider how people at different stages see the world differently.

Stage and structural theories, however, can be easily misused by educators. Exclusive focus upon a single stage typology may stunt awareness and valuing of orthogenetic changes not included within that typology. Educators should not use stage hierarchies for a convenient but undifferentiated ranking of individuals or societies as "more developed" or "less developed". The hierarchies used by psychologists, for scientific purposes, are not meant to reflect the full range of ways in which people may develop. Misused by educators, they may distort dialogue between individuals by encouraging the idea that the "more developed" have little to learn from the "less developed". Further, as Toulmin (1971) points out, stage hierarchies may embody unquestioned sociocultural norms, and thus contribute to sociocentrism when applied to education. As he argues elsewhere (1981), stage sequences imply a "unique destination" for development. Educators must be prepared to revise their long-term goals for growth in the light of individual variety and new environmental challenges, including new psychological discoveries.

Educators must not use the "stage acquisition" idea to assume, prior to inquiry, that a student's actions will match his words, or that his actions will match across different situations. Also, structural theories such as Piaget's and Kohlberg's assume that stage acquisition is irreversible. The educator should not assume that certain abilities cannot wither from disuse or destructive influences. He should be ready to inquire whether students are retaining gains over time.

Finally, educators should assume that changes can be growthful without being defined in stage or structural terms. Stage changes, assuming these exist, may confer a higher degree of co-ordination to a set of habits. But improved skill in basketball may be ethically justified as growth just as much as acquisition of Kohlberg's Stage 3. Further, growth must ultimately be measured by the full sweep of a person's experiences and actions in a social context. It cannot be defined by a "score" on a formal and artificial test of stage acquisition.

7. Psychodynamics

A PSYCHODYNAMIC theory is one that allows for internal conflict between a variety of habits and habit-structures. It also allows for the possibility of interaction and mutual influence of these varied habits and habit-structures.

Stage theories emphasize the integration of habits by a person's highest acquired rational thought-structure.

Psychodynamic theories, on the other hand, emphasize the ongoing influence of habits not dominated by such a structure. Some of these habits may work against development. Emotional traumata, sociocultural conditioning, fixed beliefs, or addictions involve habits which are irrational, unconscious, unquestioned, or even actively repressed. They control behavior without being ethically regulated themselves.

On the positive side, a coexisting variety of habits and habit-structures may mean that there are several modes of intelligence which can be used to solve problems. This view, suggested by Werner (1957, p.138, 145) has been more recently emphasized by Gollin (1981) in his argument for a "multimodal" view of development. It includes the possibility that aesthetic, spatial, sensory-kinesthetic, empathic, poetic, or other forms of intelligence may be co-ordinated with more rationally reflective forms within creative problem-solving activity. It provides a check against egocentrism within formal thinking by balancing such thinking against other modes of experience.

Many developmental theories allow for a psychodynamic view. Psychoanalytic and psychotherapeutic models assume that cognitive-emotional beliefs and habits formed in childhood can cause irrational distortions within otherwise rational adults. Mechanistic and behaviorist models assume that non-reflective conditioning or neuro-sensory-linguistic "information processing" predispositions influence reasoning abilities. Contextualist and

dialectical models assume that reason and worldview are shaped, frequently in an unconscious way, by historical and cultural factors.

Cognitive stage theories like Piaget's and Kohlberg's put reason itself back in the developmental driver's seat. The educator's job, however, is to promote reason's co-ordinating role without taking it for granted. He must assume that reason can fall prey to rigid habits, emotions, or social taboos. He must be ready to take account of irrational (or pre-rational) influences within ostensibly "rational" behavior and speech. Further, he must be alert to the possibility of enriching co-ordinative reason through access to non-verbal and non-formal modes of intelligence.

8. Continuity and Discontinuity

Educators should be sensitive to both continuity and discontinuity in development. Continuity means that each present moment has roots in the past and in turn influences the future. Reflection upon continuity prevents the educator from looking at adulthood as magically cut off from youth. For example, a passive childhood is not assumed to be adequate preparation for an active adulthood. Sensitivity to continuity encourages the educator to search the past for explanations of anti-developmental habits. We have a better chance of curing a

teenager's violence if we understand its roots in childhood deprivation.

If we stress continuity too much, however, we may constrict our vision of what is possible. We may ignore "properties . . . which cannot be described in terms of earlier behavior, irrespective of whether it takes a few days or a few years for the transformation to take place" (Anderson, 1957, p.41). We may, as Kagan (1986) argues, harbor a "liberal" bias for gradual social and personal change as opposed to more radical alterations (p.77). Or, he says, we may overemphasize the control of the past upon the present and future, and fail to distinguish new qualities (pp.69-71). If we ignore the possibility of radical developmental transformation for a person, we may diminish the chance that it will occur. Or, by ignoring discontinuous shifts which have already occurred, we may engage in irrelevant and even detrimental practices.

Cirillo and Wapner conclude a discussion on value presuppositions in developmental psychology (1986) by pointing up the tensions between theories stressing continuity and those stressing discontinuity:

"Kagan objected to the emphasis on continuity to the exclusion of discontinuity and categorical distinctions in common developmental conceptions, Gilligan to the notion that certain 'advances' replace prior modes of functioning. It seems to us that such criticisms cancel one another out when we try to combine them or that their proponents, despite the tone of agreement, are in conflict with one another" (p.162).

Yet the educator is not obliged to resolve this conflict by choosing sides. Indeed, if he is to do even partial justice to the whole "elephant", he must be ready to use theories which contradict one another. Certainly if something as elemental as light can be considered now a wave, now a particle, how much more complicated a view must we be prepared to take of the human being!

The educator must consider both the possibility that prior habits or habit-structures can continue to operate despite the creation of new structures, and the possibility that the new structures represent a qualitative, even radical, transformation of a person's capacities. This permits us to ask what kinds of relations between old and new habits are growthful. New habits are more growthful if they permit access to experience of old habits. The ability to re-experience even a destructive habit opens the student's environment, and lets him take the role of others who are at the mercy of that habit. On the other hand, new habits are more growthful if they co-ordinate old ones. Even positive prior habits will benefit from integration with the student's most global purposes in a social context. Thus the childlike sense of wonder can be enhanced, not throttled, by the technical and reflective capacities of the mature artist or scientist.

9. Multilinearity

A multilinear outlook on development assumes that there are many different pathways of growth. Such an outlook promotes growth by encouraging variety among and within individuals. Growth in artistic ability, formal reasoning, empathy, practical skill, and many other paths are recognized within a multilinear view. Dialogue between people who have emphasized varying paths contributes to the de-centering of each person. A multilinear view frees us from sociocentric values: Americans should grow in social awareness as well as in freedom of personal choice.

On the other hand, emphasis on multilinearity should be complemented by an effort to see how all the various lines of desirable and consistent change conform to the orthogenetic principle. Multilinearity is in vogue at present among developmental theorists. Psychologists such as Kagan (1983, 1986), Gilligan (1986), and Gollin (1981), have taken aim at the unilinear theories of Piaget and Kohlberg. Attempts to posit a universal basis for dialogue amidst variety are not as popular. Psychologists fear committing the sin of sociocentrism (See Kagan, 1986, pp.76-77). The point of de-centering, however, is to allow communication between people that have taken divergent adaptational pathways. The idea that people should learn from and respect growth-paths which are not stressed in their own

culture is itself based upon the universal value of autonomous de-centering.

10. Immanence

Immanence is the assumption that there is some kind of self-regulatory tendency of the organism to develop. While environmental interaction may be necessary to "fuel" development, the organism inherently tends to interact with the environment in such a way as to produce development.

This is not an ethical assumption for the educator to make. Development has no meaning as an ethical solution to the problem of egocentric attachment if we assume that this problem will be solved without any kind of conscious regulation (See Ch.III, Sec.B2 above) To hold development to be immanent vitiates its function as a value.

The educator need not assume that planned intervention (i.e., education) is always required for development to take place. But his role is to inquire, in particular cases, into what kinds of interactions with the environment will promote development and which ones will not. He should not assume, in advance of inquiry, that education won't be necessary. Following inquiry, he may opt for a "hands off" rather than a "hands on" approach. But he should assume that education may be required.

The educator should not assume the inevitability of either progressive or regressive change. He should hold firm to the

possibility of growth without taking it for granted. He should assume that thorough and objective inquiry is necessary to determine the kinds of interactions that will be developmental in a particular case, and to determine his own appropriate role.

11. Final State

A final state is a state past which no further development is possible or desirable. Once we posit a final state, development becomes a matter of decreasing the "distance" from such a state. Here I agree with Dewey:

"There is something pitifully juvenile in the idea that 'evolution', progress, means a definite sum of accomplishment which will forever stay done, and which by an exact amount lessens the amount to be done, disposing once and for all of just so many perplexities and advancing us just so far on our road to a final stable and unperplexed goal" (in Gouinlock, p.94).

General and long-term goals in education serve an important function. They orient and create a context for our more specific and immediate goals. Holding democratic society as a general and long-term goal orients the short-term goal of teaching children to express their opinions in a school meeting. Borrowing a term from Dewey, I refer to all goals, across the spectrum of short-term to long-term, and specific to general, as ENDS-IN-VIEW.

To foster orthogenesis, the educator must remain aware that our larger ends-in-view, although they constitute an image of the future, are rooted in our perceptions of the present. These

perceptions are themselves subject to growth. Our visions of the future must be ethically judged according to how they shape the present, since it is only in the present that growth can occur. In this way, what we usually consider to be "ultimate ends" actually function as means or plans for promoting growth in the present (Cf. Dewey, 1939, p.53).

On the other hand, larger ends-in-view will only be approached by our more immediate activities. Instead of seeing the more immediate activities as "means", we can see them as miniature ends-in-view, to be co-ordinated at each step with larger ends-in-view. Thus, what we usually think of as "means and ends" can be seen as a PROBLEM-SOLUTION SYSTEM in which larger and more immediate ends-in-view are mutually co-ordinated. A vision of how math is used by an autonomous yet socially responsible adult in modern society might be co-ordinated with the kinds of math experiences that give 10-year-olds more autonomy and awareness in their environment. Education is thus guided by an imagined trajectory of problems and solutions between the present and the future. This trajectory is not fixed, but itself subject to development as a result of new experiences, reflections, and insights.

To assume a final state is to assume that students grow, but not educators. Educators assess development in terms of how close students come to the particular state attained or desired by

the educator. But this state is not open to ongoing revision in the face of interactive experience with the student.

To rely upon a fixed idea of a final state of development is to be attached to one's existing perceptions. It shuts out the possibility that new visions may emerge out of a changing present. It freezes not only the future, but the present as well. It also discourages a multilinear view of growth (see Sec.9 above). For example, we might see industrialized society as a fixed terminus of development for "less developed" nations, which are seen as "less developed" by measure of their distance from this terminus. But such a view ignores other pathways of progressive change which might solve problems for non-industrialized nations, but which do not lead to them becoming identical to industrialized ones. It discounts the enormous social and ecological problems created by industrialization. It prevents us from seeing industrialized nations as "less developed" compared to some end-in-view which would progressively solve these problems. It obscures the possibility that such nations might learn lessons from alternative pathways taken by their non-industrialized cousins.

The educator should allow for the possibility that which each new solution, each new plateau of development, new vision is opened up so that more inclusive and essential problems may be framed:

"Indeed every genuine accomplishment instead of winding up an affair and enclosing it as a jewel in a casket for

future contemplation, complicates the practical situation. It effects a new distribution of energies which have henceforth to be employed in ways for which past experience gives no exact instruction. Every important satisfaction of an old want creates a new one; and this new one has to enter upon an experimental adventure to find its satisfaction. From the side of what has gone before achievement settles something. From the side of what comes after, it complicates, introducing new problems, unsettling factors" (Dewey, in Gouinlock, p.94).

12. Analogies and Comparisons

Analogies and comparisons are two-edged swords from an ethical point of view. Where they alert us to essential considerations, they are beneficial. Where they constrict or rigidify our inquiry, exclude essential distinctions, or include non-essential similarities, they are harmful.

A functional analogy between the painting activity of a small child and that of a master artist may lead us to value the child's creative efforts more completely. It suggests that the child's efforts are as important to the child's development as the master's efforts are to the master's. Although we might then choose to spend more on the paintings of the master, we might be inclined to spend equal amounts to ensure that both child and master obtained the opportunity to paint. On the other hand, an analogy between the rebellious behavior of the small child and that of the adolescent might obscure crucial qualitative differences between the two. If the imposition of external restrictions proves growthful for the small child, we might be

tempted to limit ourselves to the same approach for the adolescent. The value of Piaget's theory for educators in this regard is precisely that it points out the functional similarities in the two rebellions while emphasizing their structural differences.

Even more than analogies, comparisons between people at supposedly different "levels" of development present a subtle and difficult set of ethical issues for educators. The hierarchical ranking of people along some developmental ladder has the potential for both good and bad consequences for development itself.

Comparisons can remind us that development does not happen for each individual in isolation, but within a social context. Our very ideas about possible ends-in-view derive from our observations and comparisons of many people. With no framework of comparison between people, it is hard to imagine how we could generate these ideas. Comparison with Helen Keller, for example, expands our notions about what is possible for others with multiple sensory disabilities, thereby transforming our guidelines for what is ethically desirable.

That which is NORMAL, purely as a statistical expression of existing conditions, stripped of any eulogistic meaning, is bound to have an effect on an educators' assessment of how the social context influences problems and possibilities. Different considerations may arise in the education of a child who cannot read in a group of children who can than in the education of a

child who cannot read in a group of children who likewise cannot. In our ethical effort to prevent norms which are "context dependent" from becoming "value laden truisms" (Gollin, 1981, p.249), educators run the risk of ignoring the very real influence that being "normal" or "abnormal" may have upon development. Comparisons can be used to explore this influence without thereby locking it into place. The educator's goal is then to put differences between people to work in the service of development, and to promote de-centered autonomy from the normal when it can be differentiated from the desirable.

The bad consequences arise when we become over-reliant upon a limited or fixed set of comparisons. The egocentric tendency is to use one's own limited personal and cultural experience as a basis for such comparisons. Within a closed comparative framework, itself not subject to ongoing development, possibilities that exceed the limits of the framework may be ignored. It may be assumed that the problems to be solved by those on the "low" end of the scale are identical to those that have already been solved by those on the "high" end, who are usually the ones setting up the comparison to begin with. This cuts off development not only for the student, but also for the educator, who loses the benefit of discovering new trajectories of growth for himself. Gilligan provides an example of the dangers of over-reliance upon limited comparisons within stage theories:

"The minute I say there is a sequence of stages, an invariant order, and a hierarchical transformation, the presumption is I will never learn anything from anyone at a lower stage than myself because I've already been there; I've transformed it; I've learned it. They know nothing I don't know. At best, the relationship between a higher stage and lower stage person is benevolent, noblesse oblige" (in Cirillo and Wapner, 1986, p.154).

Over-reliance upon comparisons between people diverts inquiry from the question of what is the best developmental "next step" for a particular individual at a particular time. This is the essential question for education (See Sec.D1 below). Our assessment of development must always return to an assessment of the "quality of becoming" within the student's experience (Cf. Dewey, 1916, p.7; 1922, in Gouinlock, p.98; 1938a, p.34; 1950, p.141).

Comparisons to others can orient us to possible ends-in-view (without these becoming fixed), and sensitize us to normative aspects of the social context (also seen as subject to growth) which influence the framing of developmental problems. But such assessments are never sufficiently inclusive, since our aim is to frame problems and solutions that render a specific individual more developed in comparison to where he is at present. The importance attached to EXTERNAL comparison is derived from its implications for the mutual reinforcement of development among the members of the group (See Ch.II, Sec.D3e), including the student in question at the moment. Comparisons between people are useful to the educator in assessing the nature and degree of

such contextual reinforcement. But this in turn, must be judged according to an INTERNAL comparison between present and past behavior and capacities, unique to each person.

External comparisons may exert a pernicious influence upon development when they encourage a view of isolated individuals in competition. They are dangerous when they shift the educator's or the student's attention away from the internal comparison which is the fundamental measure of development. Thus competition, when used for educational purposes, needs to be ethically assessed in terms of its contribution to the total reinforcement context, which in turn must refer back to internal comparison for each individual.

Comparisons, like all tools of inquiry, are most useful when they are essential and inclusive. We should assume that development includes a virtual infinitude of pathways. Comparisons gain in educational meaning and value in proportion to their precision regarding what is being compared. Even within a particular pathway, e.g., learning how to write, calling one person a "better" writer than another does not, from an educational point of view, help out as much as saying that one person evokes emotion from the reader better than another, or makes better use of rhythm in his prose, and so on. More precise comparisons give the student something clearer to shoot for, and avoid including elements in the comparison which are irrelevant.

In this regard, the worst possible comparisons, from an educational point of view, are those which simply label some people as "more developed" than others. Unless we can express particular respects in which one person is more developed, educational practice has very little to grab onto. Such comparisons assume that there is some unilinear continuum of development, with some single dominating characteristic, with respect to which individuals and even entire societies can be ranked! Worse still, the nature of this continuum or its salient feature is not spelled out so that it may be refuted. It is rather syncretically collapsed into an undifferentiated judgement upon the hierarchical "place" of each person or culture. [3]

It might seem obvious to label adults as "more developed" than children, or industrial societies as "more developed" than "primitive" ones. Yet such labels are themselves insufficiently developed for the demands of the educator's job. They also jettison, in advance of inquiry, all possibility that there might be some respects in which the child might be more developed than the adult, or the Bushman more developed than the American.

BI-POLAR comparisons, such as the "primitive-advanced" comparative framework used by Werner, may have value for psychological inquiry. But their use by the educator, working with particular individuals within particular societies, is of rudimentary value at best, and is fraught with ethical dangers. This is so even when, as in Werner's model, the comparisons are

quite precise. Bi-polar frameworks assume that the only developmental trajectory for the "less developed" pole is to become identical to the "more developed" pole. They also provide no framework within which the "more developed" pole can be seen as "less developed" compared to some "still more developed" end-in-view. In other words, bi-polar frameworks divert attention away from the essential internal comparisons mentioned above. Thus the statement "the United States is more ethically developed than the Soviet Union" ignores the key educational questions: In what direction is the United States moving ethically? The Soviet Union? In what specific respects? What would be the most developmental step for each nation at this time? How do the respective pathways of the two nations mutually reinforce or disrupt further developmental movement for both? What can each country learn from the adaptations of the other to foster its own development? These are the kinds of questions, applicable to individuals as well as societies, which form the basis for a fruitful and ethically tenable use of comparisons in education.

D. Considerations for Thorough and Objective Educational Inquiry

1. The Educator's Question

All educational inquiry aims at promoting growth. It seeks to overcome egocentric attachment through change in the direction of co-ordination of distinguished elements in the environment; autonomous choice from a de-centered perspective; and an opening of the environment alongside immunity to its changes. It does this in unique situations by framing problems within them that growth can solve. Thorough and objective inquiry aims at framing problems which are inclusive and essential. Such problems include everything that is essential to do away with if we are to remove the source of conflict in that situation. Likewise they exclude everything that is not essential.

As a simplified example, it makes a difference whether we frame a problem as "my teaching methods must enlist the interest of this student", or "this student must learn to obey instructions". Each problem implies its solution: in the first case, change the teacher's habits; in the second case, the student's. We don't want to frame our problem in terms of the habits of the one if the changing the habits of the other is really what's called for. In the context of a reading program, with a student who knows perfectly well how to obey instructions when the material interest him, the first problem-frame might be more inclusive

and essential. In the context of a rock climb, where a student whose habit of doing things his own way endangers his life, the second might cover the ground just fine. In any event, we can't know until we have inquired into the ins and outs of the whole situation.

This inquiry may take an infinite number of turns. The orthogenetic principle cannot substitute for an educator's global judgement-in-context in framing problems. But we can deduce guidelines for thorough and objective inquiry from it which give us a better chance of arriving at problem-frames which are inclusive and essential.

The first guideline is to frame problems with this question in mind: What would be the most developmental change for this individual at this time, and how can my actions and perceptions contribute to this change? This question respects the cautions set forth in Section III above. It includes the possibility that the answer will be different for different individuals in different cultures at different times. It places the ultimate measure of growth within an actual person, and not in some abstraction such as "society". It makes no prior assumptions about fixed external comparisons or final states. The search for the "most" developmental change implies a recognition of many developmental possibilities, to be selected within a holistic overview. It recognizes the educator's role as an ethical one, not

merely a scientific one. Finally, it points to the educator's capacity for growth as well as the student's.

The asking of this question defines the educator's role; therefore I call it "the educator's question". One acts as an educator to the extent that this question is at the center of one's concerns.

Since all development is development out of egocentric attachment, the educator's question has a corollary. It is to ask: in what way is egocentric attachment most at the root of conflict for this individual at this time, and how can my actions and perceptions remove it? To answer this question is to frame an inclusive and essential problem.

The educator's question, with its corollary, provide the context for educational inquiry. The next six topics constitute a list of considerations for the content of educational inquiry that aims to be thorough and objective.

2. Sociocultural Context

Educational inquiry is thorough and objective to the extent that it considers the student's sociocultural context both as influencing his development, and as potentially subject to regulation in the service of development.

The sociocultural context might be seen as the concrete manifestation of interdependence between human beings. This interdependence requires, as a matter of bare survival, let alone

development, some form of consensus or agreement, whether conscious or unconscious (See Ch.II, Sec.D2biii above). Even the most bitter enemies conduct their conflicts against a background of consensus which is frequently left unquestioned. This may include basic matters of living such as the time of day, use of numbers, or mutual respect of the rules of the other's language. Or it may include agreement on a wide range of social customs, roles, and values which serve to highlight the point of conflict. From birth to death, human beings are enmeshed in a web of consensual agreements ranging from the unconsciously habitual to the laboriously constructed.

Bronfenbrenner (1979) sought to construct a model for scientific inquiry capable of exploring the effects of sociocultural "ecology" upon development. He elaborated a way of analyzing contexts into a series of "nested" systems. Educators can use his model to examine how different aspects of the sociocultural context affect growth.

The system most immediate to the individual Bronfenbrenner calls the MICROSYSTEM: "the pattern of activities, roles, and interpersonal relations experienced by the developing person in a given setting with particular physical and material characteristics" (p.22). Relations between a mother and child at home, or a boss and employee at work, are examples of a person's microsystem. Next comes the MESOSYSTEM: "the interrelations among two or more settings in which the

developing person actively participates (such as, for a child, the relations among home, school, and neighborhood peer group; for an adult, among family, work, and social life)...a mesosystem is thus a system of microsystems" (p.25).

Both microsystems and mesosystems deal with contexts in which the student is an active and present participant. The EXOSYSTEM, however, "refers to one or more settings that do not involve the developing person as an active participant, but in which events occur that affect, or are affected by, what happens in the setting containing the developing person" (p.25). Thus a local school committee makes decisions which affect a child's development even though the child is never present at its meetings. Finally, the MACROSYSTEM "refers to consistencies, in the form and content of lower-order systems (micro-, meso-, and exo-), that exist, or could exist, at the level of the subculture or the culture as whole, along with any belief systems or ideology underlying such consistencies" (p.26). One thing that defines the existence of a coherent sub-culture or culture, according to Bronfenbrenner, is the extent to which the settings, roles, interpersonal expectations, relations between settings, and so on, seem to derive from the same set of "blueprints". Thus schools, or behavior between store clerks and customers, are more consistently similar within the United States than they are between the United States and France.

Now a thorough examination of these four systems may lead the educator to conclude, as a matter of practical strategy, that one or more of these systems should be considered as a given when framing a problem. He may reach this conclusion even while recognizing the negative influence exerted by a contextual system upon development. He may teach a student to take a college entrance exam even though he objects to the practice of giving them. Such a strategic judgement, which may be re-examined in the light of actual consequences, is at least more thorough than one which does not question whether the exams are a good thing, or whether the practice of giving them might be changed.

The practice of (and belief in) allocating educational and economic opportunities by exams is part of the macrosystem. When we see the macrosystem as subject to ethical regulation, we increase the likelihood that various lower-order systems, which conform to its basic "blueprint", will also be exposed to doubt. Questioning basic beliefs about the female role in American society, a macrosystemic matter, has affected the nature of systems ranging from employment decisions (exosystem) all the way to the relations between spouses (microsystem).

Change within the microsystem, mesosystem, and exosystem may be constrained by the macrosystemic "blueprint". It is difficult for a father to spend more time with his children if fathers are rewarded in a competitive culture for spending more

time at the office. So the educator should not question elements of the lower systems while leaving the higher systems immune from scrutiny.

On the other hand, development must be ultimately assessed at the mesosystemic and microsystemic levels, where the individual whose growth is in question is actually present. Thus the educator's criticism of broader systems should spell out how changes in them will lead to changes in more immediate systems.

As Dewey maintains, we should frame developmental problems with reference to sociological as well as psychological consequences, since the two views are "reciprocal" (1946, p.233). Each person has his own developmental path, but he is also part of the environment of others; he affects their development as well. Education should promote the mutual reinforcement of growth among individuals outlined by Dewey (Ch.II, Sec.D3e above). Inquiry to this end is thorough and objective to the extent that it examines each element of the social environment in terms of its contribution to such mutual reinforcement.

3. The Educator-Student Relationship

An educator is anyone who has a concern for an individual's global development and seeks to orient his actions and perceptions so as to promote it. A student is anyone who is an object of the educator's concern. The educator-student

relationship is not defined in terms of age, schooling, or social status. This definition of an educator allows for different levels of growth as an educator. It recognizes, however, that the explicit desire to foster global development does itself mark a certain threshold of growth.

One's ability to function and grow as an educator would seem to depend on having close, multi-faceted relations with a student or students. This in turn might depend on the social roles occupied by educator and student, and the student's acceptance of the educator as such. Yet one might seek to educate thousands of students one never sees by writing a book. The mother of an adolescent might continue to function as an educator even when her child has ostensibly rejected her as such. We should make no fixed assumptions about educator-student roles prior to inquiry into particular individuals and situations.

In inquiring into the effect of the social context upon development, the educator should be careful to include himself as part of that context. To be thorough and objective, inquiry must assess the educator's own current developmental problems and history of solutions to prior problems. The educator should consider that he as well as the student is engaged in an ongoing series of both progressive and regressive adaptations to his environment.

To promote the student's growth, the educator must look to his own; he must be his own educator. The educator grows as he

de-centers to take the role of the student and understand his actions and views. This enables him to perceive what is most growthful for the student, and to determine whether or not growth is taking place. The educator grows as he opens up to and co-ordinates his external and internal environment. This enables him to influence the "objective conditions" (Dewey, 1938, p.45) for the student's growth. Whether he provides a science kit or an encouraging tone of voice, the educator's conscious efforts are a key aspect of such conditions. Thus he must ask "how do my developmental achievements enable me and qualify me to guide this student's growth?" while also asking how do my egocentricities, sociocentricities, attachments, lacks, inabilities, etc. render me less able to guide this student's growth?" Such self-knowledge is also growthful for the educator.

Like the scientist, the educator must be alert to the influence of his biases upon his results. Toulmin (1981) chides Piaget for ignoring how his investigator's expectations might affect the responses of child subjects, which might be seen as attempts at "catching on" to the investigator's own Euclidean notions. Toulmin's point is that in a different society or epoch, children might come to "catch on" to a different set of rules (p.264). He argues that false notions of invariant developmental sequence may arise out of the experimenter's sociocentrism. He gives the example of Kohlberg's claim that all children first realize the fantasy nature of dreams, and only afterwards realize that they

are purely personal. He cites research showing that Nigerian children reverse this sequence. The researchers' speculated that communal sleeping arrangements in Nigeria (as opposed to isolated arrangements in middle-class America) led the children to realize earlier that their dreams were not shared by others (p.265). Toulmin asks psychologists to take a "three-dimensional matrix" approach, seeing the subject, the researcher, and the situation as variable factors in determining research outcomes. This advice also applies to education, where the consequences of ignoring any of the three variables will be more immediate.

Now the orthogenetic principle prescribes that development, if it continues, must eventually involve seeing one's "own" growth as bound up with the effect one has upon the growth of others. Whether we are conscious of it or not, adaptation occurs within a social context. Many growth-paths may emerge from individual and cultural differences. Yet the egocentric attachment which blinds us to the socially interdependent nature of growth poses a universal problem for development to solve. Therefore, no matter what other roles one plays in society, everyone should grow to adopt the educator's role in some form, and take up a concern for the growth of others. To emerge as an educator could thus be seen as a universal "end-in-view", despite the individually and culturally varied series of more immediate ends-in-view which might frame problems along the way.

This is not to pose a fixed "educator" state as some final achievement. To take up the educator's role is the beginning of a developmental process as well as a culmination. For example, an educator may begin with a concern for his household only (microsystem). He may later extend his concern to how the entire sociocultural context impedes or reinforces growth (macrosystem). Further growth would integrate his concern for particular students with his concern for the reinforcement of growth within the society that includes those students.

The educator takes responsibility for the student's global development: not just growth in skateboarding or chess, but in the ethical co-ordination of all the student's growth-paths. His ability to do this relies upon his growth along three general lines: 1) his degree of conscious concern for his own global development, reciprocally shaped by a concern for the growth of others and the mutual reinforcement of growth in society; 2) his degree of power to conduct thorough and objective inquiry aimed at the framing of inclusive and essential developmental problems; 3) his degree of power to bring about progressive solutions to those problems.

These criteria let us articulate the nature of the educator-student relationship with less fear of introducing sociocentric or other non-essential distinctions. The relationship between educator and student is developmentally unequal, is a relationship between "greater" and "lesser" levels of development, to the extent that there is a difference between individuals in

those three criteria. I may have a great deal to learn from a certain 10-year-old when it comes to skateboarding or even playing chess, yet this does not equip him to be my educator. On the other hand, it means that my greater age, or my possession of math skills he doesn't have, are not sufficient to define or justify my capacity as his educator. [4]

The educator must not use the excuse of superiority according to the three criteria mentioned to take a permanent "I know better than you" attitude, or to permanently commandeer the student's course of activity. To adhere to the orthogenetic principle, the educator must rather seek to diminish, abolish, or even reverse the inequality that exists between educator and student along these lines. It is not the educator's aim to see that the student adapts along a fixed and specific course set by the educator. It is rather to see that the student learns to set his own developmental course, based on his own concern for the growth of others in reciprocity with his own, his own power to conduct thorough and objective inquiry to this end, and his own power to execute that course even in the face of obstacles. In short, it should be his aim that the student eventually become the educator. The educator's efforts to direct or influence the student's activities must be justified not only by an objective assessment of the educator's superiority along the three essential criteria, but also by his intention to decrease this superiority

through education. Various means to this end-in-view must then be assessed according to whether they do in fact realize it.

The outcome actually achieved is bound to reflect the means used to attain it. So the autonomy of the student, in conjunction with a mutual de-centered dialogue between educator and student, must be encouraged throughout the education process. Yet the student may not begin with much concern for his own growth, or for that of others, or with much ability to inquire thoroughly and objectively, or to pursue a growthful course. Growth for such students, in a given situation, may require interventions which contradict a spirit of autonomy and dialogue. It may not be best to negotiate nightly with a three-year-old about his bedtime; it may be better to decree that three-year-olds go to bed at 8pm. But we still must justify our autocracy by its effects upon growth in both the present and the future. We may note that the child cannot act out of an understanding of his parents' need for an evening break, or for his own need for rest (and perhaps the security of routine) So parents, rather than allow these needs to be at the mercy of the child's egocentrism, take temporary responsibility for ensuring them. We may note that the child's autonomy in daytime play is not dented in the slightest by having an ordained bedtime, and that he comes to enjoy the regular bedtime ritual. As for the future, we may note that children who obey at age three are not

at all hampered in their ability to negotiate at age nine, taking their parents' needs and their own larger needs into account.

4. The "Reaction Norm"

The sociocultural context and the educator-student relationship are environmental conditions influencing development. Educational inquiry must also take the organismic side of development into account. The same objective conditions which promote growth for one person may not do so for another: "one man's meat is another man's poison". If the organism has not constructed habits which enable it to adapt progressively to the environment, then such adaptation will not occur. Development occurs only when the organism can experience a problem, and can regulate its environment in a direction which tends to do away with the problem's source.

Conditions may simply not present a problem to a given person. In this case, there is no call to adapt in any direction. Or conditions may present a problem, but the organism may not have the capacity to adapt progressively to it. In this case, regressive adaptation would occur. Thus one person with political awareness and skills may adapt to noise in his neighborhood by organizing community action, while another person without those skills might adapt by wearing ear plugs. In the most extreme case, lack of ability to adapt would result in death to the organism.

Piaget (1971, p.286) uses the concept of the "reaction norm" (Cf., *ibid.*, "adaptive norm") to describe the range of phenotypes that may be generated by a given genotype. The genotype has a range of possibilities within which it can produce responses to varied environmental conditions. We can use the analogy of a reaction norm to describe a person's ability to respond developmentally to given environmental conditions. Changes in environmental conditions which fall outside the reaction norm will not promote development. Parental attempts at mutual role-taking at bedtime may fall outside their three-year-old's reaction norm. Thus the educator, in asking the "educator's question" (See Sec.A above), must also ask: "Do these changes fall within the student's reaction norm at this time?" Developmental problems are not inclusively and essentially framed if they assume an ability to adapt progressively which is not there.

On the other hand, it is precisely this reaction norm which is itself assumed to be subject to development. Thus the educator must inquire carefully into each student's reaction norm. He must be prepared to test hypotheses and revise conclusions about it. The reaction norm is the boundary between what is taken as given and what is taken as subject to regulation in the framing of a problem. If the educator assumes the reaction norm to be static ("you can't change human nature"), this will have the same pernicious effect as the assumption of a fixed sociocultural context. The most problematic habits will be considered immune

to educational influence. Conversely, to overestimate the reaction norm is to assume the student has already learned the very thing which needs to be taught. We might assume that children, if given more external liberty, will use their time more productively. This might be so for some children, but others might need to learn, with active guidance, how to use time productively in the face of greater external liberty. Without such guidance, regressive rather than progressive adaptation might take place.

Students with different reaction norms may all respond developmentally to a situation, but in different ways. Gilligan (in Cirillo and Wapner, 1986, p.32) gives the example of a film about the Holocaust seen by eighth-graders. Some of the students thought more concretely, others more formally. The concrete thinkers had greater immediate empathy with the victims in the film, but little understanding of its historical context ("It is so sad. Why doesn't someone stop them?"). The formal thinkers grasped the historical ideas, yet were less emotionally moved. We might frame a different growth-problem for each group to solve. Yet a simulation activity might awaken the formal thinkers to greater empathy, whereas the concrete thinkers might fail to relate a history lesson to the people they saw on film. Each problem must account for both the desired direction of change in the reaction norm, and the limits to education set by it.

The educator aims to aid in the construction of new habits while acknowledging the initial limits of the old ones. The problem of how to accomplish this can only be solved through ongoing experimentation in concrete situations. Theories which predict stages or chronologies of continuous or discontinuous reaction norm changes should be used only as points of departure for the educator's hypotheses, which in turn should be tested by experience. The educator must communicate with and observe the student to know when the student is on that fruitful boundary marking the edge of his power to respond developmentally. Repeated experience with many students, or with a particular student, leads us to recognize when education has gone far enough outside the reaction norm to jeopardize short-term development by provoking a regressive response. It also alerts us to the signs of education which threatens long-term development by failing to challenge the student.

Development extends the reaction norm, and the range of situations to which the individual can adapt progressively. Thus one person thrown in jail might become mentally ill, while another might become more serene, focused, and determined. To secure objective conditions which promote growth, therefore, is by no means to "coddle" the individual, and render him less able to adapt progressively under less ideal conditions. It is rather to arrange a series of conditions which repeatedly stretch reaction

norm boundaries. This develops the global habit of engaging in this kind of stretching (and leaping) on an autonomous basis.

Destructive influences in the social or physical environment can provide challenges which are not sought out, but imposed. An extended reaction norm will better enable the individual to turn disaster into opportunity. But development itself engenders a wider and more refined set of problems. So we need not worry that a more growthful social order will produce "weaker" individuals. People in the habit of growing will expand their own environment so as to stretch their limits. We can also count on unplanned environmental changes to present challenges equal to (or one or more steps beyond) our power to confront them.

5. Ends-in-View

In Section C11 above, I defined the PROBLEM-SOLUTION SYSTEM as a series of developmental problems and their solutions ranging from the most specific and short-term ones to the most long-term and general ones. Within such a system, larger problems co-ordinate smaller ones, providing context, visionary purpose, and unifying standards. A plan for a non-violent social order, for example, might discourage violent steps to obtain it.

At the same time, new discoveries through immediate activity lead us to extend, flesh out, and redefine our long-term ends-in-view. Responding to horseplay in my classroom, I might, without any purpose other than maintaining order, begin open

discussions about such problems with my students. I may find a value in those discussions which goes beyond simply improving physical conduct. Out of this experience, I may develop a whole philosophy and curriculum of democratic problem-solving. The larger goal of having a more democratic classroom will in turn shape how I organize those discussions next year. The whole experience recasts my idea of "order" from one of physical obedience to one of solidarity with the group and a commitment to working things out.

Within a problem-solution system, bigger and smaller problem-solutions exert dynamic influence on one another. Thorough and objective educational inquiry takes into account the entire problem-solution system, and examines the mutually reinforcing influence of ends-in-view at all levels of generality and time-scope.

Any visions of an "educated person" or "educated society", to promote growth in the present, must spell out their consequences for the framing of more immediate problem-solutions. They should attempt to articulate some sequence whereby particular problem-solutions will lead to more general ones. Further, they must be revised in light of actual outcomes, both in the short-term and the long-term.

This standard reveals inadequacies in the popularly conceived goals of "culture", defined as a fixed set of concepts and literary-historical references, and of the "educated person",

defined as one who can participate in discourse which takes that "culture" for granted. The requisite body of knowledge for an educated person is established in advance; education is a matter of absorbing this body of knowledge. The agenda may also include "reasoning skills" which enable the student to attach meaning to the knowledge, and use it to take part in future discourse. But the end-in-view is framed in terms of the information. It excludes the more essential consideration of spontaneous and enlivening conversation based on shared activity, with commitment and collective creation as well as information stemming from that activity. As a result, approaches based on this end-in-view try to imbue culture through isolated study. The key student interactions are held to be with a single teacher (or a computer!) in a setting divorced from anything the student considers pertinent to his own social life. The result is that many students not only fail to approximate the ideal, but lose interest in school altogether. The adherents of this end-in-view then decry our social and individual shortcomings. But they do not question the inclusivity or essentiality of their end-in-view, or see it as a possible cause of educational failure.

The educator should by all means construct the most large-scale and long-term goals imaginable, ones that include the most profound dreams and resolve the most fundamental difficulties. He must, however, be prepared to check such ends-in-view against their actual influence upon immediate practice, and to

render them still more inclusive and essential in the light of experience. Ideas about where ongoing personal and social development can and should lead play a regulative role similar to that of ethical principles. They provide definite plans in which those principles are expressed. Thus the orthogenetic principle finds concrete expression in designs for social institutions which promote non-violence, respect for ecology, political and economic democracy, individual autonomy, and mutual support. Such blueprints are not immutable deductions or fixed teloi. They are working constructions which create a context for present educational activity, conditioning its scope and sensitivity.

The educator should not underestimate the benefit of the conditioning influence of our most advanced ends-in-view upon the whole problem-solution system. If one's aim for a deprived group of students is that they become educators, scientists, and artists, this is bound to influence practice in a different direction than if one's aim is to "at least enable these kids to function in society". The more growthful aim includes the lesser one, so the latter is by no means sacrificed to the former. The strategy for getting from the immediate situation to the more growthful vision will, however, encourage activities and perceptions not included within the smaller aim.

To be able to formulate more growthful ends-in-view, the educator himself must keep on growing. The end-in-view which creates the context for the entire problem-solution system will

only be as advanced as the educator's ability to envision it. The more the educator has some idea of a society in which growth is mutually reinforced, and in which people make a great variety of contributions, the better equipped he will be to organize educational activity which reflects that dream in embryo. At the same time, however, the more the educator can use larger ends-in-view as tools rather than dogma to which he is attached, the more able he will be to guard against rigid thinking on the part of students. [5]

6. Responsibility

So far, I have outlined those domains which the educator must take into account as potentially subject to regulation. From the "lateral" point of view, these include the sociocultural context, the educator himself, and the student's "internal" reaction norm. From the "longitudinal" standpoint, this includes the interaction between problem-solutions ranging from the more immediate and particular to the more long-term and general, from the "next step" to the "ideal".

The educator should be wary of fixed assumptions about how all these lateral and longitudinal factors influence each other. Theories can alert him to possibilities, things to look for. Systematic experiment may sharpen possibilities into probabilities. Still, the particular nature of education requires an open-minded educator engaging in renewed experiment with each individual

student. Thus it should be deemed possible to influence the student's reaction norm by altering some aspect of the microsystem. Yet it should also be considered possible that each system retains a resistance to change which "buffers" the effects of changes in other systems. A lifetime of growth for an educator may exert only minimal influence upon the makeup of a macrosystem. Perhaps development will proceed as a continuous and gradual emergence of ideals out of small steps. Yet sudden or sweeping transformations may erupt out of a shift in context created by a new and larger ideal, or by the discovery of a new and more effective immediate approach.

Now, to take this entire universe of factors into account is no easy task. Even so, this is but the groundwork for the heart of inquiry to resolve the "educators' question". To frame problem-solutions which prescribe educational activity, the educator must select, singly or in combination, which factors are strategically most essential at a given time. He must ask, "At this moment, should my problem be framed in terms of the macrosystem, the exosystem, the mesosystem, the microsystem, my long-term goals, my immediate goals, my own powers or deficiencies, or the student's psychological 'reaction-field'? Further, which specific aspects of each of these factors require regulation?"

To answer this question is to determine which factors we are going to hold RESPONSIBLE in the framing of our problem:

"...as the practical problems of education and administration of justice clearly indicate, an intelligent imputation of responsibility involves the question of where

the factors are located that are simultaneously controlling in human action, and also controllable by human intervention" (Nagel, 1957, p.24, emphasis in original)."

The educator's role is to hold factors responsible, as objectively controlling the situation, while holding himself responsible, or taking responsibility, for controlling those factors. Thus if I hold a child's selfish habits responsible for his fighting with a friend over toys, it is within the context of holding myself responsible for doing something about those habits. The educator's stance refers back to his own responsibility, literally, his ability to respond. This ability is itself not fixed, but subject to development. There are no inherent, permanent limits placed upon his responsibility. This taking of responsibility is at the core of the ethical point of view (See Ch. II, Sec.D1 above).

We have here a dual notion of responsibility. The objective side of responsibility is the effort to hold certain factors responsible (in the sense defined by Nagel above) when framing a developmental problem: a corrupt institution, an unconscious phobia, an inarticulate end-in-view. The subjective side is the ethical context within which the educator takes responsibility for the regulation of those factors. The educator holds factors objectively responsible within the subjective context of taking responsibility for them.

The educator's question always refers to actual human beings as students. So even when the educator holds "society" responsible for some problematic situation, he relates his efforts

to alter the macrosystem to desirable changes in the shared perceptions and actions of real people.

Now the educator seeks to promote the de-centered autonomy of his students. This development cannot be sustained if the educator takes responsibility in a way that considers students to be passive recipients of his regulative efforts. It can only proceed if the educator "holds" his responsibility for regulating factors in the individual or society as a point of departure for the taking of responsibility for those factors by those being held responsible by the educator. The educator thus "holds" for the student (in a compassionately de-centered way) that which belongs to the student, and which, if development proceeds, the student will progressively "take" up on his own. How to transfer responsibility from that held by the educator to that taken by the student may well be the central mystery of education.

As the educator develops, he differentiates allocation of objective responsibility from blame, disapproval, fault, or punishment. Within the educational context, problems are not evils to be reviled, but challenges to be met. The educator may feel anger, fear, frustration, and the weight of cultural sanction in dealing with certain situations: he may feel them to be bad and wrong. But if these are to be framed as developmental problems, the educator must take his emotional and cultural responses into account as factors influencing the developmental

outcome. It may be that blame or punishment are necessary or expedient techniques for promoting growth in a certain case: this question deserves careful empirical inquiry. But without such inquiry, the disapproval and desire for retribution implied in laying blame or finding fault distort efforts to locate responsibility. They hinder growth by including elements which are not essential to doing away with those factors objectively held to be problematic.

An example of the regressive effect upon inquiry of failure to differentiate blame from educative responsibility is the debate over whether solutions to poverty are to be found by "blaming the victim" or "blaming society". To hold victims of poverty (their reaction norms, attitudes, habits, etc.) responsible for their plight is simply to say that there are psychological factors which are both controlling the problem, and which are controllable. In an educational context, the educator holds the student responsible within a context of taking responsibility for engaging in practice which will lead to the student's own power to take responsibility for growth. All this has nothing to do with blaming or accusing. It need not arouse the fear of adding insult to injury, nor the fear of ignoring social factors responsible for poverty. On the social side, to hold society responsible means that shared social habits (racial prejudice, economic practice, ethical priorities), also control the problem of poverty. These are in turn controllable, and the educator holds society responsible within a

context of taking responsibility himself for educating others until they take responsibility for executing necessary growth changes. Again, this is different from locating guilt or fault, which may or may not help to rouse society in an educational direction.

What distinguishes the progressive taking of responsibility from guilt, blame, or fault is its orthogenetic emphasis upon mutual reinforcement and interdependence as opposed to egocentric isolation. We try to find others guilty so that we or those we favor can be held blameless. At best, fault can be shared, with each offender receiving a fraction of a fixed whole. What one person gets, the other doesn't get. By contrast, the taking of responsibility, like the growth of which it is a manifestation, is unlimited and mutually reinforcing in a social context. One person can take as much as he wants without there being any less for anyone else. The more people take responsibility, the more they function as educators, since only the growth of others as well as their own can progressively solve those factors held responsible for problems. The more people function as educators, and develop as educators, the more effort is directed to leading others to autonomously take responsibility. Since no one can be heteronomously compelled to take up autonomous responsibility, education must seek to replace unilateral control with dialogic communication.

7. Choices

The considerations outlined in Sections 2-6 above must be taken into account if we are to have a thorough and objective sense of what the possibilities for growth are in any situation. But they do not tell us how to choose among several genuine possibilities for growth.

Some guidance in this can be derived from the educator's question and its corollary (Sec.1 above). In choosing among growth-paths, we should prefer those which are "most" growthful, i.e., those which uproot the most pervasive and pivotal manifestations of egocentric attachment. By addressing these, we release the greatest possibilities for further growth. Where situations are overwhelmingly oppressive or problematic, it is easier to distinguish these more inclusive and essential paths. It is better to help a slave gain freedom than it is to teach him to play the violin or even run a plantation.

Yet as conditions become more favorable to growth, possibilities multiply. Educator and student are faced with the "luxury" of having to choose from among pathways which may seem comparably problematic or promising. In making these choices, the orthogenetic principle can in no way replace individual judgement in the context of a unique situation. The best use we can make of it is to deduce from it a taxonomy of

considerations to be taken into account when choosing among comparably worthwhile paths:

* "How can I deepen my experience by building upon current strengths?" Solving progressively more refined and challenging problems within any endeavor will evoke a profound autonomy and de-centering that could not be gained by solving problems at a more superficial level across a variety of domains.

* "How can I expand my experience by striking out into unexplored territory, and correcting obvious weaknesses?" Any life-path, by emphasizing some things over others, will sketch out, in relief, as it were, other areas which have been avoided. No matter what the path, exploring these uncharted waters will promote a de-centering from attachments that cannot be had in any other way.

* "What is the present and foreseeable obstacle to continued growth which is most general, and which, if overcome by some present adaptation, would release the most generally beneficial consequences for present and future growth?" Focusing on the comparable generality of growth-paths can be an effective way of choosing between them. Thus we seek paths which will release greater new growth possibilities, as in the above example of the slave. Such a consideration may lead one to seek out the most enduring and recalcitrant obstacles to growth, whether these be in the macrosystem, the microsystem, or one's own deepest fears.

* "What obstacles are more realistically subject to progressive adaptation? What steps are most possible for me right now?" As mentioned above (Sec.4), one's own reaction norm and that of others must be considered when framing growth-problems. This is also a useful consideration in choosing between growth-paths. One may perceive a far-reaching problem in society or within oneself which, if confronted and solved, would create vast new realms of growth. Yet although the danger of shrinking from the ideal may be most pressing in one case, so the danger of biting off more than one can growthfully chew may be paramount in another. Sometimes, having posited the most general, difficult, and long-term challenge, one must then approach it in smaller increments. To do otherwise would be to find oneself in over one's head, faced with no choice other than to adapt regressively, thus defeating one's initial purpose. Some paths may make this less likely than others.

* "Which growth-path would most benefit others, and society as a whole? Which of my abilities, areas of knowledge, and sensitivities are most in demand, or most objectively needed? What is it that I can contribute that someone else might not be able to contribute?" This consideration calls upon one's "selflessness", and one's ability to see one's own growth as interdependently linked to others within a mutually reinforcing social context.

* "Which of my desires and interests are strongest, most inclusive of other desires and interests, and most essential to my sense of well-being and enjoyment of living?" One may consider one's internal environment no less than one's external environment in choosing growth-paths. There may be variations in our feelings which can help us choose among growth-paths which are all responsive to social considerations. By considering such unique shadings of desire, we contribute to society by promoting variety within it.

It is obvious that such considerations do not do the final work of judgement for us. When ought we to build upon strengths instead of rectifying weaknesses? When ought we to take the battle to the most pervasive constraints in society and ourselves? When ought we to settle strategically for a lesser victory, taking our own limits and those of others into account? When ought we to put aside our more personal desires in order to serve our fellow human beings, and ourselves less immediately? When, on the other hand, ought we to follow our hearts, judging that others as well as ourselves will be best served by the quality of love that we can bring only to that endeavor which we enjoy most especially?

Choices are clearest when internal or external factors are so forceful as to weight principled judgement clearly on one side or the other. But in the absence of such forces, choice requires a subtle appraisal of one's own strengths and weaknesses, one's own

interests and developmental limits, the needs and developmental limits of others, and the influence of the present upon the future. To transcend egocentric attachment, we may need to be sensitive to where our "growth-edges" are at a given moment. These "edges" reflect the most long-term and general way in which we are most likely to succumb to egocentric attachment, and become less open, less interconnected, less free, less in charge. Are we most in danger of failing to pursue our powers in a given domain to their deepest level? Or are we most in danger of using our strengths to build a wall around ourselves, outside which we will never venture? Are we in danger of taking existing social conditions as inalterable, or giving in to our attachments and assumptions about our own limits? Or are we more in danger of expecting too much too quickly from ourselves and others? Are we prone to social insensitivity, to ignoring the way in which the pursuit of our desires and interests influences others? Or are we out of touch with our own needs, pursuing a course out of a sense of "duty" which masks guilt, insecurity, or ignorance? Just as we add hot water to a bath which is too cold, and cold water to a bath which is too hot, so our growth choices may tend in apparently opposite directions depending upon our overview of the situation. [6]

These considerations can only focus judgement-in-context, not replace it. A person's power to judge ethically, however, will depend on his growth along those universal lines which define his

emergence as an educator (see Sec.3 above). These are: 1) his ability to see his "own" growth as bound up with the growth of others, and with the quality of growth-reinforcement within society; 2) his ability to inquire thoroughly and objectively into his situation; 3) his power to choose based on the results of that inquiry. Choices which sacrifice any of these qualities will, over time, prove regressive, since they will not, in the end, work to transcend that problem of egocentric attachment at the core of the human condition.

Notes

1. I define "education" as practice aimed at intentionally and reflectively promoting the global development of the individual. An "educator" is anyone who practices education. The terms "education" and "educator" are not wedded to a fixed set of institutions or social roles found in a particular culture or time. Anyone can be an educator (See Ch. I, Sec. C above).
2. Piaget uses the term "equilibration" to denote the equilibrium-disequilibrium cycle, as a whole, moving in an orthogenetic direction. Equilibration is thus a near-synonym for orthogenesis, but one that refers to the particular explanatory mechanics of Piaget's theory.
3. Now within professional educational settings, terms like "more developed" or "higher functioning" may be ethically used as "shorthand" for an implicit reference to a particular set of respects according to which comparison is being made. Deliberate ranking of students according to global "level" may even serve as a conscious educational tool, designed to heighten awareness of and commitment to achieving aspects of growth deemed most essential. The use of such professional language and such educational methods is ethically sound to the extent that it saves time without dulling inquiry, and enhances student effort without restricting growth.

4. The following remarks by Dewey are sufficiently relevant to warrant their entire inclusion here:

"Every experience is a moving force. Its value can be judged only on the ground of what it moves toward and into. The greater maturity of experience which should belong to the adult as educator puts him in a position to evaluate each experience of the young in a way in which the one having the less mature experience cannot do. It is then the business of the educator to see in what direction an experience is heading. There is no point in his being more mature if, instead of using his greater insight to help organize the conditions of the experience of the immature, he throws away his insight. Failure to take the moving force of an experience into account so as to judge and direct it on the ground of what it is moving into means disloyalty to the principle of experience itself. The disloyalty operates in two directions. The educator is false to the understanding that he should have obtained from his own past experience. He is also unfaithful to the fact that all human experience is ultimately social: that it involves contact and communication. The mature person, to put it in moral terms, has no right to withhold from the young on given occasions whatever capacity for sympathetic understanding his own experience has given him.

No sooner, however, are such things said than there is a tendency to react to the other extreme and take what has been said as a plea for some sort of disguised imposition from outside. It is worthwhile, accordingly, to say something about the way in which the adult can exercise the wisdom his own wider experience gives him without imposing a merely external control. On one side, it is his business to be on the alert to see what attitudes and habitual tendencies are being created. In this direction he must, if he is an educator, be able to judge what attitudes are actually conducive to continued growth and what are detrimental. He must, in addition, have that sympathetic understanding of individuals as individuals which gives him an idea of what is actually going on in the minds of those who are learning. It is, among other things, the need for these abilities on the part of the parent and teacher which makes a system of education based upon living experience a more difficult affair to conduct successfully than it is to follow the patterns of traditional education" (1938, pp.38-39).

5. Educators should also consider that the level of development (with respect to those factors most pertinent) of the person in a leadership role can have a decisive effect upon the growth-trajectories of students. A superb basketball coach may enable students to skip over difficulties that they might have encountered under a less skilled coach. Exceptionally wise and loving parents may enable their child to avoid much of the normal upheaval of adolescence. College students learning physics do not have to proceed through a Ptolemaic, then a Copernican, then a Newtonian notion of the universe before proceeding to a quantum-relativistic view; the understanding of their teachers conditions their learning trajectory. Similarly, nations struggling to attain democracy do so differently in a world populated with other democracies than the United States did in a world populated by monarchies.

6. Aron (1980) provides an example:

"The extent to which students were dependent or independent, co-operative or competitive, is another variable which would influence the way in which deliberation would be taught. In situations in which students were generally highly competitive, the teacher would do well to emphasize the corporate nature of deliberation, and to encourage group deliberations. The aim of co-operation, however, must be balanced against the aim of developing independent judgement. In situations in which students were more docile and tended to accept uncritically the opinions of others, the teacher would do well to encourage the students to exercise and evaluate their own judgements" (p.419).

CHAPTER V

RECOMMENDATIONS FOR FURTHER INQUIRY

I have attempted to relay a grasp of orthogenesis as change in the direction of: 1) increasing co-ordination of increasingly distinguished elements in the environment; 2) increasing autonomy of choice coupled with increasing de-centering of perspective; and 3) increasing opening of and openness to the environment alongside increasing immunity from its vicissitudes. (The idea of integration comprises the qualities of co-ordination, autonomy, and immunity. The idea of differentiation comprises the qualities of distinguishing, de-centering, and opening. Thus orthogenesis is defined as complementary integration and differentiation.)

I have attempted to justify using orthogenesis as an ethical definition of what it means to grow or develop. I have also attempted to deduce some implications of the orthogenetic principle for educational inquiry. With respect to further work to make the principle more useful to educators, two recommendations come to mind.

First, in Chapter IV, Section C, I examined various categories of ideas about the nature of development found in psychological theories. I attempted to demonstrate an ethical "screening" process for various assumptions. For example, I argued that psychological theories which assume a final state of

human development, to be helpful in education, must be coordinated within a view of how such an assumption might influence growth. Additional inquiry should apply this screening process to other assumptions within psychological theories which I have failed to mention. The same process should be applied to theories within other disciplines relevant to education: anthropology, sociology, and the like. Are there "givens" within a theory which remove from the domain of ethical regulation matters which might conceivably control growth, and which might themselves be controllable?

Second, I have stopped short of presenting narrative "cases" showing how I might use the principle to aid me in framing an educational problem in a global, complex situation. One reason for this omission was my unwillingness to add to an already overly ambitious project. Another was my concern that such simulations would inevitably fail to cover all the variables and considerations present in a real situation. Or they would fail to convey the role played by individual talent and intuition in any actual judgement. Nonetheless, a "case study" approach might provide a growthful integration of the considerations distinguished in Chapter IV, Section D. Only by employing the principle in a cross-cultural series of real and hypothetical situations will we get at the "meat" of the orthogenetic framework. Only in this way can we discover if it really "works", provoking a broader and more effective framing of problem-solutions in all situations.

My final observations concern the relationship between American developmental science and American education. American educators, be they professionals, parents, or others, should differentiate between heuristically useful assumptions for psychological science and ethically sound ones for education. The orthogenetic framework can help educators filter out ethically untenable assumptions about development. But this cuts both ways. It means that psychologists can make assumptions they find useful for pursuing inquiry into the facts of how and why people change, without being charged with adversely affecting education.

Sometimes the most fruitful stimuli to psychological experimentation and dialogue are one-sided assumptions which would be disastrous if uniformly "applied" in an educational context. Assumptions that people act like machines, or that they re-organize all their habits under the influence of their highest acquired thought structure, or that their adult lives are largely determined by unconscious influences from their earliest years, all have scientific merit. We find out as much by attempting to refute them as we do by attempting to sustain them. If research based on these or other assumptions highlights undesirable forces operating against growth, so much the better. In order to frame inclusive and essential problems, educators need to be alerted to the worst about human beings as well as the best. A critical psychological theory can be a spur to education just as critical

social theory can be a tool for social reform. If psychologists wish to claim that their findings place eternal limits upon human possibilities, this need not rivet the attention of educators with clear ethical priorities.

Differentiating between the scientist's function and the educator's empowers educators to take the primary role in the formation of educational policy, instead of leaving this matter to more specialized scientific experts. Kaplan (1983, 1986) argues that it is the job of developmental psychology to define the nature of what is desirable for human beings, and then prescribe this as a matter of social policy. Kaplan's willingness to take responsibility for this task is laudable. In keeping with my previous remarks on responsibility, there is an unlimited amount to go around. Psychologists should form opinions about education. They should speculate on implications for education which they believe are indicated by their research findings. Certainly they should participate in public debate on educational policy.

Yet I can't help but feel that Kaplan's assignment of prominence to the scientist's role in prescribing policy, as nobly motivated as it is, reflects the gulf in status and authority in America between the university professor and the schoolteacher or parent. To be fair, it also reflects the vacuum left by educators who have not themselves been educated in ways commensurate with their responsibilities, and who form policy based upon inquiry which is far below the level of thoroughness

and objectivity one finds in science. It is no wonder that developmental psychologists concerned about the future of humanity feel moved to fill this vacuum. One purpose of this thesis is to explore means for educators to upgrade their own inquiry to a level of development more in keeping with the demands of their task. Educators need not rely on policy prescribed by psychologists if they have the tools to sort out the views of a plurality of psychologies, and make their own policy based on more particular assessments of actual situations.

As it develops, developmental psychology will have an increasingly important and constructive role to play in education. Its job will be to refine the mind-boggling welter of possible adaptations due to interactions between inner and outer factors into systems of probabilities. How likely is it that certain kinds of interactions in certain kinds of cultures between certain kinds of educators and certain kinds of students in certain kinds of situations will promote certain kinds of progressive or regressive adaptations? The educator can assume that theories based on probabilities may break down in the face of individual interactions, but at least good theory gives him a place to start. If psychologists want to aid education, they can let educators contribute to the direction of research by asking them what kinds of questions they want answered. Then they can use whatever heuristic means are at their disposal to come up with probable answers and ways of thinking about them.

Everyone has a role to play in taking responsibility for human development. Yet using psychological research to tailor educational policy is more properly the educator's function than the psychologist's, although the psychologist's advice may be invaluable. It is, after all, the educator who takes responsibility for the global development of particular individuals, and for the direct consequences of the way problems and policies are framed. There is, of course, no reason to prevent any given individual from playing both roles over time. In fact, it would be useful for more professional educators to have a chance to conduct psychological research, and for research psychologists to take time to work and think as educators. That way there would be not only differentiation between the educator's and scientist's functions, but integration as well.

Unfortunately, the gap in status, training, and expectations between research psychologists, and, for example, elementary school teachers, cuts the educator out of his proper role. We do not expect elementary school teachers to indicate research priorities, create policy, evaluate and adapt psychological research, or define long-term growth-pathways. In our culture, educators only accede to such roles as their connections to students become more distant, as they inhabit the student's exosystem rather than his microsystem, becoming superintendents and college professors rather than parents, counselors and schoolteachers. Our culture works against the

possibility of policy being made by those in the most direct position to implement it and be affected by it. Thus it is no surprise that psychologists are ready to exert their accustomed authority, and fulfill the educator's role for him.

Science seeks general laws within specific aspects of the world. Education, by contrast, seeks the most particular laws which apply to that most general of things, the actual human being. If research psychologists really want to empower educators, and respect the limits of science as applied to education, they would do well to heed the advice given by George Shultz during the "Iran-Contra" scandal. His view was that if those gathering the information (in his case the CIA) begin to appropriate the task of making or prescribing policy, problems result. On the one hand, the intelligence tends to be biased to reflect the policies favored by those assembling it. On the other hand, policy recommendations are influenced by a view of the situation biased and limited by the preoccupation with gathering certain kinds of information. It is simply not as broad an outlook as that of the politician who must weigh a greater variety of situational factors. Finally, it is the politician and not the intelligence agency who is ultimately accountable for the results of policy.

Insofar as research psychologists make policy recommendations based on their philosophical reflections, their concern for human welfare, and their larger experience, they are

acting as educators. Insofar as they seek to generate authoritative pronouncements based upon their research, however, and upon their social prestige as scientists, they risk disempowering the educator, and usurping his proper function. Since this is surely not their intent, it is my hope that orthogenetic ethical theory can be one tool for establishing a more balanced relationship between education and developmental psychology.

For such a relationship to flourish, those whose direct interactions within families or institutions suit them for the educator's role must take on this role. They must become educators as well as teachers, managers, parents, counselors, nurses, and so on. Once the concern for the student's global development is raised, the ability to conduct thorough and objective inquiry should be developed. With this in progress, educators should reorganize the settings in which they practice to enhance their impact upon growth. Schools, workplaces, hospitals, prisons, homes: all have the potential to become truly educational contexts.

Within such contexts, the partnership between the educator and the scientist (and not only the psychologist, but the sociologist, economist, political scientist, anthropologist, etc.) can come to fruition. The scientist can provide a controlled, focused, and systematic kind of inquiry which is bound to escape the educator dealing with the global array of human possibilities and

conflicts. The educator's inquiry can provide a frame of reference which is both more holistic and more sensitive to individual and situational peculiarities. He can thus suggest essential directions for scientific inquiry, and co-ordinate a plurality of scientific findings within larger ends-in-view. Periodic role changes between educators and scientists would be growthful for each, allowing for a more de-centered and co-ordinated perspective

A more integrated yet differentiated scientist-educator relationship would mean increasingly intimate dialogue and mutual influence with retained respect for essential and useful role distinctions. Scientists could consider the educational effect of their very experimentations-and-observations-in-context. Just as educational contexts could provide real-life laboratories for scientific advance, so scientific research could incorporate educational aims. Bronfenbrenner advances the notion of the "transforming experiment" which "involves the systematic alteration and restructuring" of the sociocultural ecology "in ways that challenge the forms of social organization, belief systems, and lifestyles prevailing in a particular culture or subculture" (1976, p.41).

The transforming experiment provides a vehicle for educators and scientists to act as partners in the organization of social institutions which consciously promote growth. The orthogenetic principle can provide educators with a powerful tool

to orient effort in the direction of creating such institutions. This is the challenge that was set forth by Dewey:

"When the identity of the moral process with the processes of growth is realized, the more conscious and formal education of childhood will be seen to be the most economical and efficient means of social advance and reorganization, and it will also be evident that the test of all the institutions of adult life is their effect in furthering continued education. Government, business, art, religion, all social institutions have a meaning, a purpose. That purpose is to set free and develop the capacities of human individuals without respect to race, sex, class or economic status. And this is all one with saying that the test of their value is the extent to which they educate every individual into the full stature of his possibility. Democracy has many meanings, but if it has a moral meaning, it is found in resolving that the supreme test of all political institutions and industrial arrangements shall be the contribution they make to the all-around growth of every member of society" (1950, p.147).

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