



Beyond Boyer's Scholarship Reconsidered: Fundamental Change in the University and the Socioeconomic Systems

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 Walter E. Davis
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Beyond Boyer's *Scholarship Reconsidered*

Fundamental Change in the University and the Socioeconomic Systems

The task for a modern industrial society is to achieve . . . a society which is really based on free voluntary participation of people who produce and create, live their lives freely within institutions they control, and with limited hierarchical structures, possibly none at all.

Noam Chomsky

Introduction

There is considerable debate over the meaning of scholarship with much of the impetus coming recently from Boyer's *Scholarship Reconsidered*. Boyer's (1990) challenge to himself was "to define the work of faculty in ways that enrich, rather than restrict, the quality of campus life" (p. 1). He suggested that "[at] the very heart of the current debate — the single concern around which all others pivot — is the issue of faculty time. What is really being called into question is the reward system and the key issue is this: what activities of the professoriate are most highly prized?" (p. xi).

In this article we argue that, despite Boyer's well-intentioned efforts to foster debate and discussion about scholarship, his analysis fails largely because he ignores the socioeconomic context of universities and

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the purposes universities have historically served. Boyer (1990) never fully addresses the questions "most highly prized by whom?" and "most highly prized for what?" Nor has he identified the most salient issue concerning change — the organizational (social) structure of the university itself.

Boyer assumes the reward system to be a necessary part of scholarship. He and others in education have ignored almost thirty years of research and theory which show that rewards (and punishment) are more closely connected to the control of others than to an increase in quality of instruction and research. As such, rewards of this type have deleterious impact upon things putatively valued in education, including production, self-actualization, and intrinsic motivation. Without denying the importance of "acknowledgment" and economic security, we take the opposite view and suggest that rewards support the structures of domination. It is these authoritarian structures themselves which put restriction on scholarship and therefore are in need of change. Although we use the important work of Boyer as impetus for this discussion, this article is aimed less specifically at Boyer, except to provide contrast. Rather, it is more of a general prolegomenon pointing toward an alternative approach to bring about needed changes in the university.

Our harsh criticisms of Boyer notwithstanding, we are sympathetic to some of his aims. However, the reward system Boyer emphasizes is, at least partly, the result of a belief in the need for external control. By contrast, we emphasize intrinsic motivation of learning and teaching facilitated by students and faculty having real choices — real academic freedom, and real socioeconomic security — as a more appropriate manner of facilitating scholarship.

In order to address these broader issues we begin with a brief description of our general systems theory approach and the conceptual model derived from it. We suggest that the three elements of goals, context (social structures), and system attributes interact mutually and reciprocally to determine the functional outcomes and patterns of behavior of any open complex system. We then apply this conceptual model in an examination and critique of two contrasting organizational styles, namely, authoritarian (hierarchy) and participatory democracy (heterarchy). To make our case, we attempt to present an encompassing picture by weaving in numerous theoretical threads. But to do so within a limited space requires a sacrifice of some details. However, many of these details are presented elsewhere in the many references we provide.

Our analysis of U.S. universities derives mainly from general systems theory (Bailey, 1994; Chase-Dunn, 1989; T. S. Smith, 1992). In explaining a complex system, an attempt is made to identify qualitative features

of complex systems in order to capture the underlying dynamics. Thus, we begin with a global description of organizational style, rather than a search in the myriad of details. We identify hierarchical structure — dominant-subordinate relationships — as the primary feature of nearly all social systems, including universities, where wealth, knowledge, and power flow upward (Asante, 1990).

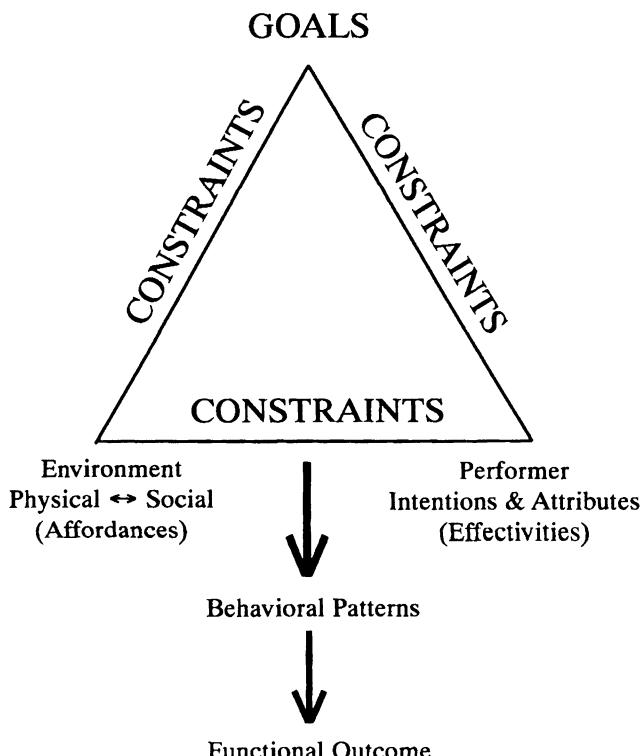
Borrowing from the work of Newell (1986), Davis and Burton (1991), and Flint (1994), we developed a global model (Figure 1) we believe applicable to all intentional open complex systems, including university and socioeconomic systems. The model indicates that goals, context, and attributes are the necessary and sufficient elements for determining the behavioral patterns and functional outcomes of any intentional system, whether biological or social. It is global because the elements are very general. In this section we first present the main features of the model and then present a general theoretical description of each of the three elements. In the subsequent three sections we apply the model to the issue of how universities and socioeconomic systems are currently organized (hierarchically), and contrast them with a proposed alternative style of organization (heterarchical). We conclude by discussing the implications of our model.

General Systems Approach

Features of the Global Model

Mutual and reciprocal. We briefly consider five general and related features of our global model (Figure 1). One is the mutual and reciprocal relationships between the elements. Indeed, all subsystem interactions of complex systems are mutual and reciprocal. Mutualism is a concept used variously in psychology and sociology as well as in biology and politics (Dewey & Bentley, 1949; Still & Good, 1992). There are more advanced accounts (Kugler & Shaw, 1990; Gemmill & Smith, 1985; Gibson, 1979), but for our purposes here it is sufficient to note that mutuality and reciprocity imply a “thoroughgoing interdependence between entities” (Leudar, 1991; Still & Good, 1992). However, Kugler and Shaw (1990) note that interactions occur at “cross-scales” (micro-macro) as well as at the same scale of time and space.

Human actions are conditioned by multiple nested context. The world is a nesting of complex systems, stretching across several layers of time and space. Each system is a multiplicity of parts, all connected but irreducible one to another. Both social and natural phenomena are products of this plurality of structures. It follows from this that “social life is emergent from nature, which is understood as stratified into a number of



Source: Adapted from Davis & Burton, 1991; Newell, 1986.

FIG. 1. Global Model

layers of causal determination (e.g., physical, chemical, biological, social), each of which is subject to the laws of the more basic level while also remaining irreducible to them" (Isaac, 1991, p. 5). However, it is important, as Bhaskar (1989, p. 3) notes, that such structures may be hierarchically ranked in terms of their explanatory importance. Such an approach is necessary to avoid the pitfalls of determinism and an undifferentiated eclecticism.

Connectedness and distinctions. A third and related feature of the structured pluralism model is the recognition of both strong connectedness and distinctions among not only the three general elements of the model but of all subsystems of any open complex system. By connectedness we simply mean causally related, and by distinction we mean irreducible one to the other.

Constraint. The fourth concept is that of constraint, which means both a limitation and an enablement (Kugler & Turvey, 1987). For example,

the physical surface (e.g., water versus land) enables certain kinds of locomotion but prevents other types, mutually depending upon the desires and attributes of the locomotor. This notion of constraints alters the view of causality.

Multiple and mutual causality. Causality in open complex systems is nearly always mutual and always multiple, but rarely simply linear. Given the complex nexus of causal interactions and context conditioning in open systems, both physical and social laws are seen more as tendencies (Bhaskar, 1989). As we shall elaborate, biological systems have on-board energy and are thus not tied to energy gradients, as are inanimate objects. Human actions are guided by physical and social laws but not determined by them. It follows from this that social Darwinism, as well as determinism, is rejected. It also follows that complete free will must be rejected, because there are always constraints, and constraints limit as well as enable.

To anticipate what is to follow, we note that the goal of accumulating material wealth in the context of a hierarchical social structure influences an individual's desire for power, privilege and self-determination toward characteristics of greed and selfishness, which in turn produce inequality and conflict with others. But power and independence, when constrained by a heterarchical context and goals of freedom and harmony, lead more to sharing, cooperation, and egalitarianism (see Hinde & Groebel, 1991, and our discussion below). Thus, when the focus of the scientific inquiry is upon system attributes at the expense of goals and context, as is the case with Boyer's focus on faculty rewards, the results are often misleading. Therefore, the importance of our macro analysis and Boyer's (1990) failure to apply such analysis to scholarship should not be minimized (e.g., Chase-Dunn & Hall, 1994).

Context (Affordances): Social Structures, Systems, and Institutions

The first element of the global model we consider is context. For brevity we restrict ourselves to social context. An analysis of the social context in which universities and, in turn, university personnel are embedded, entail a formal description of social structure, social systems, and social institutions. For this we turn to Anthony Giddens's theory of structuration (1979, 1976/1993, 1984), supported philosophically by Bhaskar's (1989) transcendental realism. Social structures are defined as "regularized practices" of social life. Structure refers to properties "understood as rules and resources, recursively implicated in the reproduction of social systems" (Giddens, 1979, p. 64). Social systems and social institutions are made up of social structures but are more "deeply lay-

ered” in terms of the historical duration of the practices they recursively organize and the spatial “breadth” of those practices (Bailey, 1994; Giddens, 1979; Manicas, 1980; New, 1994; Shotter, 1983). As Giddens (1976/1993) states, “The concept of ‘structure’ presumes that of ‘system’ since it is only social systems or collectivities which have structural properties. Structure derives above all from regularized practices and is hence closely tied to institutionalization; structure gives form to totalizing influences in social life” (p. 7). Giddens (1976/1993) stresses the dual nature of social structures that condition social action but at the same time are produced by those very actions. Social structure and human agency are inseparable, though distinct, rather than separate and static entities, as implied by traditional social theories described as either structuralism (e.g., Levi-Strauss, 1968; Merton, 1968) or functionalism (e.g., Parsons, 1937). This concept of social structure and social systems provides an important understanding not often given in the analysis of scholarship.

The well-known dictum of Marx that individuals make their own history but not under circumstances of their own choosing provides some insight into the notion of unacknowledged conditions. All individuals are born into roles and resources, for better or worse, without having “earned” them, and often without ever being fully aware of them. Feminists and other members of subordinated groups are often keenly cognizant of the resources afforded “free” to the dominant groups, most notably, white males (e.g., Gore, 1993; Lather, 1991; Mies, 1986; West, 1993b), but which they themselves must “earn.” It is much more difficult for members of the privileged groups to recognize and acknowledge these same conditions.

Because human actions reproduce or transform social systems, no social system is “natural” in the sense of being predetermined (or all are natural, if you prefer). In spite of the fact that hierarchical systems have been in existence for a much shorter time than heterarchical systems and that both exist today (Power, 1991), the widespread assumption is that a hierarchical social order is the natural order (see Schwartz, 1986; Smith, 1992 for a critique). One way the assumption is sustained is by a belief in meritocracy — that people are hierarchically ordered because they earned those positions by being more worthy (see Chorover, 1979 for a thorough historical discussion). The pervasiveness of this meritocratic assumption is seen by considering how faculty interact differently with deans and presidents than they do with students and staff and without really being cognizant of it.

The ruling elite have always attempted to justify their position by claiming that domination is human nature. Chorover (1979) traces some

of this history back to Plato's myth of meritocracy and describes several ways in which this belief is manifested. Schwartz (1986) discusses this same issue from a slightly different angle but draws the same conclusions. In an immanent critique he details arguments for and against Adam Smith's economic man, social Darwinism, and behaviorism. What is important in these analyses is how each of these several traditional theories and beliefs lead to the acceptance of hierarchical structures as natural or necessary. Giddens (1984) argues that widely held social theories or beliefs become self-fulfilling prophecies. Thus, the emergence of hierarchical structures involves both the imposition of domination by some groups *and* the acceptance of it by others. These two sets of actions are both intended and unintended.

Another widely accepted belief supporting the notion of hierarchical structures as natural is that people do not interact harmoniously "naturally," but that such behavior must be imposed upon them by "society." This follows most notably the view of Thomas Hobbes, who suggested that people would rather be peaceful and industrious than aggressive and lazy, but that by nature they were unable to do so by themselves and thus should be willing to place themselves "in awe" of a higher authority for the purpose of enforcing morally and socially responsible actions. This perceived need to control people is achieved, for one, by rewards and/or punishments.

Few people would deny that for a society to be peaceful each person must interact in a harmonious way with a large number and variety of people. But this assumption of "society" as a necessary imposing force to regulate individual behavior is often made without acknowledging that society is made up of people (Crandall, 1981). Cooperative collective behavior is just as possible or "natural" as competitive individualistic behavior (e.g., Combs, 1992). We shall return to this discussion but first consider the next element in our global model.

Goals, Purposes, and Intentions

Essential to the analysis of any living system are its purpose, goals, and intentions (e.g., Locke & Latham, 1990; Weir, 1984). Social systems and institutions are not goal directed as such, but they do serve purposes and thus have "effective goals" resulting in functional outcomes. An effective goal is one that people collectively accomplish as a result of their activity. Thus, similar principles apply to both biological and social systems with respect to goals but not with respect to motives and desires (cf. Ermann & Lundman, 1996b). Individual people who make up social institutions each have personal goals, and "collective goals" emerge as informal or formal (written) goals. A formal goal when written is not the

same as an effective goal or functional outcome. Therefore, it is necessary to analyze and compare the formal goals with the functional outcomes of the university as a social system.

It is appropriate then to consider the collective purpose of a social system as well as the purposes of the individuals who reproduce that system (Ermann & Lundman, 1996a). By collective purpose we mean the functional outcome of the system and not just the summation of all the individual purposes. Goals are constrained by the context, that is, they relate to it mutually and reciprocally. Clearly peoples' goals are conditioned by the context within which they operate. No one had the conscious goal of becoming an expert computer programmer until the emergence of computers.

Likewise the goals of a university are constrained by the socioeconomic context in which it is embedded. At the same time the actions of people alter both their physical and social environments or context. Goals are also multiple, they arise from multiple conscious and unconscious intentions or motives that may abruptly change (Burton & Davis, 1996). We distinguish goals from purposes and motives that have conscious intentions. Humans are goal-directed with recognizable outcomes to their actions. However, goals are never "final" in the sense of persons being able to stop setting or working toward further goals. Moreover, much of daily living is routinized behavior and as such not wholly motivated (Epstein, 1994; Giddens, 1984).

Goal directedness applies to human behavior in the Aristotelian sense of teleology and is understood in terms of mechanical causality and final causality. However, most especially for the social systems being considered here, goals are necessarily open-ended, because change is a constant feature of open systems. For example, in our model people should perceive goals as providing direction but not destination. These points are important to developing strategies for making meaningful change in the university.

System Attributes or Effectivities

Human animals act — they move, know, perceive, feel, and think, and all of these actions are both connected and distinct as we defined those terms earlier. In this section we are concerned primarily with human attributes. It is not necessary to consider all attributes, only those most fundamental to the human condition and basic to human nature as we intend it here. Human nature does not imply that attributes might not change under changes in context. What we hold to be human nature depends upon the physical environment and upon the social systems and institutions that people reproduce or transform. Because these systems

and institutions can be transformed or altered by human actions, what people are — what human nature is — will depend upon what people make of themselves and their social systems and institutions (Schwartz, 1986, p. 248; see also Dawes, 1995).

Rejecting dualism we accept that humans are both individual and social (e.g., Bakan, 1966; Faber, Manstetten, & Proops 1995; Guisinger & Blatt, 1994). Human existence is indispensable of both self (an individual) and not-self or something other than self (Das, 1900), which we take generally to be other people and for purpose of discussion here, a community.

Humans as individuals are necessarily selfish because of the need for survival (self-maintenance), development, and self-acceptance/realization. As social beings, humans are necessarily communal and altruistic (Fiske, 1990), because their very existence and initial survival depend upon others and thus their need to please others. Humans also exhibit species replication, renewal, and service (Faber, Manstetten, & Proops, 1995) and require acceptance by others and a sense of belonging. There can be extreme asymmetry or imbalance between conditions of selfishness and altruism, but not likely ever a complete absence of either, at least without extreme changes in context.

Humans have perceptual systems and thus seek information and change. Living systems grow and increase in complexity and they seek advancement or progress. Humans also have affective systems and so connect with both their physical and social environments in terms of what these environments afford for good or ill (Das, 1900; Gibson, 1979). In fact, affective systems provide simultaneous appraisal of the environment and the self, underscoring the notion that humans are inseparably both individual and social (Hobson, 1993).

The attributes described above are fundamental and differentiate into a complex of human attributes and personalities. For example, the need for advancement and acceptance of others may lead to a drive for excellence or greed or some combination of the two. We note, as a reminder of our position, that all behavior patterns and functional outcomes result from the necessary mutual and reciprocal relationship between goals, context, and attributes.

From the above we understand that all human actions and attributes have both a positive and negative valence which may together or separately be realized. We agree with Schweickart (1992), that virtues, when carried to an extreme under certain contexts, can become vices, and conversely, vices can become virtues.

Humans are both egoistic and altruistic. The attributes and actions that emerge are dependent upon the social structures, systems, and institu-

tions which preexist people and which they reproduce or transform. Attributes and actions are also mutually dependent upon the goals toward which people consciously and unconsciously strive. Thus, the concept of duality of structure suggests that humans are not merely the product of social systems, but that they also have agency (Giddens, 1984). In systems theory language, humans, as complex open systems, have on-board energy and thus can go against the external energy gradients (Kugler & Turvey, 1987). Stated differently, humans have choices. Human behavior is guided but not determined by social or physical laws (Bhaskar, 1978; Warren, 1988). Laws are context conditioned, they change, and as Bhaskar notes, they may be unrecognized and unexercised.

Agency/choice and power. Though context has a very powerful influence on human behavior, humans have agency, they can and do make choices. Choice as decision making is a central theme in this article. Choice entails too many concepts to be discussed fully here, but in short it can be viewed simply as the opportunity to make an uncoerced selection from two or more alternatives. The question is how many alternatives do people have and what is the nature of these alternatives? How many decisions do individuals make and how many are made for them? How many decisions are taken away and how many relinquished? Our contention is that today, too few people make most of the decisions and, in particular, the most important ones. This is so in spite of the fact that it is the nature of all humans to be decision makers because of a tendency toward self-actualization: a feeling of control over oneself and one's immediate social and physical environment (deCharms, 1968, p. 269). To make choices and carry out actions, people must have power.

Power is understood as the "utilization of resources" (Giddens, 1984). Giddens (1976/93) further describes power in the sense of the transformative capacity of human agency, which means the actor can intervene in events so as to alter their course. In the narrower, relational sense, power "is a property of interaction, and may be defined as the capability to secure outcomes where the realization of these outcomes depends upon the agency of *others*. It is in this sense that some have power 'over' others: this is power as *domination*" (pp. 117–118). However, power is never zero-sum. Persons in subordinate positions always have some power, even though it is often unrecognized, unacknowledged, and unexercised.

Power in the narrower sense is generated in and through the reproduction of structures of domination. The resources that constitute structures of domination are of two sorts — allocative (material) and authoritative (non-material) (Giddens, 1984). Human actions entail a combination of these two types of resources. All human interactions are power relations,

so a conceptualization of power is necessary. However, we do not go into detail here (see Giddens, 1984, 1985), but we do connect power to decision making.

An important aspect of power and decision making is the recognition that with choices come freedom and responsibility. In fact, we define freedom as maximizing the degrees of freedom, that is, the number of choices of all individuals who constitute the system, which in turn maximizes the degrees of freedom of the system as a whole or the collective. This definition recognizes both the individual and collective aspects of freedom. We add to this Greene's (1988) notion of freedom as "the capacity to surpass the given and look at things as if they could be otherwise" (p. 3). The realization of a decision, that is, actualizing a choice, leads necessarily to consequences that can be both intended and unintended. This implies a responsibility for one's actions (whether exercised or not). Responsibility means a conscious attempt to understand and account for the consequences of one's actions. We suggest that responsibility should be directly proportional to the resources available to the person at the time and under the circumstance that the decision is made. Often, when one relinquishes one's freedom to make decisions, one also gives up responsibility. The reverse may also be true. Acknowledging one's responsibility to others directly or indirectly is accountability.

In a hierarchy, subordinates relinquish both their freedom and their responsibility (e.g., Ermann & Lundman, 1996b; Gordon, 1990; Harry, 1989; Milgram, 1974; Spence, 1993). At universities, required courses relieve students of their rights *and* the responsibility of choosing the courses that might best suit their needs and interests. Maximizing individual choices, then, means also maximizing individual responsibility (whether one actually accepts this responsibility or not). From this understanding it is seen that intellectuals, mostly harbored in universities and private think tanks, occupy the second rung of the hierarchy partly because they are "bought off," though not in any simple way (see Simpson, 1994).

Responsibility and accountability are quite different in heterarchical as opposed to hierarchical systems. In a hierarchy, people are accountable to those above them through the laws enforced by power, customs, and beliefs. To the extent that people at the top of the hierarchy make or influence the laws and beliefs, they have little or no *formal* accountability (Domhoff, 1990; Weiner, 1990). In contrast, accountability in a heterarchical system is to those persons whom your actions affect. One is accountable to self and to one's immediate social group at least, and also possibly to much larger groups, depending upon the action. Accountability in a heterarchy is less imposed by law and authority or power and

is instead achieved by social interaction and freedom of decision making. People are more obligated to act morally and responsibly toward those to whom they feel closer. For example, all else being equal, a person is most accountable toward a relative, a friend, a student or co-worker, an acquaintance, a stranger, and an enemy, respectively. This underscores the importance of promoting closely woven communities as necessary for maintaining heterarchical systems.

Organization of Complex Systems: Context

Given the above understanding of social context, we now consider in more detail social systems by contrasting two general models: hierarchies and heterarchies (e.g., Powers, 1973; Shaw & Turvey, 1981; Turvey, Shaw, & Mace, 1978). These systems do not appear in the world in the pure form in which we describe them in this section. Nevertheless, this theoretical description is useful in understanding the real world.

Hierarchical systems are reproduced by and, in turn, constrain the goals and attributes of the individuals who comprise that system. Hierarchies thus emerge as the result of the activities and goals of the individuals, but as a social system in the sense of Giddens' duality of structures they serve to both enable and limit those very activities.

Formal Hierarchical Systems

A hierarchical system is one in which decision making is in the hands of a few. Most decisions therefore most benefit those very few, who thus, in effect, dominate others. The most important decisions made in any society concern the production and distribution of resources. Thus, the overarching context for human activity is the socioeconomic system, which currently is structured hierarchically to an even greater degree than the university. Here we argue that the two social systems, the university and the larger socioeconomic system, mutually and reciprocally constrain one another. Therefore, fundamental change in one system necessarily entails a change in the other.

The primary features of a formal hierarchical system are listed in Table 1A. In a pure hierarchy, commands are unidirectional. The relationship between two levels is immutable: A, the higher level, always commands B; B never commands A. In less pure systems some commands to higher levels are allowed, and in this case there is a "fixed asymmetry" in the command flow. The second feature of a hierarchy is that of singularity and immutability. For any given node, the role that it plays is singular and immutable. The corollary to this feature is that for every function to be computed (or role to be played) there is a specific

node in which that function is invested. Different nodes do not do different jobs. Given these two features, a principal characteristic of a hierarchy is the centralization of control — the investment of decision making in one executive node (Turvey, Shaw, & Mace, 1978). Hierarchical structures serve to limit the degrees of freedom of that system and to simplify control by the executive. Hierarchical systems in general are known for their stability and resistance to change (Laszlo, 1983). The military is the closest example of a social system approaching a pure hierarchical structure. Generals are at the top of the structure and privates at the lowest level. Commands flow only in one direction. Power increases with each level in the hierarchy. Each military unit has its own function. Capitalism is also clearly hierarchical as are universities to a lesser extent. Power and wealth, in a capitalistic system such as in the United States, are distributed hierarchically, and those who are at the top make the decisions that govern the country. The lower down one is on the hierarchy, the less control one has, not only over politics and policies in general, but also over one's own personal life. In the university, the higher up the hierarchical structure, the more one has decision-making power and the further one is from the actual "work" (discovering and disseminating knowledge). This feature is common in hierarchical social systems.

Formal Heterarchical Systems

Hierarchies have centralization of power, heterarchies on the other hand, have free-dominance (Table 1B). Executive decisions may be made by different persons (nodes) in the system at different times. "Par-

TABLE 1
Formal Characteristics

- A. HIERARCHY
 - 1. Commands are unidirectional
 - 2. Relationships immutable & linear
 - 3. Roles are singular & immutable
 - 4. Centralization of control
 - 5. Reduces degrees of freedom
 - 6. Highly stable, change minimized
 - B. HETERARCHY
 - 1. Free dominance
 - 2. Reciprocity in flow of information
 - 3. Functional pluripotentiality
 - 4. Leadership is fluid
 - 5. Decentralization of control
 - 6. Freeing of degrees of freedom
-

titioning the systems into agents and instruments is arbitrary in that the extant relations depend on the context, on the task being performed" (Turvey, Shaw, & Mace, 1978). In a heterarchy there is reciprocity in the flow of information. Commands go both ways. There is also functional pluripotentiality, that is, no node within the system is responsible for only a single function, and any node can assume a (limited) variety of roles as situation and task demand. It follows from this redundancy of function that any inventory of basic constituent elements will be equivocal. Relatedly, management in a heterarchy is not the prerogative of any one node. Many nodes would function cooperatively in decision making, although not all nodes need participate in all decisions. Leadership is fluid, flowing from one node to another depending upon the activity. There is decentralization of control. By definition, the degree to which a social system is heterarchically structured is determined by the extent to which the individual members (nodes) of that system share in decision making.

Heterarchical structures serve to maximize the degrees of freedom of that system. As is understood in chaos theory, freeing the degrees of freedom leads to new and emerging properties. In biological systems one principle suggests that becoming skilled in movement tasks means releasing or maximizing the degrees of freedom (Bernstein, 1967; Newell, 1986; Turvey, Shaw, & Mace, 1978). However, at times, depending upon the task and environmental context, it may be necessary to freeze or constrain some degrees of freedom in order to accomplish the goal (Vereijken, van Emmerik, Whiting, & Newell, 1992). A heterarchical system is designed to accomplish both the releasing and the limiting of the degrees of freedom. In contrast, a hierarchical system reduces the degrees of freedom. Within a heterarchical system, hierarchical control can exist temporarily, and thus the former subsumes the latter. Central control can emerge temporarily for any particular task, but it never remains with the same executive, as it does in a hierarchical system.

Because heterarchical systems maximize degrees of freedom, these systems can lead to diversity and change. The overall heterarchical nature of the living world has resulted in great diversity. As humans continue to exercise increasing dominance over this world and thus restructure it more hierarchically, diversity will decline instead of grow, a fact we are witnessing today.

Goals and Purposes in Complex Systems

The second element of the global model to describe in more detail is goals, which are multiple and not always explicit. Here we consider the

most salient goals of the larger socioeconomic system of capitalism and contrast them with those found in a participatory democracy. We also examine the goals of a university system as a presently structured hierarchy and compare them to a university system as we envision it structured heterarchically. As we have emphasized throughout, the elements of the model, in this case goals and context, mutually and reciprocally relate.

Goals in a Capitalist Society

Overall, the most important decisions in society concern the production and distribution of resources and control over the means and use of violence. Capitalism is the overarching social institution whose hegemonic characteristics are well documented not only in Marx's analysis (perhaps the most thorough), but also in many more recent extensions of that work (e.g., Brenner & Brenner-Golomb, 1996; Denitch, 1992; Giddens, 1985; Legters, Burke, & DiQuattro, 1994; Macpherson, 1985; Shapiro, 1990). The goals of capitalism are performativity (profits) — the accumulation of material wealth — and power or domination (McLaren, 1995), to which all other goals, when conflicting, become subordinate. Capitalism requires an ever increasing consumption (growth) and can easily lead to the destruction of the physical environment. Because of its hegemonic nature, capitalism penetrates into every aspect of life, what Schwartz (1986) calls economic imperialism, and often with devastating effects. Capitalism is hierarchically structured and characterized by a high degree of inequity and an extreme disproportional distribution of wealth and power (see Sklar, 1995 for recent data). As a result, masses of people are forced to succumb to the economic system in order to survive. An asymmetric distribution of resources guarantees high levels of competition, greed, and violence (Nagel, 1995; J. W. Smith, 1994). These three outcomes are important explicit goals of capitalism.

Indeed, "competitiveness" is the current buzz word as the necessary goal of U.S. industry, business, and even education. Competition is the primary goal, though often a misunderstood concept, in capitalism. Competition is a zero-sum activity, even though it is often assumed that competition brings with it growth and efficiency. But such growth inevitably favors the "haves" and rarely the "have-nots," because the "haves" make the rules. It is the capitalists, the boards of regents, and the administrators (hierarchs) who decide on how the resources are allocated rather than the workers or the various student, faculty, and staff groups. In general all people are necessarily influenced by self-interest even when intending not to be. But it is the hierarchs who make most of

the decisions, and therefore it is their interests that are served most. This more than anything else accounts for the salary discrepancies between administrators and faculty (CEOs and workers).

Goals of Participatory Democracy.

Although advances in technology and industry for the production of material wealth are not discounted in participatory democracy, they are not achieved at the expense of the most important goals: freedom, harmony, and peace. Collective freedom requires maximizing the freedom of each individual. All other goals must be consistent with this goal and subordinate to it. The maximizing of participation of all individuals in social life, then, is an effective goal in participatory democracy.

Harmony is defined as synchronization among individuals and social groups, who work to reduce tensions, and it is understood scientifically and with clear practical implications (e.g., Bernieri, Reznick, & Rosenthal, 1988; Condon, 1982; Newtson & Engquist, 1976; Newtson, Hairfield, Bloomingdale, & Cutino, 1987). Thus, freedom is best achieved by emphasizing cooperation and reducing competition. However, harmony among individuals and groups, in our view, will not and should not be constantly maintained. Self-interests will always from time to time conflict, leading to a reduction in or temporary lack of harmony. Though conflicts can lead to further conflicts, they can also lead to improved relations and other advancements, as long as the goal of harmony prevails. Thus, the goal of harmony serves as a guide for resolving conflicts. Goals are directions, but not destinations.

Peace as the minimization but not the complete absence of some conflict and destruction follows from the concept of strong interdependency of all living things (e.g., T. S. Smith, 1992). There must be balance for all life forms to exist and for new ones to emerge. But this is not to be understood as homeostasis or equilibrium, but as a fluctuation (Prigogine, 1976). However, if an asymmetry of distribution of resources is extreme, the destruction rather than emergence of species occurs. Peace, then, involves the minimization of destructive forces and the solving of social conflicts through rational and moral reasoning rather than violent means. Minimizing destructive forces is a continuous process and not a final end-state.

A hoped-for outcome of these goals is social progress. Progress or the improvement of the human condition is believed to emerge as a result of an overall maximization of the degrees of freedom. But the improvement of the human species must be tied to the improvement of other species and the context as a whole. Given the numerous current crises around the world — extreme violence, poverty, homelessness, and de-

struction of the social and physical environments — an important current goal is emancipation or liberation. Liberation is a gradual open-ended progress from unwanted and oppressive determinations to wanted and enabling ones (Bhaskar, 1989, p. 6). If our model is reasonably accurate, it would be possible to eliminate the extremes of violence, poverty, and environmental destruction but never eliminate the conflicts that would tend toward these conditions.

Goals of a Hierarchically Structured (Capitalistic) University

From its inception formal Western education has mostly served to maintain the hierarchical social order, both locally (Gatto, 1993; Jensen, 1984) and globally (Mazrui, 1984; Spivey, 1986). If change has been adopted, it has largely been in order to conserve and maintain the interests of the few — those who hold the wealth and power. In the early 1900s universities came under the control of the “captains of industry” (such as Leland Stanford), who ran them as something of a personal fiefdom (Douglas, 1992, p. 24). Rhodes (1990) suggested that universities in the United States evolved from this Harvard model of elitism to a “land-grant” institution, thought to be more egalitarian in the sense of being open to more students. Universities have now evolved to the present-day research model, though several forms exist. In the first instance, “knowledge was a deposit to be safeguarded, to be conserved, and to be handed on” (Rhodes, 1990, p. 6). Under the Morrill Act education was established to “stress practical education as well as classical learning” (p. 7). Knowledge was viewed as an instrument instead of an end in itself (Thomas, 1993). The research model is an elitism of competition between universities and among researchers and between other faculty and researchers. This model has given us rigid walls, upward ladders, a confusing array of offerings to students, a forbidding and meaningless collection of beehive segments, a Mandarin snobbery based on specialization, and an unhealthy desire to hoard one’s subject matter, one’s private preserves and achievements (Douglas, 1992). “Knowledge in the research university has become a personal possession, a personal job” (Rhodes, 1990, p. 8).

The goal of universities is learning in its various forms and purposes, but it is very much limited as well as enabled by the economic context in which the university is embedded. Because monetary resources are required to operate a university, securing these resources is a necessary goal. When resources are scarce, they become more important than scholarship. Today, universities are run like businesses, driven by “the bottom line,” and knowledge is a commodity for both the university and

for the individual scholar (Soley, 1995). The research dollars for which universities compete are increasingly held in the hands of a few. When universities compete for grant monies and faculty are rewarded on this basis, the free pursuit of knowledge is readily lost. Shifting the reward emphasis from research to teaching, as Boyer advocates, will not produce the desired effects. Promotion and the PhD degree rather than dispassionate teaching and learning are the driving forces behind graduate programs (Rhodes, 1990).

Further, underlying the goals of learning and of maintaining financial solvency is the goal of maintaining the social order. From its inception, formal Western education has served to maintain the hierarchy (Gatto, 1993; Jensen, 1984; Spivey, 1986). There is much debate on whether universities should serve as agents of change or as agents of maintaining order. Change does occur but not with respect to the social order, which is maintained in many ways. But we hold that formal education is central to changing this order. The organizational style we advocate is heterarchical or democratic, as described below. Understanding contextual constraints is essential in our approach to reconsidering scholarship. Unfortunately, these broader structural, contextual, and historical concerns are given short shrift by Boyer and others (Diamond & Adams, 1993).

One of the stated goals of mandatory public education was to assimilate all people coming into the United States into one mainstream culture. This has some positive effects but also some destructive ones. In particular, the attempt to assimilate Native Americans (Jensen, 1984) and people of African descent has been destructive (Spivey, 1986). The ultimate conquest and domination of any people beyond complete annihilation is to destroy their culture, one effective goal of colonialism. Not only is one language dominant, there is a standardization of both the instructional and evaluative aspects of education. Formalized assessment, even when intended as quality control, serves more to maintain the structures of domination. For an illuminating discussion, see Chorover's (1979) chapter 3 on IQ as mental measurement for social control and Gould's (1981) *The Mismeasure of Man*.

An often stated goal of universities is to produce leaders. When the emphasis of the preparation is only on the individual and not also on the collective, it serves only to prepare persons to fill in the higher rungs of, and thus reproduce, the hierarchical social system. Although it is often assumed that universities, through the multiplicity of rules, required courses, emphasis upon grades, codes of speech, and so on, are developing students to think for themselves, they largely fail in this goal. Under the traditional style of leadership, change is imposed in top-down fashion. Below, we advocate a different conceptualization of leadership.

In Western positivistic science the often stated goal is to describe, explain, and predict. But prediction implies control for those with access to the information. Further, with the assumed separation of facts from value in positivism, science leads to and is influenced by a hierarchical capitalistic system (Schwartz, 1990).

Goals of a Heterarchically Structured (Democratic) University

The most important goal for the university, and the one to which all others should be subordinated, is the free pursuit of the discovery and dissemination of knowledge. But discovery is not for a personal accumulation of knowledge as in owning, but for a sharing of knowledge. Rather than producing traditional style leaders, the goal of a university in our model is to develop critical thinkers. This development should begin at home and continue in the elementary schools, but it often does not (Gatto, 1993). In our view, leadership entails critical reflection (e.g., Henderson & Hawthorne, 1995). Thus, change is not imposed from above but emerges from “reflective practitioners.”

The development of affect is an important goal of our heterarchical model of education, but since World War II it has been increasingly eliminated in hierarchically structured schools and universities (Beane, 1990). Affect is associated with values that we advocate over laws and policies as guides for action. When values are put back into science, the goals of science are to describe, explain, and to share information for the purposes of better decision making for all. With the current predominance of fragmentation, values or ethics are often taught without real connection to the rest of the world or to daily activity. We argue that facts and values are not separate.

Behavioral Patterns and Functional Outcomes in Society

Introduction

What are the patterns of behavior and functional outcomes most likely to emerge, given the mutual constraints of the goals of capitalism, the context of hierarchical structures, and the nature of human actions (Figure 2A)? In contrast, what patterns of behavior and functional outcomes are most likely to result from the goals of social democracy, the context of heterarchical structures, and the nature of human actions mutually constrained (Figure 2B)? Put another way: What functional outcomes and behavioral patterns and what goals will more likely sustain a hierarchical system? A heterarchical one? In pursuit of answers, we have identified 13 contrasting pairs (Table 2) on the basis of our theoretical argu-

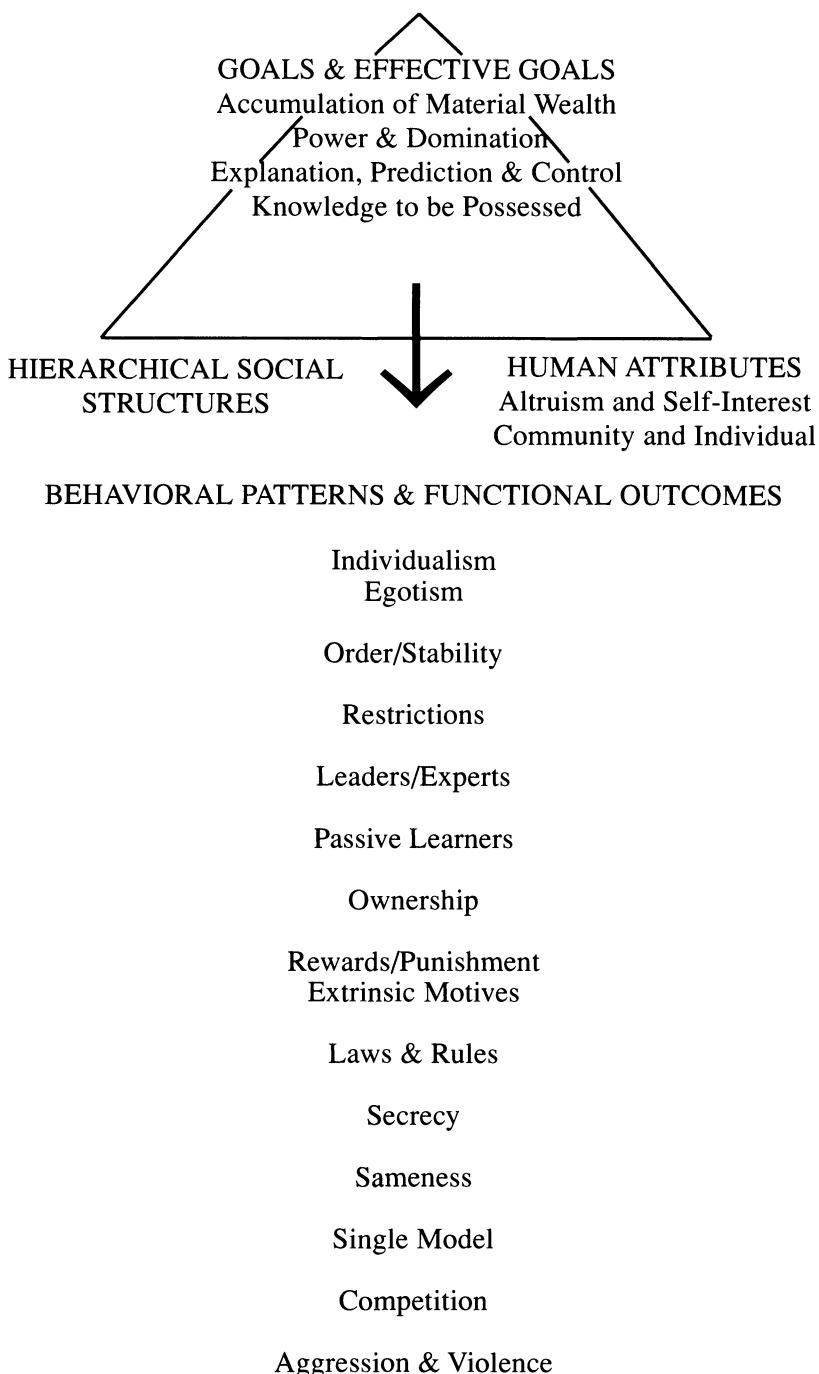


FIG. 2A. Behavioral Patterns and Functional Outcomes Resulting from and in Hierarchical Structures and Associated Goal Conditions.



BEHAVIORAL PATTERNS & FUNCTIONAL OUTCOMES

- Communitarianism
- Altruism
- Conflict/Change
- Choices
- Critical Thinkers
- Active Learners
- Stewardship
- Acknowledgement/Accountability
- Intrinsic Motives
- Values & Self-Accounting
- Openness
- Diversity
- Multiple Models
- Cooperation
- Harmony & Peace

FIG. 2B, Behavioral Patterns and Functional Outcomes Resulting from and in Heterarchical Structures and Associated Goal Conditions.

ments above and a review of the theoretical and empirical literature in various disciplines. We have not attempted to be exhaustive, but have identified what we believe to be important contrasts.

In answering the above questions, two sets of contrasts were derived (Table 2): (a) behavioral patterns and outcomes supporting hierarchical structures that must be minimized or even eliminated in favor of patterns and outcomes supporting heterarchies, and (b) both patterns or outcomes are desirable, even though one side in its extreme supports (and results from) hierarchical structures, whereas the other side in its extreme supports (and results from) heterarchies.

Our discussion begins with (b) because it is more complicated in that the pairs need not be viewed as being mutually exclusive or opposing, but both may be achieved or transcended to a higher-order beneficial pattern or outcome. This understanding does not contradict our support for heterarchies over hierarchies, because more temporary hierarchies are allowed within an overarching heterarchy, which is the socioeconomic structure. Thus, in our model, there is a place for experts, excellence, and competition in social groups, balanced by a respect for opposing opinions, a diversity in skills, a toleration of differences, a sense of humility, and the practice of cooperation.

Further, the contrasting pairs differ under different contexts and under different goal conditions. For example, given our conceptualization of human nature as both individual and social, individualism and commu-

TABLE 2
Behavioral Patterns and Functional Outcomes

HIERARCHY	HETERARCHY
<i>Transcend</i>	<i>Transcend</i>
Individualism	Communitarianism
Egotism	Altruism
Order/stability	Conflict/change
Restrictions	Choices
Leaders/experts	Critical thinkers
<i>Minimize</i>	<i>Maximize</i>
Passive learners	Active learners
Ownership	Stewardship
Rewards/punishment	Acknowledgement/accountability
Extrinsic motives	Intrinsic motives
Laws & Rules	Values & Self-accounting
Secrecy	Openness
Sameness	Diversity
Single model	Multiple models
Competition	Cooperation
Aggression & violence	Harmony & peace

nitarianism need not be opposing or binary. Individual needs and interests need not always conflict with those of the community, but when they do, they can be transcended. Individualism and communitarianism are binary and dichotomous mainly under hierarchical social structures and under goal conditions of greed and domination, but not under heterarchical structures with the goal of freedom as we defined it. We wish to dispel a belief in the either/or nature of these outcomes, which can lead to unnecessary conflict. On the other hand, we would attempt to minimize or even eliminate passive learning, ownership, extrinsic motives, laws, secrecy, sameness, single models, and aggression. Greater balance is needed between restrictions and choices, between order/stability and conflict/change, between leaders and critical thinkers, and between competition and cooperation, and we need to understand their differences within different contexts and with different goal conditions.

The comparison, then, is between the behavioral patterns and functional outcomes in both the socioeconomic system and the university when structured hierarchically and when structured heterarchically. However, we do not make the comparisons in great detail here. Rather, we lay out the reasons for and implications of such an analysis and point the reader to the references where more focused discussions are found. One aim of this section is to demonstrate the close mutual and reciprocal relationship between the university and the socioeconomic system. Importantly, with respect to this relationship we will emphasize the dominance of the socioeconomic system (Simpson, 1994).

On the basis of the above concepts we support our major contention that all dominant-subordinate relationships are to be challenged. Perhaps all, or at least nearly all, destructive social relationships can be traced to an asymmetry of power. However, we are quick to point out that not all dominant relationships need to be destructive. As Freire (1985) argued, domination takes many forms. One *should* seek power, but one also must constantly challenge and assess relationships in regard to domination-subordination (Power, 1991). For example, parent-infant relationships and teacher-student relationships do not necessarily require an unequal exercise of power, as is commonly assumed (e.g., Trevarthen (1979, 1980).

Contrasting Pairs to Be Transcended

Most important for our model is to reject the belief that people are naturally *egotistic but not altruistic*. This belief has a long and complex history (e.g., Combs, 1992; Guisinger & Blatt, 1994; Oliner, et al. 1994). One way that it is perpetuated is by using altruism as a term only to indicate an extreme condition, as in the heroic act of saving another

person from drowning in a raging flood. But everyday random acts of kindness are not referred to as altruistic, reinforcing the belief that ordinary people are basically selfish. One accepts that Mother Theresa is an exception and not an achievable role model. In contrast, our major premise is that people are both egoistic and altruistic and that these antinomies can be transcended to result in a higher-order mutually beneficial outcome. Egotism and altruism differ under different contexts and under different goal conditions (Kohn, 1992).

The same argument can be made for the closely related concepts of *individualism* and *communitarianism*. Individualism in its extreme has helped to reproduce hierarchical systems that recursively foster extreme individualism. For example, greed is not simply the accumulation of wealth, it is the *excess* accumulation for a few at the exclusion of the many. Thus, *excess* is a relative (intrinsic) measure and not an absolute one. Selfishness is not merely self-interest, it is self-interest in the extreme and to the exclusion of community. But under heterarchical social structures and goal conditions stressing peace, harmony, and the discovery and dissemination of knowledge, individual and community need not be dichotomous.

Hierarchical social structures, with the emphasis upon competition and greed, foster individualism to the exclusion of social interest (Guisinger & Blatt, 1994; Hsu, 1983). But in a heterarchical and cooperative context, humans as individuals strive toward self-interest and, at the same time, as social beings strive toward sharing and giving to others. Both these tendencies can be achieved, and such balance is necessary in order to sustain a heterarchical system. In our model an individual should not become overly selfish nor give up all individuality and freedom for the collective. Necessarily, there will always be a tension between these two extremes, which must be resolved or transcended.

Because individual interests differ and come into conflict, a harmoniously functioning society requires a fairly large percentage of individuals who are willing to identify with and be concerned about a broad range of other people. People must think globally and act locally. The adaptive value of such characteristics as cooperation and altruism has received attention recently by scientists concerned with the evolution of the human species (Combs, 1992; Trevarthen, 1979). The idea that concern for others is just as important to the adjustment and well-being of the individual as it is to the social group in general has been voiced only occasionally. In Western societies, most approaches to mental health have stressed the necessity of satisfying essentially self-centered needs, such as the basic biological requirements for survival, sexual gratification, self-esteem, and avoidance of excessive fear, guilt, and conflict. In

the social realm, emphasis is usually on the need to receive love, affection, and respect. The need to give love is seldom emphasized (Crandall, 1981). In contrast, Alfred Adler developed an approach to mental health that was not so egocentric but stressed the importance of "social interest" as a major source of strength for the individual.

Thayer (1994) argued that individualism, freedom, and human rights, as conceived in Western science, do not deliver the positive effects claimed. Instead they are disguises for top-down authority rather than substitutes for it. In a hierarchy, B must accept A's decisions because A has the authority to make the decision. In contrast, if A must secure B's wholly voluntary agreement, as in a heterarchical system, the decision becomes collective (communal) or joint and is no longer an individual decision (see Thayer, 1994, for details of this line of reasoning).

Community does not just mean concern for other people, it also means concern for the physical environment (e.g., Caplin & Harrison, 1993). The world-view of pre-European Africa and pre-European America was that persons are one with the earth (e.g., Crosby, Davis, & Graves, 1992; Dyk, 1938; Ingold, Riches, & Woodburn, 1988; Maruyama, 1967). This relationship is a mutual and reciprocal one. Material greed and inequality are not only detrimental to people, they help destroy the physical environment (Boyce, 1994), which recursively has a negative impact upon the quality of life. But there will always be social-physical as well as intersocial tensions, because stability and change are continuous.

What follows from the belief that people are inherently hedonistic, selfish, and lazy is the acceptance that, in general, people must be controlled. People must be in awe of either a God, the power of a nation-state, laws, rules and policies, or any combination of these. One of the mechanisms used to keep people in line under each of these types of dominator models is a system of rewards and punishments (or fear of punishment). Further it is assumed that the intellectuals — and by extension or in light of this, science — should sit at the top of the hierarchy. Thus, tacitly or explicitly people accept hierarchical structures as natural and/or necessary.

In heterarchical systems *conflicts and change* occur with greater frequency than in hierarchical ones. Neither are viewed as being necessarily detrimental to the goals of the university; indeed, conflict can lead to greater discovery or better decisions. That is, conflict under conditions of cooperation and the goals of freedom of discovery will be positive; under conditions of competition and the goal of domination conflict will be negative. Likewise, change can and often does have both negative and positive outcomes, or either one. *Order and stability* are greater under hierarchical social structures and more difficult to obtain under heterar-

chies. We suggest that order and stability as well as conflict and change are needed in social systems.

We have emphasized as our most important aim the maximization of *choices* for all individuals of each collective. However, choices will always be limited or *restricted* by each of the three elements of our model — context, goals, and attributes. Also with choice comes responsibility, and this should be the major restriction on choice. Because universities must meet a wide range of needs for and from a variety of people in multiple roles, there will be many conflicts of interest. Restrictions on individual choices are thus necessary, if all are to have an opportunity to reach their goals.

Current emphasis at universities is to develop *leaders* so they become the *experts* in society and to prepare a few elite managers to be the “specialists” who make decisions for everyone else. At the same time, public schools emphasize *what* to think rather than *how* to think (Myers, 1993). Public school students learn that obeying rules and respecting authority are more important than learning and that, as Gatto (1993) notes, “good people wait for an expert to tell them what to do. It is hardly an exaggeration to say that our entire economy depends upon this lesson being learned” (p. 9). Our public education system produces a good supply of helpless people each year. The most successful students find the roles of leadership in society, and the rest fill in the lower rungs. Thus, university and lower school education combine as sorting offices to pigeon-hole people into each level of the hierarchy.

In contrast, the function of the university and lower schools in our model is to produce critical thinkers. This model does not eliminate experts or leaders but requires a reconceptualization of these concepts; leaders and experts do not tell others what to do, but they provide needed information and strategies for others to make better decisions. However, our model does eliminate *passive learners*, who feed the system of subordinates, and replaces them with *active learners*, who must be critical thinkers.

Contrasting Pairs to Minimize or Eliminate

In addition to passive versus active learners, we briefly examine other contrasting pairs where the patterns and outcomes under hierarchies predominate today and must be minimized or eliminated in favor of the contrasts under heterarchies. First and foremost, to maintain a hierarchical system requires the control of the production and distribution of resources and the control of the means of violence.

Ownership is taken for granted in capitalistic societies and is central to the accumulation of wealth and domination. All ownership of land or

material means of production was at one time or another obtained by force. One prominent means of maintaining ownership and control is through generational inheritance, a concept that is accepted without question, whereas reparation for certain groups, which can be argued for with the same logic, is not.

In order to transform the socioeconomic system to a more heterarchical system, we replace ownership with *stewardship*. In the hierarchical university system, knowledge is to be possessed; in the heterarchical system it is to be shared. In a capitalistic system, ownership of resources and the accumulation of material wealth become extrinsic motivating factors and can be used by managers to control workers. The assumption is that faculty will not produce unless they are rewarded or threatened with punishment. This belief is accepted by faculty and administrators alike. Thus, *rewards and punishment* are firmly entrenched practices in universities and industry in spite of the research spanning more than thirty years, which shows that extrinsic rewards are inferior motivators and, under certain conditions, can subvert intrinsic motivation (e.g., Deci & Ryan, 1985; Kohn, 1993).

With respect to agency and accountability as they relate to the function of a university, we advocate *intrinsic motivation* (Condry, 1987; Kohn, 1992), believing that self-organizing systems are inherently prone to learn about their world. White (1959; see also, Deci & Ryan, 1985; Harter, 1978) called this "effectance motivation." There is a desire to interact effectively with one's environment and to exert some personal control over the world, and this begins in infancy (Bertenthal & Campos, 1990). Intrinsically motivated activity may be triggered by novelty, incongruity, or challenge from the environment. A heterarchical system allows more self-control and a constraint toward intrinsic motivation. Faculty would strive toward the discovery and dissemination of knowledge by *choice rather than by control*. Extrinsic motive forces are initiated by the controller, who either offers a reward (e.g., merit, tenure, promotion), or threatens a punishment in order to achieve compliance (see Condry, 1987; Kohn, 1992).

There is considerable research both in the laboratory (Glass & Singer, 1972) and in naturalistic settings (Langer & Saegert, 1977; Schulz & Hanusa, 1979; Wolk & Telleen, 1976), which shows that the degree to which people can control their environment and can make choices is positively related to their health, morale, self-esteem, and level of functioning (see Moos, 1981). This is the case whether these individuals are children, elderly adults (Monty & Perlmutter, 1987), or severely disabled people (Segal, Silverman, & Temkin, 1993; Shevin & Klein, 1984). We believe that under a system of choice and social acknowledgment fac-

ulty and students would be more productive than under the current system of monetary rewards and grades.

The systems of control used by business and universities require extensive surveillance in the form of standards, requirements, evaluations, tests, record keeping, and so on. This surveillance work requires many hours of time, not only from numerous staff and administrators, but also from faculty (workers). All of this time is what J. W. Smith (1994) would call "wasted labor." University time and resources would be better spent on the real work of the university — the discovery and dissemination of knowledge.

In order to maintain a heterarchical system, individuals would need to be governed more by *values and self-accounting than by laws and rules*. Rules and laws written with specificity have little flexibility and lack sensitivity to changes in context. Laws often obscure the underlying values, thus creating more conflicts than they solve. Values are context sensitive and more fundamental to the human condition; however, we stress that values would be effective in minimizing conflicts only in a heterarchically structured society with the goals of freedom, peace, and harmony.

A heterarchical system dependent upon values requires a strong sense of community and social responsibility balanced with a strong sense of independence and freedom. More accurately, independence/community and freedom/social responsibility are to be transcended. Freedom does not mean the absence of all restrictions but rather the acceptance of responsibility. People can live as individuals and as part of a community simultaneously or as part of larger and larger communities. To think globally is to recognize that each individual is part of the whole world (Reed, 1996). Under a system governed by values, people are openly and informally accountable to each other during their interactions. In a heterarchy, interactions occur on a more equitable basis even across different roles and responsibilities, and individuals need not feel subordinate, as they do in a hierarchy.

A decentralized university system means greater freedom, choice, and power but also greater responsibility and more informal accountability. Accountability would serve to empower rather than control the faculty. Faculty would have more choices about their job description and positions, and "advancements" would be based more on self-selection. The relationship among faculty and between faculty and students would be more "horizontal" and less "vertical." Students would also be given more choices, particularly with respect to courses. The mentoring model, as a more nurturing approach, fits well with a heterarchical style of organization. Students would become more equal partners in the dis-

covery and application of knowledge. Gaining of knowledge and skills, rather than a degree, would be the driving force. The university would become truly a community of scholars.

Surveillance is a prominent characteristic of a capitalistic system (Giddens, 1985). Secrecy as part and parcel of surveillance is often problematic and is especially inappropriate at a university, where critical thinking is supposedly fostered. "Every thing secret degenerates. . . . Nothing is safe that does not show how it can bear discussion and publicity" (John Emerich Edward Dalberg, Lord Acton, cited in Weiner, 1990).

Contrary to popular belief, egalitarianism does not mean *sameness but diversity*. Diversity is achieved by maximizing the degrees of freedom of the collective. Choice, rather than restriction, results in diversity as a necessary outcome. Context variability and diversity are features of a heterarchical system but not of a hierarchical one. In a hierarchical system *one dominant model* exists. Thus diversity is vertical in that only a few people will ever achieve the dominant model. In a hierarchy *multiple models* exist because domination is not a feature.

Capitalism strongly influences the received view of the inherent goodness of *competition*. But competition preceded capitalism, and several factors, such as the scarcity or perceived scarcity of needed resources, have led to the current emphasis upon competition. Further, in today's advanced capitalism and managerial oligarchies, multinational corporations use cooperation more than competition in controlling the market. This globalization has resulted in a new "feudalized" market structure, which has a ripple effect throughout the economy (Brenner & Brenner-Golomb, 1996).

Other major contributions to the prominence of competition have been mechanistic Western science and social Darwinism (Combs, 1992; Schwartz, 1986). In the former it is the image of warring matter and in the latter the notion of the survival of the fittest that prop up competition as being virtuous. Particularly today, these understandings are reinforced by the use of the term "competitiveness" as meaning excellence and productivity.

In our model we stress the minimization of competition in favor of *co-operation* and note the extreme emphasis upon competition today and its close ties with capitalism and with violence. The exchange of war and sport metaphors is not coincidental but is conceptually and practically linked (Jansen and Sabo, 1994). We acknowledge the value of competition, but we wish to restrict its current emphasis. We believe that competition is morally and rationally acceptable when it is done for its intrinsic value. Competing in sports when there is nothing at stake as opposed

to competing for the food and shelter necessary for one's existence are clearly two different situations. When there is much at stake, the contrast between competition and cooperation become very clear, as seen in Deutsch's (1949, 1993, 1994) work on conflict resolutions from personal to international. He states that the processes of a given type of social relationship (cooperative or competitive) elicit and are elicited by that type of social relationship. In Deutsch's words,

Thus, cooperation induces and is induced by a perceived similarity in beliefs and attitudes, a readiness to be helpful, openness in communication, trusting and friendly attitudes, sensitivity to common interests and deemphasis of opposed interest, an orientation toward enhancing mutual power rather than power differences and so on. (1994, p. 112)

In contrast, a competitive orientation usually leads to a destructive conflict process, which has the following characteristics: (a) unreliable and impoverished communication between the parties; (b) the view that the solution can only be imposed by one side or the other through superior force, deception, or cleverness; and (c) a tendency toward suspicious, hostile attitudes that increases sensitivity to differences and threats while minimizing awareness of similarities (Deutsch, 1994).

Although the close connection of capitalism to violence is easily shown, it is seldom acknowledged. The allocative resources, which are increasingly disproportionately possessed, were obtained by individuals and groups, at one time or another, by physical force, coercion, or deception. Force is also often used to maintain the disproportional ownership. Ideology and other means, as noted above, are also used, but as a supplement and not a replacement for violence, as we document below. Giddens (1979) conceptualized ideology "in terms of the capability of dominant groups or classes to make their own sectional interests appear to others as universal ones. Such capability is therefore one type of resource involved in domination" (p. 6). As Marx stated (cited in Giddens, 1979),

The ideas of the ruling class are in every epoch the ruling ideas: i.e., the class which is the ruling *material* force of society, is at the same time its ruling *intellectual* force. The class which has the means of material production at its disposal, has control at the same time over the means of mental production, so that thereby, generally speaking, the ideas of those who lack the means of mental production are subject to it. (p. 167)

Giddens (1984) rejected Marx's view of class conflict as the method of social change and suggested that power should not be seen as omnipresent, signaling the existence of conflict and the potentiality of oppression. As West (1993a) advised, one should not "demonize" the

enemy but work together to build a better world. The aim of liberation is not to organize the state in such a way as to minimize the scope of power, taming it through parcelling power out in a democratic fashion. Rather, as Giddens (1984) suggests,

Power is the capacity to achieve outcomes; whether or not these are connected to purely sectional interests is not germane to its definition . . . Power is not, as such, an obstacle to freedom or emancipation but is their very medium — although it would be foolish, of course, to ignore its constraining properties. (p. 257)

Power (allocative and authoritative resources), as associated with creating more choices, should be maximized for the transformation of social structures rather than for the maintenance of the structures of domination.

In analyzing *aggression and violence* we understand that all wars are fought for the control of trade, land, people, and/or other resources (J. W. Smith, 1994). When necessary resources are scarce, or are perceived to be scarce, increase in competition and aggression is inevitable. Furthermore, domination is achieved through the accumulation of both allocative and authoritative resources. Increased competition results in increased ethnicity and racism. These are all characteristics of hierarchical systems. As Benedict (1992) observed from her review, "The conclusion that emerges is that societies where nonaggression is conspicuous have social order in which the individual by the same act and at the same time serves his own advantage and that of the group" (p. 59).

She further notes that "nonaggression occurs not because people are unselfish and put social obligations above personal desires but because social arrangements make these two identical" (p. 59). We suggest that such social arrangements are heterarchical structures and democratic processes. Militarism, the development and use of weapons of mass destruction, occurs for the primary purpose of accumulating and protecting ownership of material wealth and obtaining or maintaining domination (J. W. Smith, 1994) and is thus an effective goal of capitalism.

The connection of the university to power and violence is straightforward in that without scientists in the physical sciences, weapons of mass destruction would not be built. Likewise, without the work of social scientists, the masses of people would not allow these weapons of mass destruction to be used on themselves (see Herman & Chomsky, 1988). The linking of science and technology and thus universities and corporations, and in turn corporations (including multinational and government agencies) and nation-states, is well documented (e.g., Aronowitz, 1988; Soley, 1995). It is also often denied. Two of the most revealing and well-researched works are those of Simpson (1994) and Soley (1995). Soley's

work concerns the trend since the Reagan years, which is moving us back to corporate domination of universities (see our discussion below), while Simpson examines an earlier period. Simpson (1994) fully documents how the U.S. government's psychological warfare programs helped to shape mass communication research into a distinct scholarly field and reciprocally advanced the goals of the government officials' propaganda program. (For a detailed review of what this program of psychological warfare was about we encourage readers to consult Simpson, 1994.) While the United States has the most sophisticated propaganda apparatus ever assembled, it is also the most violent nation-state in history. It also follows that the United States, as a nation-state, is one of the most asymmetrical in terms of the balance of material wealth (Sklar, 1995).

To further tie the relationship between science, capitalism, and violence together as briefly as possible here, but in a general way, we again quote from Simpson (1994) who states,

Since World War II, the U.S. government's national security campaigns have usually overlapped with the commercial ambitions of major advertisers and media companies, and with the aspirations of an enterprising stratum of university administrators and professors. Military, intelligence and propaganda agencies such as the Department of Defense and the Central Intelligence Agency helped bankroll substantially all of the post-World War II generations' research into techniques of persuasion, opinion measurement, interrogation, political and military mobilization, propagation of ideology, and related questions.

For years government money — frequently with no public acknowledgement and apparently illegally — financed more than 75 percent of the budgets of major communication research institutes (Simpson, 1994; Soley, 1995).

The relation between universities and the U.S. military is long and intimate. Given our model (Figure 1) and discussion, it is clear from our perspective that this relationship is not a simple linear one. A scientist's desire for the challenge of discovery and for material comfort, which the pursuit of this challenge can bring, drives him or her to work on such projects as building weapons of mass destruction. Adding the further complication of such concepts as patriotic duty and science as separate from values, it is not difficult for a scientist to rationalize a moral justification for this kind of work. Further, because of fragmentation, scientists are divorced from the actual use and decisions about the use of such weapons. Loss of decision making can mean loss of responsibility. Yet, it is clear that without scientists there would be no production and use of weapons of mass destruction.

Boyer's Failure to Evaluate the Socioeconomic System

The record of Western science is mixed. Along with all the advances in technology and industry comes five hundred years of oppression and destruction. Universities must take a major responsibility for this destruction, as they must take a major role in halting the slide down the slippery slope of self-elimination. The university in the context of capitalism clearly must be evaluated. Here Boyer makes an attempt at this analysis by noting that there are “growing social separations and divisions on campus, increased acts of incivility, and a deepening concern that the spirit of community has diminished.” Boyer rightly believes that responsibilities of faculty go beyond scholarship, that they extend into campus life as a whole. He states that, “beyond the campus, America’s social and economic crises are growing — troubled schools, budget deficits, pollution, urban decay, and neglected children, to highlight problems that are most apparent” (p. 3). The problems that Boyer identifies are significant, but in comparison to problems of violence, cultural and environmental destruction, starvation, and so on, they pale (e.g., Devine & Wright, 1993). In glossing over social problems Boyer plays into the hands of “maintaining the status quo” and leaving the social hierarchical structure of the university intact. Boyer goes on to say,

The challenge then is this: Can America’s colleges and universities, with all the richness of their resources, be of greater service to the nation and world? Can we define scholarship in ways that respond more adequately to the urgent new realities both within the academy and beyond? (p. 3)

What Boyer’s analysis fails to show is that universities are part of the problem as well as the solution. “Professors believe themselves to be, by and large, free and independent thinkers not held to account by benefactors and boards of trustees” (Douglas, 1992, p. 25). But how free are they?

The Socioeconomic and University Connections

Even though Western science has established itself to be superior to all other forms of discourse in matters of truth, it has always been subordinate to power (Aronowitz, 1988; Chorover, 1979; Simpson, 1994). The relationship between capitalism and the university is not well understood, given the plurality of causal relationships. We describe the relationship only in the general terms of mutual and reciprocal. This is not to be construed as a relativist’s view; as Bhaskar notes, there is a hierarchy of causality, and therefore detailed analysis is required for full understanding. But if the socioeconomic system is hierarchical and hegemonic, then the university system is most likely to be hierarchical and hegemonic also. Given the university’s dependence upon material re-

sources for its existence, it would be difficult to be otherwise. Therefore, a change in the latter system requires a change in the former. The implication is that scientists must assume a large share of the responsibility for the social record, knowing that the social world is no success story. Therefore, they must also assume a large responsibility for emancipation and reformation. Clearly, there is more to be done at universities than simply tinker with the reward system.

Implications for Change

We conclude by considering the implications of our analysis. There is little question that universities today are structured hierarchically with a board of regents, boards of trustees, presidents, provosts, deans, faculty, students, and staff. There are differences among the various universities and colleges throughout the United States, but in general faculty have relatively little decision-making power. Boards make all final decisions in university matters, and the administration makes nearly all decisions regarding the distribution of resources. With little or no say in the distribution of resources, faculty decision-making power regarding academic matters has limited impact, at least to the extent that the latter is dependent upon the former. In effect, faculty are given decision-making power as long as they do not upset the social order. But power is never zero-sum. Although faculty most often only make recommendations, they do have agency and can foster change.

In keeping with our model, we offer general principles. Our approach is to ground strategies in the notion that actions must be local and individual, goals must be global (encompassing). But progress must be constantly monitored regarding the relationship between local activity and global goals. Organizational structure will emerge from these individual actions. The goal we envision is a world-wide heterarchically structured system of education within a global heterarchical socioeconomic system. This calls for liberation as a continuous developmental process.

On a large scale, we believe that from the pursuit of the goals and behavioral outcomes under heterarchies the desired social structures will emerge. On the other hand, from what we understand from complex systems theory, “grand plans” are not likely to succeed. Open systems make long-term predictions precarious. Grand plans also imply top-down imposition. In our view, any “plan” must conceive liberation as a more or less gradual and open-ended progress from unwanted and oppressive determinations to wanted and enabling ones (Bhaskar, 1989, p. 6). Actions must be guided by a system of values rather than a system of rules. We believe that genuine empowerment, based upon the conceptualization of

agency and power described above, is the mechanism for change. Emphasis is to be placed upon individual needs that mutually enhance the collective, rather than upon the “needs” of the collective with its responsibility to the individual. This is in counterdistinction to both Marxism and capitalism. It is through the efforts to satisfy *all* individual needs that the satisfaction of the collective is realized. All persons have the power within themselves to become liberated given the appropriate context. Liberation is not something done to an individual but something an individual does.

In determining a strategy that can bring about change, the important question is: How is the organizational structure of the university and the larger society to be transformed, given the enormous resistance due to long tradition and a tremendous imbalance of power? The strategy we propose for universities is a simple one in concept but perhaps more difficult in practice, at least initially. We believe that the key to change is the gradual transferral of decision-making power to all individuals. Details for this change must come from faculty groups at each university because of the change in context. People must be allowed real choices, including the choice of not choosing, while realizing that democracy is not easy. Within the university system there must be true participatory democracy, where all those who are affected by decisions should participate in their disposition (Albert & Hahnel, 1991; Hahnel & Albert, 1990; Sale, 1980). Individual actions must be dual: (a) individuals must challenge, through rational and moral critique and action, all attempts at domination by others; and (b) each must also exercise self-reflexive criticism. By the latter we mean, each individual must challenge their every temptation or opportunity to dominate others.

We suggest replacing career ladders where faculty rise through the ranks to become administrators removed and isolated from the real “business” of the university, discovery and dissemination of knowledge, with career lattices where administrative positions are webs of roles that change hands and impose fewer limits on individuals, their talents, and their interests. We envision a university where talents better match with tasks, promotion and tenure are reconceived, and a community of scholars works on important problems using a broad array of techniques of discovery. Furthermore, inter- and cross-disciplinary study would become far more common as scholars became more problem-oriented and less paradigm-restricted.

We have offered a model of scholarship as discovery and dissemination grounded in a heterarchically organized system — a system we equate with a community of scholars dealing with significant human and social problems. We believe that such a refocusing of task and system

will have a far greater impact on the quality of campus life than any efforts at tinkering with faculty rewards in a system that is beyond repair.

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