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# Frames, Minds, and Human Intelligence:

A review essay

Howard Gardner.

**FRAMES OF MIND: THE THEORY OF MULTIPLE INTELLIGENCES.**

New York: Basic Books, Inc., 1983.

xvi 440 pp. \$23.50 hardcover; \$11.95 paper.

Intelligence is one of those elusive words which for centuries has plagued efforts to speak precisely about human achievement. While observers have long recognized the complex nature of intelligence, progress towards meaningful discourse has suffered from the failure to develop an adequate theoretical basis for the concept's employment in the language. Howard Gardner's **Frames of Mind: The Theory of Multiple Intelligences** is a significant advancement in the direction of such a theory.

**Frames of Mind** is Gardner's seventh book since the appearance of his **The Quest for Mind** in 1973. While in many respects a synthesis of Gardner's work, it is also seminal in its multidisciplinary and macrocosmic approach to the problem it treats: the question of how the human mind works. Gardner, a MacArthur Prize Fellow associated with Harvard University, the Boston University School of Medicine, and the Boston Veterans Administration Medical Center, draws upon several domains of knowledge, particularly psychology, biology, and anthropology, in his treatment of this **mysterium tremendum** called intelligence. This he does in a non-technical, highly readable argument which advances the debate over the nature of intelligence considerably beyond the conventional issues of information-processing, psychometric theory, symbol systems, and I.Q. The result is a reduction of intelligence to seven possible types, which he classifies as "human intelligences". These categories, which he takes to be logically exclusive of each other except, with qualification, in the cases of the last two, include linguistic

intelligence, musical intelligence, logical-mathematical intelligence, spatial intelligence, bodily-kinesthetic intelligence, and two kinds of personal intelligence: intrapersonal and interpersonal. Each type is characterized through the utilization of evidence and examples drawn from a range of diverse fields of knowledge. The book, like Gaul, is divided into three parts: Background (four chapters), The Theory (eight chapters), and Implications and Applications (two chapters).

Gardner's theory falls generally within a two-hundred year tradition (notwithstanding such religio-classical statements as the seven knowledges of the Upanishads or the Apostle Paul's elaboration of God's gifts to man as outlined in I Corinthians 12, verses 8-11) traceable to Franz Joseph Gall and Joseph Spurzheim, the phrenologists who based the ostensible differences in human potential on certain suppositions about the size and shape of the brain as discerned through differences in human skulls. In this same tradition were the theories of L.L.Thurstone, the psychometrician, who argued in favour of a "family" of some seven primary mental abilities, and J.P. Guilford, who identified 120 "vectors" of the mind. Against such models is that of the British psychologist, Charles Spearman, who postulated an overriding, general "g" factor generic to all forms of intelligence and measurable through the use of tests. In retrospect, it is not surprising that such blindly empirical and decidedly microscopic views would give way to a broader notion of intelligence, as they did to the "structuralist" model of the Swiss psychologist, Jean Piaget. It was Piaget who illustrated the inadequacies of the Binet-Simon program through his theory of general structures of the mind explainable through a concept of cognitive development operating under the control of stage theory.

Interestingly, Gardner argues that,

Piaget's model of development assumes relatively less importance in non-Western and pre-literate contexts, and may, in fact, be applicable only to a minority of individuals, even in the West. The steps entailed in achieving other forms of competence -- those of an artist, a lawyer, an athlete, or a political leader -- are ignored in Piaget's monolithic emphasis upon a certain form of thinking". (p.20)

Indeed, contends Gardner, only through a broadly anthropological perspective do the employment of psychology and biology yield a meaningful theory of mind.

From the popular quarter, no doubt, the immediate interest in Gardner's book will be in his choice of intelligences and in the anthropological data utilized in their support. For example, one cannot help but find intriguing his argument for spatial intelligence, in which Gardner discusses a number of loosely

imagery and then to transform that imagery; the capacity to produce a graphic likeness of spatial information; and the like" (p.176). The isolation of these capacities in the individual is illustrated through the example of remarkable drawings from an autistic child. Anthropologically, they are illustrated through such cases as the Puluwat natives of the Caroline Islands, whose remarkable navigational skills continue to fill Western-trained navigators with awe, and the Eskimos, whose spatial abilities are approaching legendary proportions as some "60 percent of Eskimo youngsters reach as high a score on tests of spatial ability as the top ten percent of Caucasian children" (p.202).

The examples with which Gardner illustrates other forms of intelligence are equally intriguing, though philosophically, it is doubtful that anyone will spend much time attacking his theses that intellectual abilities are multiple and complex in nature, or that the concept of intelligence, as defined by the conventional instruments associated with its measurement, is grossly inadequate. Indeed, Gardner emphasizes that ". . . there is not, and there can never be, a single irrefutable and universally acceptable list of human intelligences" (p.60). But, for him, this hardly justifies pessimism in the quest for a more defensible classification of human intellectual competencies. Indeed, we should proceed for the following reasons.

Because there is much recent evidence emerging from scientific research, cross-cultural observations, and educational study which stands in need of review and organization; and, perhaps above all, because it seems within our grasp to come up with a list of intellectual strengths which will prove useful for a wide range of researchers and practitioners and will enable them (and us) to communicate more effectively about this curiously seductive entity called the intellect. In other words, the synthesis that we seek can never be all things for all people, but it holds promise of providing some things for many interested parties. (p.60)

Having thus qualified (and perhaps weakened) his case with what amounts to disclaimers (there can never be. . .) and a tautology (something for everyone), Gardner sets forth what he calls the prerequisites of an intelligence, of which he claims there are two, and the criteria of an intelligence, of which he claims there are eight. Accordingly, the prerequisites have to do with "the kinds of abilities valued by human cultures (for) we must account for the skills of a shaman and a psychoanalyst as well as of a yogi and a saint" (p.62).

For Gardner, the prerequisites of an intelligence are (i) that what he terms an "intellectual competence" must entail a set of skills of problem solving -- enabling the individual to resolve genuine problems or difficulties that he or she encounters and,

when appropriate, to create an effective product -- and (ii) that it must also entail the potential for finding or creating problems -- thereby laying the groundwork for the acquisition of new knowledge. The point of these prerequisites is to recognize the importance of the role played by general culture and cultural context on the meaning of intelligence (pp. 60-61). Gardner seeks here to justify his notion that intelligence in any of its variant forms is not an *a priori* matter, but is to be understood in terms of some kind of mental abilities complex set within a particular cultural context. This means that a particular intellectual capacity might fail to qualify as a discretely recognized intelligence under certain cultural conditions, while in a different culture it might well qualify. Gardner gives examples, such as (i) the ability to recognize faces, and (ii) the acute use of sensory systems, as in the possession of keen gustatory or olfactory senses. Gardner maintains that

Other abilities that are certainly central in human intercourse also do not qualify. For instance, the ability used by a scientist, a religious leader, or a politician are of great importance. Yet, because these cultural roles can (by hypothesis) be broken down into collections of particular competencies, they do not themselves qualify as intelligences. From the opposite end of analysis, many skills tested for perennially by psychologists -- ranging from recall of nonsense syllables to production of unusual associations -- fail to qualify, for they emerge as the contrivances of an experimenter rather than as skills valued by a culture. (p.61)

It seems plain that Gardner is correct, at least hypothetically, in his identification of these prerequisites (or, as philosophers might call them, "conditions") for the presence of an intelligence. But his case is weakened considerably by his lack of argument on their behalf. For example, if we are to accept the necessity of culture and its complex of values as a condition for an attendant intelligence, it is presumptuous to rule out the skills of a politician or a religious leader. Such may well be the case if we assume the meanings attached to political and religious leaders in modern, industrial societies, but this is not necessarily true of primitive or aboriginal societies. One has only to conjure up images of certain "political" leaders among nineteenth-century American Indian tribes, such as Cochise of the Chiricahua Apaches, who, though he inherited his position of leadership from his father, personified the attributes of Chiricahua intelligence through the exercise of his leadership; or Sitting Bull, Chief of the Hunkpapa Sioux and the most famed of the Sioux chiefs, who was both a religious and a political leader. It was he who gained the deference of the entire Sioux nation because of what surely was understood in his culture as the supreme example of intelligence. As one member of his own band noted, with stark

simplicity, "Sitting Bull is 'big medicine'." The point is simply that Gardner cannot a **priori** rule out as an intelligence those abilities associated with political and religious leadership if he is to argue the necessity of a cultural prerequisite or condition for the presence and meaning of an intelligence.

Gardner makes passing reference to other "efforts to nominate and detail essential intelligences, ranging from the medieval trivium and quadrivium to psychologist Larry Gross's list of five modes of communication (lexical, social-gestural, iconic, logico-mathematical, and musical). . ." (p.61). Surprisingly, he includes Paul Hirst's list of forms of knowledge as such an effort, contending that on an a **priori** basis, Hirst's forms and the other aforementioned efforts constitute acceptable classifications which indeed may prove crucial for certain purposes. But as a **priori** schemes, Gardner asserts, they fail the essential test for an empirically grounded set of faculties of intelligence. While neither Hirst nor his critics would wish to claim that his forms of knowledge are intended as intelligences by any stretch of their meaning, Gardner is mistaken in his understanding of them as a **priori**. Hirst is quite careful to explicate his forms as a **posteriori** lest they be taken in some Platonic or Kantian sense. Indeed, it is not at all clear why Gardner even brings up such knowledge classifications as the trivium and quadrivium, or Hirst's forms, since their object is knowledge, not intelligence.

Basic to Gardner's thesis is what he terms the criteria of an intelligence, which he presents in unordered fashion as the eight "signs" of an intelligence. In his words,

Here I outline those considerations that have weighed most heavily in the present effort, those desiderata on which I have come to rely in an effort to nominate a set of intelligences which seems general and genuinely useful. The very use of the work **signs** signals that this undertaking must be provisional: I do not include something merely because it exhibits one or two of the signs, nor do I exclude a candidate intelligence just because it fails to qualify on each and every account. Rather, the effort is to sample as widely as possible among the various criteria and to include within the ranks of the chosen intelligences those candidates that fare the best. Following the suggestive model of the computer scientist Oliver Selfridge, we might think of these signs as a group of demons, each of which will holler when an intelligence resonates with that demon's "demand characteristics". When enough demons holler, an intelligence is included; when enough of them withhold approbation, the intelligence is, if regrettably, banished from consideration. (p.62)

These criteria include potential isolation by brain damage;

the existence of idiot savants, prodigies, and other exceptional individuals; an identifiable core operation or set of operations; a distinctive developmental history, along with a definable set of "end-state" performances; an evolutionary history and evolutionary plausibility; support from experimental psychological tasks; support from psychometric findings; and susceptibility to encoding in a symbol system.

Unfortunately, Gardner is unable to offer a satisfactory model for the utilization of these criteria. As he admits, their employment is quite subjective in that we do not know how to bring them to any clear and objective use. Moreover, the criteria are insufficiently differentiated, some a function of purely biological consideration, others a function of the social sciences. Questions loom, such as, "Are the criteria of equal weight in determining an intelligence?" Stated differently, "Are they only nominally different, or are they hierarchical in their interrelationships?" Finally, even if we were able to agree that, say, three or four of them are sufficient to justify an intelligence, "How are these to be used as instruments of measure?" At best, Gardner offers what amounts to a general hypothesis about multiple intelligences rather than a useful theory, even one of description.

While he takes intelligences to be derived **a posteriori** through the prism of culture, Gardner is remarkably Aristotelian in his notion that "intelligences should be thought of as entities at a certain level of generality, broader than highly specific computational mechanisms (like line detection) while narrower than the most general capacities, like analysis, synthesis, or a sense of self (if any of these can be shown to exist apart from combinations of specific intelligence). . . . It is thus a mistake to try to compare intelligences on all particulars; each must be thought of as its own system with its own rules" (p.68). All of this is conceptually quite unsettling, for Gardner seems to be positing something akin to a structuralist explanation for any intelligence while rejecting the proposition that "particulars" are either logically or ontologically prior to an intelligence. If the structuralist assumption may be said to suffer with the assignation of (say) musical intelligence to an idiot savant, it is also logically inappropriate if one is to assign to an intelligence the conceptual status of an entity apart from the assemblage of particulars that constitute its basis. Linguistically, at least, Ockham's Razor would seem to be a most helpful tool in resolving this issue. Yet, Gardner's concern is not so much with the ways that words like intelligence, giftedness, creativity, knowledge, abilities, skills, and other cognates function in any culturo-linguistic context, but is instead concerned with ". . . the various intelligences chiefly as 'sets of know-how' -- procedures for doing things" (p.69).

Howard Gardner's thesis that intelligence is a multi-faceted concept is **prima facie** valid, and his book is a most valuable

hypothesis, but a hypothesis at best. The overriding problem involved in understanding this hypothesis as it is presented is, however, not an empirical one, but is clearly philosophical, requiring an adjustment in the basic construct. Gardner's thesis breaks down at the point of his (correct) identification of culture with problem identification and problem solving. These are necessary conditions for the presence of an intelligence. Ostensibly, cultures, which include very different languages, are so entirely divergent at any point in time that it becomes necessary to examine the meanings of intelligence as they are culturally couched in language. Failing this, assumptions surrounding the idea of intelligence in one cultural context, however liberal and enlightened, will inevitably find their way, however tacitly, into the search for intelligence's meaning(s) in other cultures. Anthropology and language study are essential tools in the resolution of this problem, but they must be philosophically employed. Until this is done, we cannot attach meaning to such statements as that of the Hunkpapa Sioux tribesman who noted that "Sitting Bull is 'big medicine'."

Nonetheless, **Frames of Mind** stands as a new benchmark from which discussions of human intelligence must proceed. Howard Gardner is to be applauded for planting the seeds of an original theory of the human mind, one which is certain to elevate future dialogue considerably beyond the level that has hitherto characterized so much of the debate surrounding intelligence.

