What are developmental implications, how are adults helped to make real these behaviors and ways of looking at world(what's implied about meta awareness), how do we know when people do, how do we know when they don't?

1. ***Learn from experience and mistakes create learning opportunities***

Staff need to learn how to learn(P 17). This learning isn't classic textbook learning but rather a deep form of iterative, experiential learning that is grounded in a capacity to learn from mistakes(p 61&95).---rel-I as all went to same school(received knower-saljo), what types of denial & defensiveness short circuit feedback process, Model 2 mind

2. ***Get Root causes through extensive questioning leading to understanding***

Related to learning is a form of problem solving effective on messy problems that can't be solved by deductive investigative approach but rather by key principles that inform the investigative process when clues aren't so clear(P 43) such as using 5 whys and the more complex, connected view of reality implied in that ability to ask those questions(p.82). Also there is a realization that even apparent solutions create new problems(p. 65). How to reclaim questioning from wonder? Seeing systems and interconnections, what are those key principles? See5 whys at bottom?- HHS diagram-Bassseches

3. ***Scientific method using data and analysis to lead to the solutions and root cause***

A philosophy of empiricism that makes sense of the situation that is often shrouded in opinions and reams of data (P 44). There is a natural tendency to let facts speak for themselves(P 71) without agendas or silos limiting the process of understanding. What's law of situation? Role of intuition, open to emergence, scientists' blinders(judgeous use of sci method-not reify)

4. ***Don't jump to conclusions, suppress out natural need to be "right", address multiple solutions and depend on teamwork to select the best outcome*** A capacity to suspend the natural urge to offer a "hero's solution" from a strong need to be right but rather a personal detachment-beginner's mind(P. 20) that allows the consideration of an array of countermeasures in the construction of a "tentative way" forward which parallels the scientists' ways of pursuing multiple alternatives simultaneously (p 76) and the making of decisions from the fullest set of facts (p75) . beyond wants to be right is huge developmental leap

5. ***Gather understanding through unbiased questioning with open questions leading to a comfortable unthreatening dialog.*** A capacity to ask questions of colleagues in a manner that doesn't irritate(p 46) or imply a solution(P 82) and it becomes normative to explain how one knows without becoming defensive. Socratic method, awareness of own motive in asking qt, reflective capacity to explain own way of knowing,

6. ***Encourage healthy conflict conducted in a safe, no-blame, positive, felt mutuality*** There is a comfort in respect through conflict(p 73). Conflict is seen as the engine for improvement, and blame(P. 52&54) and negative reactivity (P 71) are less frequent in the work setting. This healthy conflict produces a fact based dialogue(P. 65) where individuals don't try to retrofit solutions. Beyond wiifm, conflict's purpose(D. Kramer)/irritant) ,blame when now shouldering responsibility

7. ***Most problems are solved and processes improved by people working in the process. They constantly ask "how can things be better?". They take primary initiative and responsibility for constantly making things better.***

Responsibility and its corresponding authority are commonly sought and grounded closely to the place the work is being done (81). The responsible person takes initiative to use the process of gathering facts and involving individuals to establish the authority needed to get the work done and the decision made. Is CI mindset developmental- what are compulsive limits? Proactivity-Dweck's change focus,

8 ***Leaders model these behaviors, and take every opportunity to coach and mentor their people***

Leaders have the capacity to coach and mentor staff in all of the above ways of being in a LEAN environment. Capacity to challenge and support, know development

Dialectical Thinking and Adult Development

MICHAEL BASSECHES

Psychology Department
Clark University
Worcester, MA
and
Clinical-Developmental Institute
Belmont, MA

Preface by Howard E. Gruber

Ablex Publishing Corporation
Norwood, New Jersey 07648

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INTRODUCTION I: ADULT DEVELOPMENT

Until recently, the terms ''developmental psychology'' and ''child development'' meant the same thing to psychologists. There was an implicit assumption that developmental psychology described the formation of adult personality in childhood and adolescence, and that personality psy-

chology studied the vicissitudes of the adult personality after it was formed. Each discipline developed its own somewhat distinct methods and frames of analysis. The new field of adult development is rooted in two suggestions: (a) that changes in personality of similar magnitude to those of childhood and adolescence often occur in adulthood; and (b) that some of the tools of developmental psychology might be useful in studying these changes. In the last decade, acceptance of these suggestions has become widespread and the field of adult development has blossomed.

The increased popularity of the field of adult development is not difficult to document. In academia, courses and programs in adult development or "life-span development" have been springing up all over. Psychology departments have been adding the adult development specialty to their rosters of areas of expertise to be covered. The major textbook publishers have been racing to produce adult development texts to win the new market.

Concurrently, the idea of adult development has been grabbing hold of the general public. For some adults, the phenomenon takes the form of a newly found excitement, if not infatuation, with the thought of their own continued development. Others, facing the emotional difficulties of life, are relieved to read that their crisis of personal restlessness, adjustment to a job change, or adjustment to their now-grown children leaving home is something that many others at their age also experience. The phrase, "it's just a phase s/he's going through," which they formerly relied upon to relieve their agitation about their children's difficulties, can now be applied reassuringly to their own lives. As the pace of social, economic, and technological change has accelerated, there has been less and less that a person could count on to remain the same in his or her life; the metaphor of life as a pathway or "cycle" of changes and opportunities has become more and more appealing. Gail Sheehy's book, *Passages: Predictable Crises of Adult Life* (1974) spent 16 weeks atop the best seller list.[1]

What troubles me most about this sudden popularity is what seems to be happening to the idea of *development* in the process. Looking at the history of popular psychology from Adler to Laing, Russell Jacoby, in his book *Social Amnesia* (1975) documents a gradual movement in the direction of narcissistic preoccupation with subjective feelings and experience. The advocacy of ideal individual goals like self-actualization (Maslow, 1967), and techniques such as Gestalt Therapy (Perls, et al., 1951), translated into a preoccupation with a kind of psychological self-

[1] Publisher's Weekly. Hardcover nonfiction. *Passages* was #1 August–December 1976. It remained on the list through July 1977. The paperback version was on the mass market list from June, 1977 through March, 1978.

aggrandizement. Phrases like becoming a "psychologically whole person" or an "expanded person" or "fully functioning and emotionally expanded" (Boy & Pine, 1971, p. 4) became popular. More recently, with books like *Looking out for Number One* (Ringer, 1978), pop psychologists have become explicit prophets of universal selfishness.

Since Sheehy popularized the idea of adult development, it too has begun to be assimilated to the idea of psychological self-aggrandizement. Everett Shostrom (1976), director of the "Institute for Actualizing Therapy," presents "a theory of developmental actualizing" (p. 107). Adult development research becomes a basis for maps and tour guides of the life-cycle terrain which adults can use to navigate that terrain to their own satisfaction. Shostrom writes, "For young people, the developmental sequence provides a road map of the obstacles and opportunities that lie ahead" (Shostrom, 1976, p. 106). It is not difficult to envision the growing corpus of writing to be subtitled "things to feel and things to see to get the most out of your journey through the rocky land of adulthood."

Meanwhile, many serious social scientists embrace a positivistic empiricist tradition, in which value-judgments and science are kept strictly separate. These researchers (e.g., Botwinick, 1967; Horn, 1970) have attempted to remove all value-connotations of the term development. The idea of development, for them, is simply age-related change that occurs with a certain regularity. Research in adult development simply becomes a matter of summarizing, documenting, and predicting age-related changes (usually decrements) in biological and psychological functioning during adulthood.

In a kind of middle ground, there are theoreticians, most notably Erikson (1959), who present life-task or life-crisis theories of adult development. In these theories, the markers of development are not specific changes in biological or psychological functioning but hypothesized changes in the challenges or concerns with which individuals are presumed to be consciously or unconsciously preoccupied. These fundamental concerns (in Erikson's case, intimacy, generativity, and integrity) are presumed to be triggered by biological changes or changes in social expectations, and to *underly* more superficial behavioral changes. Life-crisis theories vary in the degree of universality they claim for the changes in preoccupations which they describe. Some changes in preoccupations are understood as products of particular cultural patterns, others are understood as products of inevitable biological changes, and still others are viewed as products of culturally universal ways of responding to biological change during the life-cycle.

It may be argued that these "depth theories" go beyond the empiricists' simple documentation of age-related changes, since the depth theorists try to describe underlying unities behind the diverse changes of adulthood.

They use "development" to mean fundamental age-related change as opposed to superficial age-related change. Also, they are often explicit in their defining and valuing of "successful" performance on developmental tasks. However, in life-tasks theories, the stages of development themselves are defined only by the issues with which individuals are dealing, rather than by how they are dealing with them. Thus, "development" from one stage to another refers to a purely subjective process of change in inner concerns. It does not necessarily involve a person's achieving a more adequate way of understanding and interacting with his or her environment.

The empiricists' and the theoreticians' interpretations of development clearly differ from the interpretation of development as self-actualization. They too trouble me, however, because of their potential for blending into the popular image of the adult development field. I envision the pop psychologists, in constructing their guide maps of the adult development terrain, more and more drawing upon the age-related changes proposed and documented by the academics. I also envision students of the academic literature asking, "What are the practical implications of this work for an individual adult?" Since the academics' descriptions of regular changes in individuals' preoccupations and functioning tend to evoke an image of millions of individual adults traveling around their similar life-cycles in parallel, rather than going anywhere together, I fear that the answer is likely to be a variant of the self-actualizationist prescription to appreciate the subjective dimensions of the inevitable life-journey.

There also exists a tradition in developmental psychology which, unlike that of the empiricists or the life-tasks theorists, has the potential to directly counteract, rather than to play into, the egoistic, subjectivistic tendency in American popular psychology. In contrast to equating human development with enhancing the self by getting as much out of life as possible, this tradition explicitly equates human development with getting beyond the narrow boundaries of the egoistic self. This tradition embraces the philosophical values of pursuit of a truth and a collective good which transcend the individual. Jean Piaget's project of genetic epistemology represents the most elaborate example of work within this tradition.

Piaget attempted to describe the progress children make in moving from less adequate to more adequate ways of knowing or thinking about their universe. From the perspective of genetic epistemology, "more adequate" structures of knowing are those which are less egocentric (or ethnocentric) and able to integrate a broader range of dimensions of experience and perspectives upon that experience. This process is called "development" not because the individual necessarily feels bigger or better as a result of it, but rather because through it the individual overcomes the boundaries of egocentrism to discover more objectively (intersubjectively) valid and powerful ways of comprehending the world.

Unfortunately, Piaget's theory has been of limited relevance for the study of adult development. The limits of Piagetian theory result from his opting for an overly formalistic description of mature thought, and therefore ignoring cognitive development after early adolescence.

In the field of adult development a variety of theories and studies do exist which describe new forms of thinking about various kinds of issues which emerge in adulthood and which are claimed to be more adequate than their predecessors. But this work has not yet been organized into a coherent approach to adult development, with the same stature as the Piagetian approach to child development.

My own research in the field of adult development has centered on the emergence, in adults, of modes of thinking associated with the dialectical intellectual tradition. This work now provides a basis for a conception of dialectical thinking (a) as an alternative to the Piagetian formalistic account of mature thought, and (b) as a level of cognitive development beyond Piaget's adolescent "formal operations" stage.

In using this book to present this conception, I will provide what I believe to be a more useful theoretical framework for the study of *adult* development than Piaget's theory, taken by itself, provides. Since this framework will share the genetic epistemological concern with describing movement in individuals from less adequate to more adequate ways of understanding the universe, it will be susceptible of integration with Piaget's theory to provide a fuller account of the development of human reasoning. At the same time, I will show how this framework provides a basis for organizing extant theory and research on adult forms of reasoning (including social reasoning), into a coherent alternative to the approaches to adult development which describe sets of changes in concerns, abilities, or traits which are not in themselves necessarily either good or bad, but which merely can be expected to happen.

INTRODUCTION II: DIALECTICAL THINKING

Dialectical thinking as an intellectual tradition represents a third alternative to two powerful styles of thought which have exerted considerable influence on contemporary humanistic, scientific, and social thought, in both their professional and their "common sense" forms. I call these styles universalistic formal thinking and relativistic thinking.[2] As an expository device, I will begin by describing these two styles of thought, with their accompanying sentiments and sensibilities; then I will describe how di-

[2] The common sense forms of universalistic formal reasoning are reflected in Mary's and Mark's thoughts, while the common sense forms of relativistic reasonings are reflected in Helen's and Harry's thought, in the examples which introduced this book (see pp. 1–2).

alectical thinking contrasts with these alternatives, as well as what it shares with them.

Universalistic Formal Thinking

Universalistic formal thinking assumes that there are fixed universal truths and that there is a universal order to things. This order can ideally be described in an abstract, formal way, and all manner of phenomena in the universe may be found to fit in their places within this order. The task of science and philosophy is to describe the order. The universalistic formalists' sentiments tend to include positive feelings toward powerful abstract systems of ordering which capture the commonality or relationships among apparently different things. Chomsky's (1957) work in linguistics, which describes linguistic structures which are at the core of the language of all language users, is an example of this kind of system, which universalistic formalists have greeted with great enthusiasm. The same individuals tend to have negative sentiments toward relativistic reasoning (which I will describe further below). Such reasoning strikes universalists as accepting too much sloppiness or disorder in the workings of the universe. In fact, the reasoning itself if often viewed as sloppy thinking—as thinking which has retreated from the task of imposing strict order on everything, perhaps as a result of laziness or lack of intellectual power.

Relativistic Thinking

In contrast to universalistic formal thinking, relativistic thinking assumes that there is not one universal order to things, but rather that there are many orders. Relativists assume that different individuals, groups, or cultures order reality in different and incompatible ways. Thus, order in the universe is entirely relative to the people doing the ordering. The task of science and philosophy is to appreciate, to describe, and even to create as wide a range of different orderings as may exist and be interesting and useful.

Relativists' sentiments include positive attitudes toward diversity. They appreciate work which shows how things can be looked at differently, such as anthropologists' ethnographies of distant cultures (e.g., Mead, 1928), or idiographic approaches in personality psychology (Allport, 1937). They often maintain a strong value on tolerance or mutual appreciation among people who order the universe in different ways. Relativist's negative sentiments tend to be directed to what they perceive as acts of imperialism, including intellectual imperialism. Two kinds of theories advanced by the universalistic formalists which relativists tend to view as imperialistic are as follows. When universalists claim that one way of ordering things is *the right way*, equally applicable to phenomena experienced

by all persons, groups and cultures, relativists see this as imposing an egocentric or ethnocentric order on the experience of others. Alternatively, when universalists create schemes which acknowledge diversity of orderings, but then order these diversities themselves within some overarching framework that imputes greater value to some orderings than others, relativists tend to react negatively. For example, anthropological theories which treat some cultures as "primitive" and evaluate their modes of ordering against standards taken from the anthropologists' own "civilized" culture are viewed as equally imperialistic to theories which fail to appreciate diversities. In sum, any view which claims that one person's way of viewing things is truer or better than another's is regarded with distrust if not hostility by relativists (except perhaps relativists' own view that their way of looking at things is better than that of the universalists).

Dialectical Thinking

The third alternative, dialectical thinking, charts a middle course. In the dialectical tradition, the evolution of order in the universe is viewed as an ongoing process. Furthermore, the *process* of *finding and creating order* in the universe is viewed as fundamental to human life and inquiry. Dialectical thinkers tend to reserve their most positive sentiments for these processes. As a result, dialectical thinkers regard positively that which contributes to these processes and negatively that which obstructs them. This process of creating order is seen as occurring through efforts to discover what is left out of existing ways of ordering the universe, and then to create new orderings which embrace and include what was previously excluded.

Dialectical thinkers can therefore be expected to share with universalistic formalists the negative reaction to relativistic reasoning, when the latter seems simply to acknowledge difference and disorder, and to retreat from efforts to find and create more powerful orderings. At the same time, dialectical thinkers would share with relativists the reaction that it is dangerous to believe that an all-inclusive ordering is possible. For it is precisely when one thinks one has achieved such an ordering that one stops actively looking for what is left out and what is different, and in fact one often begins to systematically defend oneself against perceiving such phenomena. Imperialism forces a way of life on others making it less likely that their own preferred way of life will be expressed. Intellectual imperialism imposes an order on the lives and meanings of others, making it less likely that the orderings created by others will be perceived. The easing up on the quest to find difference and disorder disrupts the fundamental process of inquiry as much as does the easing up on the effort to try to create order and unity when disorder and difference are discovered.

Of course conversely, from a dialectical perspective, the contributions

of work in the universalistic tradition is appreciated insofar as it has created more powerful orderings. The contribution of work in the relativistic tradition is appreciated insofar as it has directed attention to differences among alternative orderings, and phenomena and possibilities which lie outside of existing orderings. For in doing so, relativistic work actually creates opportunities to build more powerful orderings.

The relative hegemony of the universalistic formalist and relativistic perspectives ebbs and flows with the struggle among perspectives as it occurs in different intellectual disciplines. I expect that, at any particular point in time in any particular discipline, thinkers with dialectical sensibilities are more likely to be found appearing to side with the underdog in the hegemonic struggle, as these dialectical thinkers attempt to articulate their own perspective. It would be an interesting project in intelletual history to try to document this claim, but I cannot claim to have done so systematically. But since dominance of a discipline by universalists means powerful orderings have been achieved, the greatest threat to the process of inquiry is likely to be in ignoring discrepant phenomena. And since dominance by relativists means that great diversity has been found but little integration has occurred, the greatest threats to the process are in the despairing retreat from efforts at integration. One would expect dialectical thinkers to defend the process of inquiry against its immediate threats.

By introducing dialectical thinking by contrasting it with universalistic formal thinking and relativistic thinking, I am de-emphasizing the many differences and debates which exist among dialectical thinkers themselves. Throughout this book, commonalities among different species of dialectical thinking will be emphasized more than differences, in order to clarify what dialectical thinking means. This clarification however, should provide a framework in which contrasts among different dialectical theories may be more clearly drawn.

Dialectical Thinking and Psychology

In the context of psychology, the term dialectical thinking has been used in two different ways. Because Klaus Riegel's name is most often associated with *both* uses of the term, it is especially important to distinguish them here. One way in which the term has been used is in reference to the way in which psychologists are making sense of their subject matter. Psychology, just like any field of inquiry, may be studied dialectically, relativistically, or formalistically. If psychologists are regarding order as an emergent property in psychological phenomena (as opposed to fixed therein or absent), they are thinking about their subject matter dialectically. Riegel (1978; Riegel & Meacham, 1976) was a strong proponent of looking at psychological phenomena dialectically.

The second way in which the term is used is with reference to *cognitive psychology* in particular, which studies the ways in which people think. Riegel's (1973) paper, "Dialectic Operations," proposed that cognitive psychologists study dialectical thinking as performed by the human beings under study.

Although I support the advocacy of dialectical thinking in psychology (in the first sense), in this book dialectical thinking will mainly be used in the second sense—to refer to a cognitive psychological phenomenon, observable and observed in research subjects. In other words, this book is about the *psychology of dialectical thinking,* rather than about *dialectical thinking about psychology*. (For the latter, see Buss, 1979; Riegel, 1978; Riegel & Rosenwald, 1975).

My conception of dialectical thinking as a psychological phenomenon differs a great deal from Riegel's (1973). These differences are explicitly addressed in Chapter 7 of this book. However, my work is based on a fundamental hope shared with Riegel. This is the hope that through the process of making dialectical thinking a subject of cognitive psychological research, its nature—both as an intellectual tradition and as a psychological phenomenon—can be clarified.

DIALECTICAL THINKING AND ADULT DEVELOPMENT

I suggested above that one would be likely to find dialectical thinkers defending the process of inquiry within any given field against its most immediate threat, whether that threat comes from relativistic or universalistic formal thinking. The situation in adult development appears to me to be one in which the relativistic voice is a bit stronger than the universalistic voice, although to a large extent the two have joined each other in chorus. An implicit deal seems to have been struck in which (a) the relativists allow (or even endorse) efforts to describe in orderly ways differences in the ways adults at different ages make order of their lives, provided that (b) the universalists accept both (1) the relativists' recognition of fundamental individual differences and (2) the relativists' warnings against making value judgments among these differences.

Much of the work which I will present in this book can easily be assimilated to this current situation in the adult development field. To a large extent, I will simply be illustrating how *some* adults use various aspects of dialectical thinking to make sense of *their* worlds.

However, I will also be using the term *development* in the value-laden way in which it has been used in the genetic epistemology tradition and in much of developmental child psychology. I will be claiming that dialectical thinking represents a *development* beyond Piaget's formal operations stage; i.e., that dialectical thinking describes a more epistemolog-

ically powerful way of making sense of the world than the structure of formal operations by itself provides. In doing so, I am responding to the threat posed by the relativistic voice in adult development to the shared human pursuit of a less ethnocentric truth and a more harmonious world.

Let me be clear about the nature of this threat which I perceive. It is not a matter of psychologists of adult development themselves refraining from the process of inquiry. For the most part they do both search for data discrepant with existing theories (orderings) and attempt to build better theories which comprehend new data. However, these psychologists largely fail to *portray* the adults whom they study as social and epistemic beings—collaborative seekers of the true and the good. Instead psychologists portray adults as individuals—simply following the rhythms of their individual life-cycles. It is in transmitting this image of human beings that the field of adult development poses a danger.

In responding to this danger, I am to a considerable extent allying myself with the Piagetian project. There has been considerable debate over whether Piaget's work itself reflects the universalistic formal voice or the dialectical voice. Some dialectical thinkers have challenged the threats posed by the universalistic formal voice in Piaget (Buck-Morss, 1975; Riegel, 1973). Others have done more to help bring out the dialectical voice in Piaget's work (e.g., Wozniak, 1975; Gruber & Voneche, 1977). I will argue that Piaget's work reflects a deep tension between these two voices. Without entering the talmudic debate over which voice in fact dominated Piaget's project (see Broughton, 1981, for a thorough discussion), I will try to show how integrating my work on dialectical thinking with Piaget's theory will help correct for any possible tendency of the universalistic formal voice to dominate.

I recognize that in allying my work with the Piagetian project, I may inadvertently lend support to the universalistic formal voice in genetic epistemology—a voice that implies that there is one true form of knowing which all developmentally successful humans achieve. Insofar as this occurs, I hope it can be seen as an instance of siding with the underdog in the hegemonic struggle between relativism and universalism. I perceive us currently to be in a situation in which the greatest threat to the process of knowledge-building comes from a voice which portrays people as not pursuing truth at all. I will include criticism of the universalistic formal voice in my own work in the final chapter. But permit me, at the risk of redundancy, to make one last attempt to articulate my dialectical voice here.

I do not hold that there is one true form of knowing which all developmentally successful humans achieve. I assume there are individual differences in ways of knowing the world, shaped by individual developmental histories and the histories of the cultures in which individuals develop. Each of these ways is likely to have its own areas of strength and weakness. I expect that through human interaction, ways of knowing in which the epistemological strengths of many individuals' ways of knowing are integrated and their weaknesses transcended, may be continually created.

I do hold that frameworks which help distinguish changes for the better from changes for the worse are essential to an inquiry into human development in adulthood. Such frameworks point out features by which similar forms of knowing can be recognized, and their strengths relative to other forms appreciated. As Piaget understood, attempting to create such frameworks is an endeavor which is not only psychological but which necessitates making philosophical claims as well.

Philosophical claims embedded in developmental theory should be subjected to critical evaluation, rather than uncritically accepted, but the frameworks which include them must not be rejected out of hand. For without such frameworks adult life necessarily takes on the image of an egoistic, individualistic enterprise. I much prefer to think of adult life as a socio-historical process in which human beings are created who themselves have the opportunity to creatively contribute to the construction and realization of collective human ideals.

Durkheim, in *Suicide* (1951), demonstrated the phenomenon of anomic suicide, in which the alienation of individuals from collective human values and meaning may literally be fatal. From my perspective, a psychology of adult development similarly alienated from collective human values seems likely at worst to contribute to individuals' sense of alienation and at best to die from self-inflicted irrelevance. It is this spectre of a discipline called human development yet divorced from collective human values that leads to my choice to take a philosophical position in this book about the adequacy of reasoning structures. But I want to make clear that in embarking on this sort of inquiry I do not assume my position to be indisputably correct. Nor do I wish to intimidate any reader into acceptance of it or to slide it by surreptitiously in the guise of a purely empirical inquiry. Rather, my intent is to invite both criticisms of and challenges to my philosophical position.

Table 13 The Development of Reflective Judgement (Kitchener & King, 1981)

Stage	A) Metaphysical Assumptions	B) Epistemological Assumptions	Concepts of Justification
1	There is an objective reality which exists as the individual sees it. Reality and knowledge about reality are identical and known absolutely through the individual's perceptions.	Knowledge exists absolutely. One's own views and those of authorities are assumed to correspond to each other and to absolute knowledge. Knowledge is gained through the individual's perceptions and prior teaching.	Beliefs simply exist; they are not derived and need not be explained. Differences in opinion are not perceived, and justification is therefore unnecessary.
2	There is an objective reality which is knowable and known by someone.	Absolute knowledge exists, but it may not be immediately available to the individual. It is, however, available to legitimate authorities.	Beliefs either exist or are based on the absolute knowledge of a legitimate authority.
3	There is an objective reality, but it cannot always be immediately known, even to legitimate authorities. It is possible to attain knowledge about this reality, but our full knowledge of it is as yet incomplete and therefore uncertain.	Absolute knowledge exists in some areas, but in others it is uncertain, at least temporarily. Even authorities may not have certain knowledge, and therefore cannot always be depended upon as sources of knowledge. Knowledge is manifest in evidence which is understood in a concrete, quantitative way such that a large accumulation of evidence will lead to absolute truth.	Beliefs either exist or are based on an accumulation of evidence that leads to absolute knowledge. When such evidence is not available, individuals claim that while waiting for absolute knowledge to become available, people can temporarily believe whatever they choose to believe.
4	There is an objective reality, but it can never be known without uncertainty. Neither authorities, time or money nor a quantity of evidence can be relied upon to ultimately lead to absolute knowledge.	Absolute knowledge is for practical reasons impossible to attain, and is therefore always uncertain. There are many possible answers to every question, but without certainty and a way to adjudicate between answers, there is no way to decide which one is correct, or even whether one is better than another. Knowledge is idiosyncratic to the individual.	Beliefs are justified with idiosyncratic knowledge claims and on idiosyncratic evaluations of data ("what is true is true for me, but not necessarily for anyone else"). The individual is the ultimate source and judge of his or her own truth.
5	An objective understanding of reality is not possible since objective knowledge does not exist. Reality exists only subjectively and what is known of reality reflects a strictly personal knowledge. Since objective reality does not exist, an objective understanding of reality is not possible.	Knowledge is subjective. Knowledge claims are limited to subjective interpretations from a particular perspective based on the rules of inquiry and of evaluation compatible with that perspective.	Beliefs are justified with appropriate decision rules for a particular perspective or context, e.g., that a simple scientific theory is better than a complex one.
6	An objective understanding of reality is not possible since our knowledge of reality is subject to our own perceptions and interpretations. However, some judgments about reality may be evaluated as more rational or based on stronger evidence than other judgments.	Objective knowledge is not possible to attain because our knowledge is based on subjective perceptions and interpretations. Knowledge claims can be constructed through generalized principles of inquiry and by abstracting common elements across different perspectives. The knower must play an active role in the construction of such claims.	Beliefs are justified for a particular issue by using generalized rules of evidence and inquiry. However, since our understanding of reality is subjective, any such justification is limited to a particular case, time or issue.
7	There is an objective reality against which ideas and assumptions must ultimately be tested. Despite the fact that our knowledge of reality is subject to our own perceptions and interpretations, it is nevertheless possible, through the process of critical inquiry and evaluation, to determine that some judgments about that reality are more correct than other judgments.	Objective knowledge is possible to attain. Knowledge is the outcome of the process of reasonable inquiry. The process of inquiry, however, may not always lead to correct claims about the nature of reality since the process itself is fallible. Knowledge statements must be evaluated as more or less likely approximations to reality and must be open to the scrutiny and criticisms of other rational people.	Beliefs reflect solutions that can be justified as most reasonable using general rules of inquiry or evaluation. Criteria for evaluation may vary from domain to domain (e.g., religion, literature, science), but the assumption that ideas, beliefs, etc. may be judged as better or worse approximations to reality remains constant.