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The Structure of Recreation Behavior

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We present a meta-theoretical analysis of recreation concepts as an argument about organizing and explaining recreation behavior. Recreation activities are behavioral constructions that people build from both prototypic subsystems (those present in virtually all instances of the activity) and design subsystems (optional subsystems that adapt the activity to serve multiple goals). To explain the organizational structure of the behavior, we advocate a systems analysis that focuses on functions, mechanisms, and capacities, examined from biological, psychological and social perspectives. The resulting nine-cell matrix enables us to categorize common concepts in recreation research such as benefits, flow, and constraints in a way that is consistent with Aristotle's fourfold model of causation. A comprehensive explanation of an activity requires information about each of the matrix's cells, so that most of the commonly used concepts in recreation and leisure research provide complimentary rather than competing explanations.

KEYWORDS: *Recreation behavior, explanation, function, mechanism, capacity, benefits, constraints.*

Introduction

Over the past 40 years, explanations of recreation behavior have grown increasingly sophisticated, and technical literatures have developed on many subtopics within leisure research. Yet this increased specialization also contributes to fragmentation—analysis at the expense of synthesis. For example, Csikszentmihalyi's (1990) concept of flow has been widely accepted as an explanation of recreation behavior and has led to numerous studies (e.g., Jones, Hollenhorst, Perra & Selin, 2000). Analyzing activities in terms of benefits, motivations, and participant goals is similarly accepted, begging questions about the relationship between flow and benefit: Is flow simply one category of benefit? Does one concept subsume the other? Are they competing or complementary explanations of recreation behavior? How do both these theories relate to a physiologically based theory like Berelyne's

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(1960) arousal theory? The fragmentation is compounded by our tendency to borrow theories from other disciplines to examine specific aspects of activities (flow, cognitive dissonance, role theory, arousal and identity theory are perennial favorites) (Searle 2000); when confronting a recreation research problem we have an often bewildering array of concepts and approaches from which to choose. What would be needed to construct a more holistic, comprehensive, and better-integrated explanation of any particular recreation activity? What kinds of information would be required? While the analytic mode has enhanced technical development and specialization, we also must think synthetically, raising questions about broad (or meta) interrelationships between areas of analysis. Understanding these meta-interrelationships can identify shortcomings in our knowledge of particular activities and promote systematic theory development, and may occasionally prevent us from talking at cross-purposes.

Aristotle, in book two of the Physics, argued that a comprehensive explanation of something requires knowledge of four different kinds of causes: material, efficient, formal, and final (Robinson, 1985). Knowledge of one kind of cause does not substitute for another; each is necessary. Phrased differently, comprehensive explanation of a recreation activity requires several different kinds of information. In this paper, we develop these ideas further using modern systems theory rather than the Aristotelian terminology. By arguing that all recreation activities are actually systems of behavior best understood in the context of a goal-directed systems analysis, we construct an integrative framework for the analysis of recreation behavior that we term Recreation Systems Theory. Our focus is on the structure of recreation activities—the way the behavior itself is organized and the factors that account for recurrent participation patterns within a person's life. As such, our meta-theoretical analysis is primarily psychological although we also explore biological and socio-cultural influences on individual behavior. Additionally, our focus is on structure rather than experience (which we believe partially derives from structure); we defer the discussion of experience to a later paper. We close with some reservations about systems theory and a discussion of the implications of Recreation Systems Theory for further research.

Recreation Activities as Behavioral Systems

The most neglected part of recreation research may be the actual composition of an activity. When studying a particular activity we tend to examine correlates: Who does it? How often? What outcomes are produced? et cetera, without giving much thought to what "it" is. Our initial premise, therefore, is that recreation activities are actually behavioral constructions—organizations of more elemental actions, thoughts, and feelings—that participants create for themselves around goals of varying specificity. Put simply, we build recreation activities from smaller bits of behavior, and we may build

them differently on different occasions. Such constructions are not random, however, but follow systems principles, so we refer to the paradigm we advocate as Recreation Systems Theory, a specific case of the more general behavioral systems theory (Averill, 1992; Averill & More, 2000; Averill, Stanat & More, 1998).

It may seem odd to speak of behavior as a system; after all, a system is an assemblage of parts (subsystems) designed to fulfill some function within a larger system (suprasystem or inclusive unit). But behavior can be treated similarly: small actions have meaning because they serve a purpose or purposes within a larger system. Consider tying up a boat after a day's sailing. Numerous small actions of the fingers, hands, and arms are required; these actions are not random but are organized toward the goal of tying the knot. And the knot is just one component of the docking subsystem—the organized set of behaviors necessary to dock the boat. This subsystem combines with others (casting off, tacking, planning, etc.) to create the actual activity of sailing. And the day's sailing has meaning only as part of a larger system—the context of the person's life as a whole.

Two types of subsystems comprise an activity: prototypic and design. Prototypic subsystems occur in virtually all instances of the activity and help define it. In sailing, these might include casting off, unfurling sails, tacking, and docking—the behaviors that are essential to almost all instances of sailing. By contrast, on a given sailing occasion, one might or might not eat lunch, might or might not swim from the boat, race, sunbathe, conclude a business deal, or host a birthday party. These design subsystems are optional, enabling the participant to design the activity to serve multiple goals. Put differently, prototypic subsystems are relatively invariant, while design subsystems enable us to construct the activity in different ways at different times so that it can be adapted to the ongoing events of our lives. An initial important point is that the analysis of any activity must focus on its prototypic subsystems; including optional design subsystems can confound an analysis because they vary across people. When a particular design subsystem recurs in a large proportion of the population (e.g. sailing to entertain business clients), it constitutes a market segment and requires separate analysis. However, for accurate research, we must focus on prototypic subsystems so that we can directly compare results of studies conducted at different times and in different regions.

Four additional points about the structure of recreation activities warrant explanation. First, the elements or subsystems that comprise a recreation activity are systematically ordered; one could not reasonably expect to shuffle the subsystems and have a coherent activity emerge. For example, you cannot dock before casting off; in bridge, dealing precedes bidding.

Second, recreation activities vary in complexity. A simple recreation system (e.g., sunbathing) contains fewer elements and subsystems than a complex system (e.g., technical rock climbing).

Third, recreation activities vary in degree of structure (i.e., the degree to which their prototypic subsystems are invariantly organized) and, hence, in the degree to which they can be altered by personal choice. For example, an aerobics class might be highly structured while a family camping trip might be relatively unstructured; that is, participants can more freely design some activities than others—including or excluding specific design subsystems.

Fourth, the subsystems that constitute an activity are organized hierarchically. Tying a knot combines with other subsystems at the same level (stowing gear, holding the boat steady) to yield the higher level docking subsystem. Docking combines with other subsystems to yield the day's sailing, and so on. When a lower order action (tying a knot) is accomplished to complete a higher order action (docking), the higher order action can be termed a "motive" for the lower order action. Such organization continues, with individual activities forming patterns within a person's life, in service of attaining broad higher order goals such as health and happiness. As we ascend the hierarchy, the goals grow increasingly broad and the contribution of specific actions is less certain. In sailing, we do not argue about the motive for tying a knot because its role in the docking subsystem is clear—there is no uncertainty about what we are doing or why so no explanation is required. However, the contribution of a day's sailing to broad goals as health, virtue, or self-actualization is much less clear so it provokes much greater debate. The point to emphasize is that the *form* of the explanation of the day's sailing should be the same as that of tying the knot. Many people may not be fully conscious of broad, long-term goals such as health (in the sense of optimal functioning), virtue, or self-actualization (see Kuentzel's (2000) criticism of rational actor theories in recreation), but these goals ultimately drive recreation behavior.

Five Systems Concepts

From both systems biology and general systems theory, we can abstract three key characteristics shared by all systems: functions, mechanisms, and capacities (Averill, 1992). All systems have a function or set of functions that they fulfill within a larger system. Systems without functions are vestigial and can be ignored.[1] Mechanisms are the internal workings—the substructures and processes within a system—that enable the functions to be fulfilled. Capacities are system limits assessed independently of both function and mechanism.

These three concepts can describe any complex system. For example, a computer may serve multiple functions such as word processing, scheduling activities, and computing payroll. Mechanisms include software and hardware, gates, chips, and programs—the inner workings that allow it to fulfill its functions. Speed and memory are capacities.

[1]Early theorists often argued that both play and aesthetics were forms of behavior that lacked explicit functions (see Berelyne, 1968). Such claims are no longer widely advanced—natural selection is too economical to allow large categories of functionless behavior.

Behavior can be similarly described, so, for any particular recreation activity the key questions to ask are: (1) What function or purpose does it serve within the broader context of a person's life as a whole (the suprasystem in systems terms)—what does sailing *do* for those who participate? (2) What mechanisms enable the behavior (activity)—how does it operate? (3) What capacities (time, skill, intelligence, endurance, etc.) must a person have to participate?

It also is useful to distinguish three analytic modes: biological, psychological, and social. All behavior represents some amalgam of these factors. For example, jogging may be primarily a biologically based activity, but it certainly has social and psychological dimensions. In other words, when we ask what functions an activity serves, it helps to inquire separately about biological, social, and psychological functions; we behave as a member of a species, a member of a culture, and as an idiosyncratic individual with a unique history and pattern of learning. Biological factors are those under genetic control. Social factors reflect social rules, norms, and resources as embodied in symbols and other cultural artifacts. Psychological factors include cognitive schemas, plans, or scripts laid down in memory.

If we array the three systems variables against the three analytic modes, the resulting cross-classification indicates the important factors in analyzing recreation activities (Table 1)—these are the factors that account for the recurring patterns of recreation behavior in a person's life. The factors are actually semi-independent ways of looking at the same thing; your choice depends on your needs and interests. For example, with a computer, a business executive would be interested in functions (payroll, scheduling), an engineer would be interested in mechanisms (gates, chips), and a salesperson in capacities (speed, memory). In recreation, a policy analyst or decision-maker would be interested in functions, a site manager would be concerned with mechanisms, while an activist might want to know about capacities (constraints). This perspective enables us to classify the recreation literature. As we shall argue, theories emphasizing benefits (e.g., Driver, Brown & Peterson, 1991) or motivations (e.g., Tinsley & Tinsley, 1986) are primarily functionalist theories; flow (Csikszentmihalyi, 1990) or arousal (Berelyne, 1960) theories yield mechanistic explanations, while constraints (e.g., Jackson & Scott, 1999) concern people's capacities to participate in recreation. Thus, rather than competing as explanations of recreation behavior, these theories are windows on different facets of the same phenomenon and all are necessary for comprehensive explanation.

The Functions of Recreation Activities

If any structural variable takes precedence, it is function. We could analyze any system (an automobile, for example) in terms of its mechanisms (sparkplugs, coolants, etc.), but recreation activities, like automobiles, are important because of what they *do*. Consequently, we begin by asking: What function(s) does recreation behavior (or activity participation) serve within the context of a person's life as a whole? This perspective is similar to recreation benefits (e.g., Driver et al., 1991), motivations (e.g., Tinsley & Tinsley, 1986), or multiple satisfactions (e.g., Decker, Brown, & Gutierrez, 1980; Hautoluma & Brown, 1978). We prefer the term function for three reasons (see More, 2002): (1) we prefer to avoid the value judgment implied by the term benefit; function implies a more analytic understanding; (2) motivations as typically understood in the recreation research literature are closely linked to personality traits, which we believe are better treated as capacities; (3) function keeps our conception consistent with the terminology of systems theory and biology. Nevertheless, these conceptions are close; all seek to identify the purposes that recreation activities serve in people's lives. The question they ask is "Why?", and in a systems context "why" can only be understood by examining the effects the system produces on the broader suprasystem. Thus, we must begin with an analysis of the effects of recreation participation within the context of a person's life as a whole.

Since functionalist explanations address phenomena in terms of their consequences for the rest of the system (Abrahamson, 1978), we must be explicit about the hierarchical organization of recreation behavior. Above, we illustrated how a small action—tying a knot—acquired importance because it fulfilled a function within a larger system—docking the boat. So, too, the functions of a day's sailing must be understood in terms of the changes produced in other, larger systems. In psychology, the highest (most inclusive) is the self, the importance of which has been amply documented in leisure research (Scott & Godbey 1994; Shamir 1992; Shaw, Kleiber & Caldwell 1995). Typically the self is presented as a single, psychological concept (as in self-image, self identity, et cetera). However, we see the self not as a uniform entity but as a tri-faceted organization of biological, social, and psychological components corresponding to the analytic modes in Table 1. Each aspect of the self is comprised of behavioral subsystems which interact to yield an organization that is both hierarchical and heterarchical (Figure 1).

TABLE 1
Structural Factors that Determine Behavior at the Biological, Social, and Psychological Levels of Analysis

	Structural Variable		
Analytic Mode	Functions	Mechanisms	Capacities
Biological	"Instincts"	Organ systems	Temperament
Social	Institutions	Organizations	Ethos (e.g., power, status, etc.)
Psychological	Life scripts (long-range motives)	"Faculties" (e.g., memory, perception)	Traits/capacities

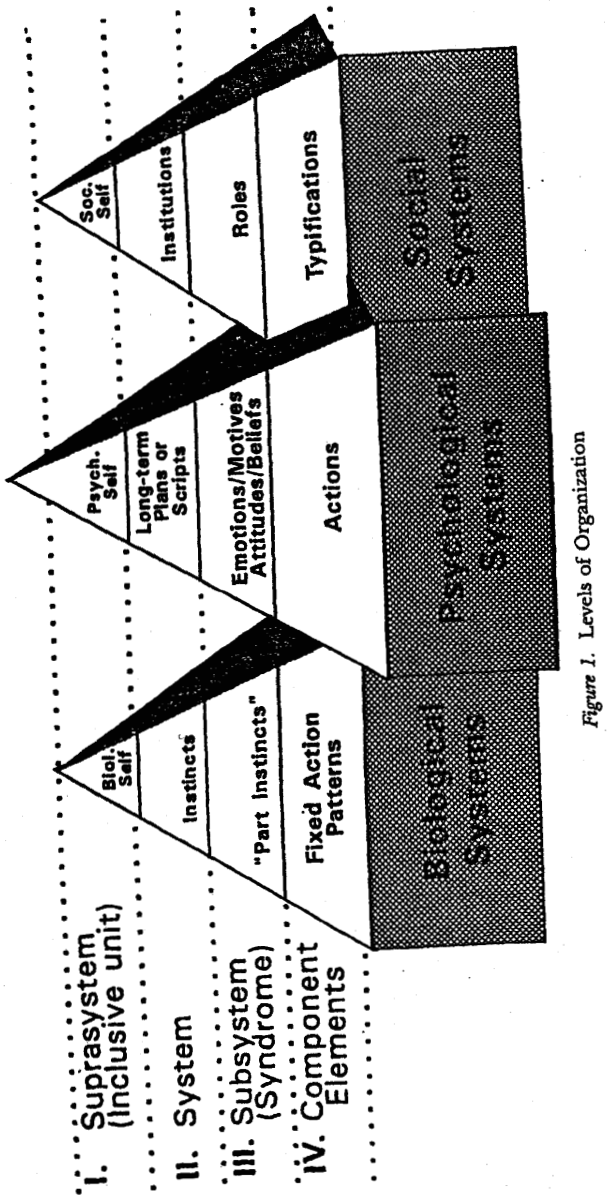

Figure 1. Levels of Organization

The Biological Self

Modern *Homo sapiens* and their behavior are the product of several million years of hominid evolution. Most personality theories assume we have a human nature simply as a member of a biological species: We are considered an aggressive species, a social species, a species that rears its young to maturity. Though actual behavior is modified by social and psychological factors, such instincts form its biological substrate.

The biological self represents the incorporation of species concerns within the individual. From a species perspective, the greatest good is species survival, accomplished by the maturation of healthy adults capable of contributing to the gene pool. The corresponding concern within the individual is long-term health, where health is defined broadly as the optimal functioning of the various biological systems. The major biological systems of behavior ("instincts" like attachment, sex, and aggression) contribute more or less directly to species survival. Leisure activities vary in their level of biological involvement: Some—jogging, aerobics—have an obvious biological basis, but many others have biologically based components that must be incorporated into a comprehensive explanation. For example, activities that center on dating—going to parties, movies—all may have a biological foundation in the attachment/mating behavioral subsystem. The same is true with nurturance and aggression. A comprehensive explanation of an activity cannot ignore its biological substrates.

At the lowest level, elementary responses contributing to survival are typically experienced as pleasurable—the sweet taste of ripe fruit or the pleasure of sexual activity. Thus, the "pleasures" are intimately related to our biological functioning and form a basic part of the happiness or satisfaction associated with many recreation activities, including aesthetics (Averill, Stanat & More, 1998). Qualities like the smell of a wildflower, pure air, or the coldness and clarity of a mountain stream can, when accumulated, be significant determinants of the quality of outdoor recreation experiences (cf. Hendee, Catton, Marlow, & Brockman, 1968; Peterson, 1974). These biologically based pleasures form one cornerstone of the intrinsic rewards associated with recreation and leisure and provide a link between the organizational structure of the behavior and the nature of the associated experience.

There is no definitive list of biological systems of behavior. Over the years, many theorists have proposed lists of instincts, needs and drives that are presumably central to human survival. While the number of systems recognized depends upon factors like the complexity level at which one enters the hierarchy, the criteria used, and the purposes of the classification, most theorists agree that mating (sex), aggression (power and dominance), harm avoidance (flight to safety), attachment to others (including both nurturance and distress at loss), exploration (curiosity), and foraging (search for food and drink) are among the major biological systems of behavior (Averill, Stanat, & More, 1998). Recreation research has explored some of these systems more thoroughly than others, but all are likely to play a role in explaining particular activities.

The Social Self

Just as the biological self incorporates species concerns, the social self represents the (imperfect) incorporation of societal goals and cultural values, particularly moral values, within the individual. From a functionalist perspective, societies, like species, strive for preservation. They define behaviors vital to their survival as virtuous and condemn as vices those that are detrimental. The well-socialized individual has internalized the culture's goals and values as a set of moral precepts that are at the heart of the social self. Consequently, many classical philosophers equated a good life with a virtuous one, and moral values (which are largely culturally determined) are to the social self what health is to the biological self.

Within the individual, the social self is an amalgam of both social structural influences (race, gender, class, etc.) and cultural factors. Social structural influences are patterned interrelationships between individual and organizational statuses, while cultural factors are historically determined beliefs about what is, what should be, and how things should be done (Schooler, 1996). Both social structures and culture are major determinants of individual behavior, so much so that many social theorists (e.g., Parsons, Merton, Schooler) separate them and might well have included a fourth, cultural hierarchy in the present paper. While we believe such separation to be legitimate, we present them as unified here both for the sake of expedience and to preserve a "social self" that corresponds directly to the biological and psychological selves.

Developed societies are articulated into various social systems—adaptive patterns that contribute more or less directly to the survival of the society. Our values are organized around these systems; that is, through socialization we come to understand what constitutes proper behavior in a variety of social systems and settings. Table 2 lists one potential categorization of social systems and their related functions. It is worth noting how much leisure research has concentrated on the relationship between recreation and the economic system (e.g., Duffy-Deno, 1997; Fix & Loomis, 1997), the familial system (e.g., Baldwin, Ellis, & Baldwin, 1999; Freysinger, 1994), and, to a lesser extent, the medical system (e.g., Godbey 1997; Paffenbarger, Hyde, & Dow, 1991; Ulrich, 1984). Relationships between recreation and other social systems may prove to be fruitful areas for investigation. For example, parks may play a significant role in the religious or educational life of a community.

TABLE 2
Examples of Social Systems with Related Functions[a]

System	Function
Education	Socialization
Economic	Production/distribution of goods and services
Medical	Healthcare
Political	Production of collectively binding decisions
Legal	Maintenance of, and adherence to decisions
Scientific	Production of new knowledge
Religious	Articulation of meanings and values
Military	Protection/conquest

[a]The list is not exhaustive, and many functions overlap, e.g., military spending has economic consequences.

Each social system is comprised of organizations—both formal (banks, clubs) and informal (family, friends). These combinations of social roles represent the environment through which the social self moves; they are the internalized representations of social structures. Still lower is the multiplicity of social roles occupied by the individual, while at the lowest level are typifications—routinized social responses performed nearly automatically, e.g., shaking hands upon greeting.

Organizationally, the social self parallels the biological self. As noted, classical philosophers often argued that the highest social goal (within the individual) is to live a good (virtuous) life, and many serious leisure pursuits (Stebbins, 1982, 1999) contribute to this goal directly, particularly those concerned with participation in civic or communal organizations. However, virtuous behavior is possible throughout the hierarchy and in a variety of activities and settings: Helping a friend or picking up litter are examples of virtuous acts that provide pleasure. Doing good for the sake of doing good is pleasurable and recreation activities offer numerous opportunities to exercise this enjoyment. Like the biological "pleasures," acts of virtue whether small (helping a friend) or large (a long-term commitment to volunteering) represent another of the emotional cornerstones upon which the recreation experience is built.

The Psychological Self

The psychological self is a set of propositions or concepts about who we are as individuals and how we relate to the world. To many theorists in psychology's humanist tradition (e.g., Rogers, Maslow, Jung), actualization of the psychological self (i.e., preservation and enhancement of a sense of self) is a major, if not *the* major, motivation behind most human behavior. As a goal, self-actualization is comparable to health and virtue in the biological and social systems, so that elementary behaviors that enhance a person's sense of self also will be experienced as pleasurable.

The psychological systems supporting the self can be divided into long-term plans or scripts that specify goals within broad domains of a person's life. A person's motives, emotions, attitudes, and beliefs are organized around these plans or scripts and are supported, in turn, by specific actions that occur at the lowest level of the hierarchy. Part of a person's self-concept might be that he/she is a sailor. He or she may have long-term goals related to sailing: owning a larger boat, winning a particular race, or retiring near a major lake. The experience of individual sailing occasions will be impacted

by these plans: Is it your first time?, a regular activity, or "old hat." Each individual experience will be one of a series of experiences, and its emotional quality may be at least partially determined by where it lies in the series. Finally, any sailing experience will be composed of numerous specific actions related to sailing—the actual behaviors of sailing. These specific actions derive meaning from the plans, scripts, and emotions that lie above them in the hierarchy, but they also provide important inputs upwards in the system. So, if the person's hand grows arthritic, making it more difficult to perform a specific action, he or she may have to change long-term plans as they relate to sailing. In a systems context, processing goes both up and down the hierarchy.

In sum, a functional analysis of a recreation activity examines the effects of participation on the biological, social, and psychological selves. Generally, we believe that theories of recreation benefits (e.g., Driver & Bruns, 1999) or motivations (Tinsley & Tinsley, 1986) are within the functionalist tradition. While current versions of such theories may be problematic (see More, 2002), they represent one kind of knowledge necessary for comprehensive explanation.

Enabling Mechanisms

While a functional analysis concerns the origins and purposes of recreation behavior, a mechanistic analysis explores the internal workings that fulfill those functions; the central question is *how* rather than *why*. In the sailing example, a functional analysis tells us why we tie the knot, it does not tell us how the knot is tied. As with functions, enabling mechanisms can be analyzed from biological, social, and psychological perspectives.

Biological Enabling Mechanisms

Biologically, enabling mechanisms are best represented by organ systems and the various physiological structures they comprise. Recreation activities obviously differ in the extent to which they involve the different organ systems: swimming uses the muscular, cardiovascular, and pulmonary systems extensively, while picnicking or dining out involves the digestive system. Involvement also can vary in intensity: jogging may involve some organ systems intensely, while watching television may maintain most systems at low activation.

Over the years, physiological explanations of recreation behavior have been popular, ranging from eye-pupillary measures of aesthetic responses (Wenger & Videbeck, 1969) to the effects of natural environments on patient recovery (Ulrich, 1984), to the influence of outdoor adventure tasks on the neuroendrocine system (Bunting, Tolson, Kuhn, Suarez, & Williams, 2000). Particularly important physiological mechanisms in recreation include, among other things, pleasure centers in the brain, specialized circuitry in the left frontal lobes (which appear to be involved in positive emotional

experiences),and endorphins and other naturally occurring opoids (Averill & More, 2000). Perhaps the most comprehensive physiological explanation of recreation is Berelyne's (1960, 1968) arousal theory. In this theory, arousal (in the form of "arousal jags") is a major motivational factor in exploratory and play behavior, as well as in forms of adult recreation behavior as diverse as riding roller coasters and attending performances of tragic drama (Berelyne, 1960). Arousal also has been linked to theories of laughter, humor, and aesthetics (Berelyne, 1968, 1972) and used to explain emotional reactions to such diverse environments as suburban parks (Hull & Harvey, 1989) and wilderness areas (Scherl, 1987). Technically Berelyne's theory represents the interaction of a major physiological enabling mechanism (arousal) with elements of psychological mechanisms (novelty, complexity, etc.); mechanisms interact at all levels and are separable only in theory.

Physiological research is undoubtedly important in explaining recreation behavior, but brings with it all the temptations of reductionism—the belief that truth is to be found at this level where we can make exact measurements in millimeters and milliliters. Unfortunately, such thinking is often illusory. To borrow Daniel Robinson's (1997) example, if we ask why someone got angry, and repeated observations show that their blood temperature increased 1°, we might conclude that they got angry because their "blood boiled." Yet such a conclusion would clearly be false, despite systematic and reliable measurement. The reason they got angry might have much more to do with someone else cheating at cards, making a cutting remark, etc.—the "blood boiling" is an effect, not a cause. Clearly, there are instances where physiological processes can be causal factors in recreation, as when a chemical imbalance creates depression, but we need to place this research in perspective: It is important and necessary, but comprehensive explanation requires more than just physiology.

Social Enabling Mechanisms

Social enabling mechanisms are the organizations and related individuals that support specific recreation activities. These organizations provide the inner workings of the various social systems described above. They can be either formal (businesses, agencies, institutions) or informal (groups of friends, family). For example, a social analysis of hunting mechanisms would identify the nature of hunting opportunities, the rules and regulations of the providing organizations, the clubs, stores and cafes, and gasoline stations that significantly enable a person's participation. It also would be necessary to know about support or opposition from family, friends, and coworkers—a person's social network of interested others.

The most significant social mechanisms are the small groups that form around the family, neighborhood, and workplace (Murray, 1988). Ample evidence attests that recreation is profoundly social; it often occurs in just these small groups of family, friends, and co-workers, and many activities actually depend on group participation. Even such solitary activities as trapping may

depend on maintaining a supportive social network (Glass, More, Siemer, Brown, Batchelder, & DiStefano, 1991). The catch, at least according to Murray (1988), is that to fulfill functions (and, therefore, to lead to long-term happiness) these small groups must afford their members challenges that are meaningful, require effort, and for which group members can feel responsible for their own successes or failures (Murray, 1988)—traits typically associated with intrinsically rewarding recreation activities (Iso Ahola, 1999). Murray argues that social policy should promote and nurture such groups, which suggests that recreation managers should preserve a range of opportunities of varying challenges; providing too much assistance or comfort in the name of enhancing satisfaction risks robbing activities of their intrinsic rewards—people need to "earn" their enjoyment.

Psychological Enabling Mechanisms

Psychological enabling mechanisms comprise what early psychology texts used to call "faculties": memory, attention, perception, judgment, the will, and imagination (e.g., William James' Principles of Psychology (1892, 1961)). Today we discuss these faculties at a more molecular level: For example, Berelyne (1960) divided attention into issues of novelty, stimulus complexity, amount of surprising; any of the major faculties can be broken down similarly.

Ultimately, psychological enabling mechanisms serve the psychological self, the most inclusive unit of the psychological hierarchy. Three of the most important are setting realistic but challenging goals, a belief in one's ability to attain the goal, and adequate feedback about progress toward attaining the goal.

Goals must be realistic and attainable. People who lack confidence seldom undertake challenging activities, so that belief in personal control over outcomes and the degree of perceived choice in one's life are positively related to happiness (e.g., Abbey & Andrews, 1986; Deci & Ryan, 1985). Leisure counseling can assist people in setting attainable goals.

Feedback, the other goal-related mechanism, is essential to positive emotion (Carver & Scheier, 1990). Most intrinsically rewarding recreation activities are patterned around long-term scripts, not random samplings of pleasure or individual occasions of satisfactions. Any individual experience is part of a series and the quality of that experience—an extremely important form of feedback to the person—is as much determined by where it stands within the series as by the kinds of setting attributes ordinarily studied by recreation research. "Is it still fun?" is a crucial question asked by participants. When an activity is no longer pleasurable, the person may progress to a new level of specialization as in fishing (Bryan, 1979) or hunting (Jackson et al., 1979; More, 1984). Scott and Shafer (2001) provide an excellent analysis of the mechanisms involved in specialization. They suggest that specialization involves focusing behavior such that an individual participates in an activity at the expense of other activities, the acquisition of associated skills and knowledge, and commitment such that the activity becomes a central life interest. These processes are instigated by "career contingencies"—interpersonal or structural events that affect the trajectory of a person's leisure career through facilitation or constraint (Stebbins 1992). Thus career contingencies can lead some people toward increased specialization, while others will follow a more casual trajectory, perhaps becoming committed to particular groups or locations. Feedback is essential throughout this process.

As a mechanism, feedback invites evaluation: comparing where one is with where one feels one ought to be. In psychology, such judgments are known as gap, congruence, or discrepancy theories (Michalos, 1980, 1985; Parducci, 1968; Wills, 1981). Such theories have been applied extensively in leisure research to understanding the quality of individual experiences. Thus, the satisfaction derived from camping is considered a function of the degree of congruence between aspiration and the reality of the experience (Bultena & Klessig, 1969), while the quality of a wilderness experience derives from the relationship between a person's expectations and the perceived reality of the experience (Peterson, 1974).

Flow is one of the most significant current theories involving gap mechanisms (Csikszentmihalyi, 1990). Flow is a characteristic of experience, so we will not treat it here, but experiencing flow depends on the gap between challenges and skill—structural characteristics. If this gap is too large, boredom or anxiety results (Csikszentmihalyi, 1990). Finally, importance/performance analysis (e.g., Havitz, Twynam & DeLorenzo, 1991; Richardson, 1987), which identifies gaps in the performance of specific attributes relative to preferred performance levels, and normative theories of encounters (e.g., Heywood, 1996) also have their intellectual foundation in gap theory.

Other psychological mechanisms could be discussed (e.g., Berelyne's, 1960, analysis of orienting responses, novelty, and exploratory responses). But the key point should be clear: mechanistic analyses are concerned with how recreation activities work—their processes and substructures—and yield a different explanation from a functional analysis that asks why.

The Capacity for Recreation Activities

Capacity is the third focus for a systems analysis of recreation behavior; the fundamental question here is: "What's possible? (i.e., What are the system's limitations?)" Contemporary recreation research has tended to approach this as a question of constraint; research on constraints has grown so rapidly in recent years that it has become a distinctive sub-field of leisure research (Jackson, 1991). In fact, some theorists believe that constraints research has shaped the very way we conceive participation (Samdahl & Jekubovich, 1997; Raymore, 2002).

Perhaps the dominant model of constraint is that proposed by Crawford, Jackson, & Godbey (1991). This model suggests that people negotiate three types of barriers to participate in an activity: structural barriers (time, money, etc.) intervene between preference and participation, interpersonal barriers

(e.g., lack of companions) involve social interaction, and intrapersonal barriers include psychological states or individual attributes. Recent research has questioned this model on various points, however. For example, Samdahl and Jekubovich (1997) argue that people are more active in shaping and adapting their participation than the model implies, that prior research findings about constraints may have been an artifact of the research methods, and that the constraints model still fails to explain participation fully (i.e., it strives to explain why people do not participate rather than why they do).

We take a slightly different tack, arguing that people differ in their capacities to participate in activities. There are, in fact, a myriad of individual differences between people that influence recreation behavior. We are short or tall, female or male, well-coordinated or clumsy, wealthy or poor, etc. Clearly, these differences are important in explaining recreation behavior. We suggest that they represent people's capacities. As with function, a focus on capacity rather than on constraint keeps our terminology consistent with systems theory. It also enables us to discuss the effects of potential changes in capacity, such as those that might come from aerobic exercise or aging (in the biological system), education or a change in income (in the social system), or counseling (in the psychological system). The elements of contemporary constraints theory are present, but slightly refocused. As with functions and mechanisms, capacities need to be examined from biological, socio-cultural, and psychological perspectives. However, since excellent reviews of the constraints literature are available (e.g., Jackson & Scott, 1999), our discussion is illustrative rather than comprehensive.

Biological Capacities

Biological capacities include species attributes (at the population level) and related temperamental characteristics at the individual level (strength, energy level, sociability, etc.) to the extent that these are under genetic control. There are actually a host of biological differences between people that may (or may not) play an important role in recreation behavior. An obvious example is that we are born female or male. According to Marvin Harris (1989):

> Men are 11.6 centimeters (4.6 inches) taller than women on average. Women have lighter bones and . . . weigh less for their height. Women are about two-thirds to three-quarters as strong as men, depending on the group of muscles tested. The biggest strength differences are concentrated in the arms, chest, and shoulders. There is no mystery, therefore, about why men outperform women in track-and-field athletic contests. In archery, for example, the woman's hand bow record for distance is 15 percent less than the male record. In compound bow competition, the gap is 30 percent. In javelin hurling, it is 20 percent. Add to these differences a 10 percent gap in various kinds of sprints and intermediate and long distance races. As I mentioned earlier, there is a 9 percent gap in the marathon. The same for 100-meter dashes, but larger, about 12 percent, for intermediate distances. While athletic training programs and psychological incentives improve women's track-and-field performance, there is little prospect that the gap that now exists in sports based on muscular strength and body build will ever be significantly narrowed (except, perhaps someday, through genetic engineering). (p. 279)

Thus, if Harris is correct, in some recreation activities sex creates major differences in capacity (we reserve the term "gender" for socio-cultural differences). Sometimes we resolve sex differences with separate competitions. In other activities it is possible to neutralize sex differences through rule modifications, as with differential tees in golf that enable women and men to play together. And, most probably for the vast majority of recreation activities—going to the movies, playing bridge, camping—biologically-based sex differences have no effect on capacity whatsoever. The point is that we need to think through these differences in capacity for explanatory purposes (and without value judgments). Our biological capacities change with age, first through maturation, then through aging. For example, young athletes can be injured by being pushed beyond their biological capacity, while arthritis (or an injury) may diminish an older person's capacity for an activity, necessitating a change in long-term plans and perhaps even in self-concept. Often, goals within the functional systems may concern building or maintaining biological capacity; aerobic exercise is an example.

Socio-cultural Capacities

Socio-cultural capacities reflect a society's *ethos* (norms, character) and its influence on individual behavior. For example, societies can be competitive or cooperative, status conscious or egalitarian, collectivist or individualistic, et cetera, and these characterizations are reflected in their populations. Individually, there are a host of socio-cultural differences between people—in available leisure, class status, income and wealth, education, stage in the life cycle, etc. Gender, with its trained incapacities, expectations of differential emotionality and the like, is a central factor (Henderson & Allen, 1991), as is race with its accompanying prejudices (Phillip, 1999). Individual differences in socio-cultural factors can create vast differences in the capacity to participate in different recreational activities. Their obvious influence has made them the most studied of the capacity factors.

Psychological Capacities

Psychologically, individual differences are manifested in traits that can be considered measures of our psychological capacities to attain specific goals. Despite a long history in recreation research (e.g., Moss, Shackelford, & Stokes, 1967), the link between personality traits and recreation behavior has not been explored thoroughly. Human traits are of three kinds: traits of ability, traits of temperament (or disposition), and traits of motivation. Traits of ability include intelligence,[2] speed, artistic ability, endurance, agility, and

[2]It is important to note that intelligence is both genetically and environmentally determined, just as there is some biological basis for culture. The extent of biological involvement is the subject of furious debate, and is well beyond the scope of this paper.

gracefulness. We know of no specific studies that link these traits to recreation behavior (doubtless there are some), but the relationships seem obvious. Intelligence may be a key factor in the enjoyment of complex games like chess, or in solving mathematical or linguistic puzzles; agility and gracefulness can influence success with activities like dancing or figure skating; manual dexterity or fine motor coordination may be needed for activities like needlework or playing the piano. When someone excels at a particular activity we tend to say he or she has a gift or talent for it. Such talents often reflect underlying differences in ability traits that affect the capacity to pursue particular recreational goals.

Traits of temperament and motivation have received more attention in leisure research than have ability traits. Traits of temperament are based on the notion that we can describe people meaningfully with words like confident, shy, aggressive, energetic, and sympathetic. Traits of motivation include needs for achievement, power, autonomy, and affiliation. Current research (Digman, 1990; McCrae & Costa, 1991) suggests that most traits of temperament and motivation can be subsumed under five broad dimensions: introversion-extroversion, neuroticism (or negative affectivity), openness to experience, agreeableness, and conscientiousness, each of which can be related to recreation participation. Introversion and extroversion represent capacities for different kinds of experience, and may influence people's responses to particular recreation settings or sites. For example, both introverts and extroverts attend parties and other social functions, but introverts do so at a considerably greater cost. In contrast, introverts have a greater capacity for solitude and many prefer activities and/or sites that provide it.[3] Likewise, the degree to which a person is open to new experiences is a capacity that is important in recreation preferences; some people prefer the familiar while others are more adventurous.

Many personality factors that have been studied in recreation research can be linked to the "big five" dimensions. Thus, achievement is a component of conscientiousness, while affiliation is associated with extroversion. We suggest that these traits are better treated as capacities for different kinds of experiences rather than as needs, and that such capacities are manifested in both patterns of participation and in preferences for various site/activity attributes.

In sum, people differ in their capacities to participate in specific leisure activities and such individual differences are significant factors in explaining leisure behavior. This slightly different focus helps avoid at least one of the problems Samdahl and Jekubovich (1997) raise about constraints: the problem that they fail to explain participation directly. Having the capacity to play chess does not necessarily imply that someone will choose to play chess.

[3]Note the subtle value judgments involved: We often try to "cure" introverts without acknowledging that introversion may have strengths of its own. Could Emily Dickenson have written her poems had she been extraverted and gregarious?

To understand that choice, we need information on function(s) and mechanism(s). It is clear, however, that having the capacity to play chess is an essential element of that choice.

Conclusion

In this paper we presented a meta-theoretical analysis of leisure concepts in the form of a systems analysis of recreation behavior. Our primary concern was to analyze how the different concepts—benefits, arousal, constraints, and the like—fit together. These concepts represent different types of knowledge and all are necessary for a comprehensive explanation of leisure behavior. With any phenomenon, the great questions remain: What? Why? How? and What's needed? To answer the "what" question, we focused on how an activity was constructed using both prototypic and design subsystems. The construction (or structure) of individual recreation activities deserves closer scrutiny in recreation research, and we believe it is basic to any attempt at comprehensive explanation. It is what Aristotle might have equated with the material cause—the "stuff" of which the activity is made.

The three remaining questions—why? how? and what's possible?—we equated with function, mechanism, and capacity, respectively. Functions are discerned by examining the effects of recreation. From a systems perspective, they are equivalent to Aristotle's final causes and are represented in the literature by the concepts of benefits, motivations, and satisfactions. Mechanisms are concerned with how the system operates (Aristotle's efficient cause) and are represented in the literature by concepts like arousal, normative theories, social network analysis, and various gap theories. Capacities refer to the "what's needed?" question. In systems terms they represent the system's operating limitations in a way that is equivalent to Aristotle's formal cause. While they are most closely represented by the concept of constraints, we believe this slight refocusing offers a different form of insight that avoids some of the intellectual difficulties that occur with current conceptions of constraint. Table 3 synthesizes some familiar leisure research traditions within this framework, but is by no means exhaustive.

We also examined each concept—function, mechanism, and capacity—from a biological, social, and psychological perspective. We suggest that the resulting 9-celled matrix provides a good gauge to assess our knowledge of any particular recreation or leisure activity. If we could somehow partition our knowledge of a particular activity across these cells, we believe it would identify clearly the strengths and weaknesses in current research knowledge about it.

Two important caveats must be noted. First, the analysis as we have presented it is primarily suited to western cultures in that it is focused on the individual. We argue that the long-term goals that actuate most recreation behavior are health in the biological mode, the desire for a virtuous life in the social mode, and the enhancement of a sense of self (self-actualization) in the psychological mode. Each of these broad goals concerns individual

TABLE 3
A Synthesis of Some Leisure Research Traditions Under a Recreation Systems Theory Framework[a]

Analytic Mode	Systems Category		
	Function	Mechanism	Capacity
Biological	Health/well-being, instincts, survival/ evolutionary theories, aesthetics, intrinsic rewards, benefits, motivation, satisfaction	Psycho-physiological research, arousal	Genetically based individual differences (e.g., temperment, height, etc), sex differences, aging
Social	Social structure, culture, economic, family and group benefits, socialization, volunteerism	Social networks, organizations, small groups, family, roles	Class analysis, gender, life course, constraints
Psychological	Self-actualization, self-identity	Place attachment, memory and attention, cognitive schemes, scripts and plans, feedback, goal setting and attainment, specialization, "gap" theories, flow	Personality traits (e.g., introversion)

[a]These categories are not mutually exclusive and may overlap.

welfare. In collectivist cultures such as Japan, by contrast, individuals are expected to subordinate their own welfare to that of the group. Such an emphasis clearly would lead to differences in the functional hierarchy we propose.

A second, and perhaps more serious, concern lies in the questions that have been raised about systems analysis in general, and functional analysis in particular. While systems thinking pervades many fields, it has been especially controversial in sociology. By the mid-20th century, American sociology was dominated by the systems analyses of Talcott Parsons, so much so that a reaction was probably inevitable (Abrahamson, 1978). As Walter Kuentzel (University of Vermont, personal communication, January, 2002) puts it:

> Parsons' structural functionalism. . . has endured intense scrutiny and criticism over the years and. . . holds much less currency with sociologists these days. What are some of the recent alternatives? There are still the neo-Marxist holdovers who leveled the most brutal criticisms of Parsons. But, more so today are the theories of modernity, which describe contemporary behavior with words like fragmentation, anxiety, uncertainty, and ambivalence. These theories challenge the myth that individuals can easily know and assess what is in their best interests and then act accordingly to achieve some degree of self-actualization or individual progress. Instead, individuals are more frequently confronted with confusing signals, uncertain options and outcomes, risk and its accompanying anxiety, and a general ambivalence about what to do next and what the future holds.

We agree, in part, with Kuentzel. We noted above that people may not be fully conscious of such broad goals as health, virtue, or self-actualization, and this lack of full understanding creates the uncertainty, anxiety, and ambivalence Kuentzel mentions. It is often difficult to decide between activities—should you go bowling? play cards?, or just nap? But, once that choice has been made, a variety of behaviors—our prototypic and design subsystems—must be undertaken, participation will have various effects (consequences, outcomes), and the individual will have various strengths/talents she/he will bring to the activity, etc. In short, while the decision of which functions to pursue may be difficult, once that decision has been made, a systems analysis may be both appropriate and revealing. More generally, systems analysis, while it no longer has the dominance it had in the mid-20th century, remains a significant tradition within sociology, and even Parsons has enjoyed a minor revival (Jary & Jary, 1991).

Functionalist analyses of society also have been criticized as being a static and inherently conservative view perhaps because of their emphasis on the stability of social structure rather than on change. Indeed, a basic (and flawed) assumption of structural functionalism is that if a social structure or practice exists, then it must serve a function, and that function must be important to the maintenance of society. Yet societies, social structures, and cultures clearly evolve. Sometimes social structures force cultural progress, as when the U.S. Supreme Court declared segregated schools to be illegal in a reluctant culture. At other times, culture leads social structure as when popular resistance to the Vietnam War led to changing structures. Thus, while functionalism can yield important insights and serve as a framework for the general analysis of the social dimensions of recreation behavior, it also can yield illogical results if adhered to in an extreme form. Moderation is crucial for successful systems analysis.

In sum, we believe that Recreation Systems Theory with its differentiation of functions, mechanisms and capacities offers useful guidelines for the systematic analysis of any recreation activity. The initial step in such an analysis is to identify the prototypic subsystems that constitute the central "core" of the activity. The identification of functions should focus on this core. If enough people add a particular design subsystem, it will constitute a "market segment." Such market segments must be analyzed separately, however, to avoid confounding errors. In bowling, for example, prototypic subsystems might include setting up (unpacking gear, putting on shoes, etc.), the phys-

ical actions of rolling the ball down the alley and scoring. During bowling, some, but not all, participants consume alcohol—a design subsystem. Alcohol taken in moderate amounts can increase sociability and decrease performance. Consequently, it is desirable to separate these effects from a consideration of the prototypic functions of bowling.

Second, we need to identify the mechanisms that support an activity, and those mechanisms must be linked subsequently to the functions. The current generation of functional research (e.g., benefits, motivations, satisfactions) has been criticized as being too "black boxy" (More, 2002). That is, we ask people about the benefits they hope to obtain, but we seldom link those benefits with their supporting mechanisms. The next generation of research must reveal the underlying processes—we must show how the benefits of hiking, for example, are produced by putting one foot in front of another on a specific trail. That is, we must understand the processes by which benefits are created.

Lastly, we should consider the capacities required by particular activities. These are not absolute, of course—people have a range of abilities that they bring to an activity. Yet even so simple an activity as picnicking may require some level of organizational skills. A careful analysis of capacity also must include an analysis of traditional constraints to ensure barrier-free access, etc.

In the final analysis, we believe that Recreation Systems Theory offers a logical way to think through the analysis of any particular leisure activity. And, when it has been thought through, we believe that such analyses, carefully done, can significantly enhance service delivery by keeping our attention focused on the core structure of the activity with its attendant functions, mechanisms and required capacities.

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