

# Basic Differences between a Pre-Scientific Orientation and a Scientific Orientation

Compiled by Steve Stockdale  
from Wendell Johnson's *People In Quandaries*

p. 83-86 (emphasis added)

Pre-Scientific Orientation	Scientific Orientation
<p>Fundamental notion of the <b>static</b> character of reality. A static reality involves essential <b>constancy</b> (there is nothing new under the sun). Main attention is given to <b>similarities</b>; <i>differences are minimized or ignored</i>. Consequently, <i>the individual is not especially important except as he represents a type</i>.</p>	<p>Fundamental notion of the <b>process</b> character of reality. A process reality gives rise to a <b>never-ending series of differences</b>. As much or more attention is paid, therefore, to differences as to similarities. As one important consequence, <i>the individual is regarded as an individual</i>, not merely as an example of a type.</p>
<p><b>Rigidity</b>, or <b>conservatism</b>, the tendency to <i>maintain established beliefs and habits regardless of changing conditions</i>, is fostered by these basic notions of static constancies. Thus, <b>traditions</b> are cherished, and <i>the authority of age and precedence is extolled, seldom challenged; experimentation is discouraged</i>. The Old Man is honored and obeyed. As a result of all this, <i>individual infantilism and social retardation are fostered</i>.</p>	<p><b>Adaptability, a readiness to change</b> as changing conditions require, is fostered by these basic notions of process differences. Thus there is a tendency to <i>challenge authority systematically; to experiment, to test traditional beliefs and customs</i> against actual observation and experience. The Old Man is respected, but evaluated critically. As a result of all this, <i>individual and social maturity is stimulated</i>.</p>
<p>The basic method of problem-solving, which we call <b>authoritarian</b>, involves mainly the practice of abiding by advice obtained from some <b>vested authority</b>, such as a parent, teacher, priest, or judge. Authority sometimes resides also in a book or code of rules. The pronouncements of such authority are not to be revised. This authoritarian method works in practice to <i>maintain unchanged the traditional beliefs, customs, and rules of conduct</i>. If problems are not solved, they are "explained" in terms of "fate", or "nature", or the "supernatural"; and toward the language used in such "explanations" <i>there is a dominant attitude that is naive and unreflective</i>.</p>	<p>The basic method of problem-solving, which we call <b>scientific</b>, consists of four main steps: <b>(a)</b> the asking of <b>questions</b> that direct one's <b>(b) observations</b> so as to <b>(c)</b> answer the questions clearly in such a way as to <b>test one's beliefs or assumptions</b>, <b>(d)</b> which are <b>revised</b> accordingly. Of these four steps, three (a, c, and d) involve mainly the use of language. This scientific method works in practice toward <i>the continual improvement</i> of specific techniques, refinement of beliefs, and "modernization" of customs and rules of conduct. If problems are not solved, new theories and methods are devised to solved them.</p>
<p>The language of a prescientific orientation is designed to <b>control behavior</b> by virtue of the vested authority it represents. If it is not clear, a properly appointed authority will interpret it, and his interpretation is to be believed. <i>The validity of authoritarian pronouncements is not to be questioned. Statements of assumption</i></p>	<p>The language of a scientific orientation is designed to be <b>factually meaningful</b>, directly or indirectly, and clear and valid. It is intended to satisfy two important tests: <i>"What do you mean?"</i> and <i>"How do you know?"</i> Moreover, <b>assumptions are sharply differentiated from statements of fact</b>.</p>

<p><b>and statements of fact tend to be regarded as the same.</b></p>	
<p>Prescientific language tends to make for <b>questions</b> that are frequently <b>vague</b> and quite often <b>meaningless factually</b>. Attempts to answer such questions give rise to <i>misunderstandings and disagreements, to misinformation and misleading theories</i>, with the result that <i>predictability and foresight are achieved slowly, or not at all</i>, and individual and social maladjustments are thereby fostered.</p>	<p>Scientific language is oriented around <b>factually clear, answerable questions</b>. Vague or meaningless questions are abandoned as being misdirective of human energy. On the principle that the terminology of the question determines the terminology of the answer, <i>only clearly stated questions are tolerated</i>. Because of this, mutual understanding and agreement are facilitated, <i>predictability and foresight are improved steadily</i>, and individual and social adjustment is thereby fostered.</p>
<p>In a prescientific orientation, the natural process of <b>projection</b> is carried out unconsciously (<i>relative lack of "to-me-ness"</i>). It is realized only vaguely, or not at all, that every statement conveys information about the speaker as well as information about whatever the speaker may seem to be talking about; and <i>the degree of self-reference is largely ignored</i> in evaluating the statement's factual significance.</p>	<p>In a scientific orientation, the natural process of projection is carried out with a <b>high degree of awareness (consciousness of projection, or "to-me-ness")</b>. It is realized that <i>every statement conveys information about the speaker</i> as well as information about whatever the speaker may seem to be talking about; and the degree of self-reference is reckoned in evaluating the statement's factual significance.</p>
<p>In a prescientific orientation, there is a marked tendency to speak as though with the voice of another (<b>ventriloquizing</b>). For example, <i>the voice of The Law is not recognized as the voice of the judge himself</i>. The speaker tends to ventriloquize both unconsciously and deliberately (as in the planned use of "ethical proof"). Only the more artful and deliberate ventriloquizers seem to realize that, after all, it is their own evaluations that they are expressing.</p>	<p>In a scientific orientation, there is <b>little or no tendency</b> to speak as though with the voice of another (ventriloquizing). For example, <i>the voice of The Law is recognized as the voice of the Judge himself</i>. The speaker tends not to ventriloquize either unconsciously or deliberately; <i>he realizes that what he expresses are his own evaluations</i> - even though he may quote another man's words.</p>
<p>Accurate <i>prediction, or foresight, is not a particularly well-recognized objective</i> in a prescientific orientation. At least, theories and specific statements are not evaluated primarily in terms of their usefulness in making predictions. In a prescientific orientation there are, strictly speaking, no scientific submicroscopic theories; there, rather, beliefs regarding the <b>"supernatural."</b> These <i>tend not to be changed</i>, because they are considered not as <i>theories</i> but as <i>statements of fact</i>. <b>Faith</b> in these beliefs and obedience to the authority which represents them - obedience expressed by participation in prescribed rituals, for examples - are prized as the <i>means of control over nature and human events</i>.</p>	<p><b>Accurate prediction, or foresight</b>, is a clearly recognized objective in a scientific orientation. Theories and specific statements are evaluated primarily in terms of their usefulness in making predictions. The value of a scientific submicroscopic theory (such as a molecular theory of matter) <i>lies in the accuracy of the predictions</i> which it makes possible. <b>Changes in such theories</b>, as also in theories that do not clearly involve submicroscopic constructs, are made in the interests of <b>more adequate prediction</b>. <i>Theories of high predictive value</i> are prized as the means of control over nature and human events.</p>