Multifaceted Nature of Intrinsic Motivation: The Theory of 16 Basic Desires

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R. W. White (1959) proposed that certain motives, such as curiosity, autonomy, and play (called intrinsic motives, or IMs), have common characteristics that distinguish them from drives. The evidence that mastery is common to IMs is anecdotal, not scientific. The assertion that "intrinsic enjoyment" is common to IMs exaggerates the significance of pleasure in human motivation and expresses the hedonistic fallacy of confusing consequence for cause. Nothing has been shown scientifically to be common to IMs that differentiates them from drives. An empirically testable theory of 16 basic desires is put forth based on psychometric research and subsequent behavior validation. The desires are largely unrelated to each other and may have different evolutionary histories.

Motives are reasons people hold for initiating and performing voluntary behavior. They indicate the meaning of human behavior, and they may reveal a person's values. Motives often affect a person's perception, cognition, emotion, and behavior. A person who is highly motivated to gain social status, for example, may be observant of marks of social distinction, may think often about issues pertaining to wealth, may especially enjoy the feeling of self-importance, and may behave in ways associated with upper-class status.[1] By defining motives as reasons, we do not imply that motives are primarily cognitive, any more than establishing a motive for a crime in a court of law requires conscious premeditation. A person can have a reason to behave, and thus a motive, without necessarily being aware of it.

Aristotle (330 BCE/1953) divided motives into ends versus means on the basis of the individual's purpose for performing the behavior. Ends are indicated when a person engages in a behavior for no apparent reason other than that is what the person desires to do. Examples include a child playing ball for physical exercise and a student reading a book out of curiosity. In each of these examples, the goal is desired for its own sake. In contrast, means are indicated when a person performs an act for its instrumental value. Examples include a professional athlete who plays ball for a salary and a student who studies to improve a grade. In each of these examples, the goal (salary, grade) is desired because it produces something else. A person might seek a salary, for example, as a means of enhancing social status, or high grades as a means of pleasing a parent.

An analysis of a person's behavior may identify a series of instrumental acts followed by one or more end goals that complete the "behavior chain." For example, a person may take a second job for the extra salary (instrumental motive), desire the extra salary to purchase health care (instrumental motive), and desire the health care to benefit his or her family (end goal). This example of a simple behavior chain shows three behaviors, two motivated by instrumental goals and a third motivated by an end goal. Logically, only goals that are desired for their own sake can serve as the "end" of a purposeful explanation of a series of human acts.

The number of instrumental motives is, for all practical purposes, unlimited. Only imagination limits how many different ways individuals

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[1] This example is based partially on empirical findings of a correlation between motivation for status and motivation for wealth (see Reiss & Havercamp, 1998).

can pursue the end goal of, say, power. Generally, there seems to be little or no point to listing instrumental motives, because no matter how comprehensive a list happens to be, somebody can probably imagine an additional instrumental motive that was overlooked and could be added. In contrast, the number of ends is limited by human nature. A central issue for psychology should be to identify and classify the end purposes of human behavior, because ends indicate the ultimate goals of much of what people do.

Two theoretical perspectives have been advanced concerning end goals. Multifaceted theory holds that the various end goals are largely unrelated to each other, perhaps to the point where they are genetically distinct sources of motivation with different evolutionary histories. Multifaceted theorists include philosophers who have suggested lists of the most fundamental motives of human nature (e.g., Spinoza, 1675/ 1949), psychologists who have put forth evolutionary theories of motivation (e.g., McDougall, 1926), and psychologists who have suggested theories of human needs (e.g., Murray, 1938).

In contrast, unitary or global theorists hold that end goals can be profitably reduced to a small number of categories based on common characteristics. Unitary theorists seek the underlying psychological principles that are expressed by diverse motivational events. The ancient Greek philosophers, for example, reduced end goals into categories expressing the needs of the body, mind, and soul (e.g., Plato, 375 BCE/1966). Hedonists distinguished between end goals associated with pleasure enhancement and those related to pain reduction (Russell, 1945). Freud (1916/1963) reduced motives to sexual and aggressive instincts.

Today, some social psychologists classify end goals into two global categories, called drives and intrinsic motives (IMs). The distinction has been influential—1,921 scholarly publications on intrinsic motivation (IM) appeared during the period of January 1967 to May 2002 (source: PsycINFO). IM has been investigated in social psychology (e.g., Ryan & Deci, 2000), developmental psychology (e.g., Harter, 1981), clinical psychology (e.g., Eisenberger & Cameron, 1996), organizational psychology (e.g., Houkes, Janssen, de Jonge, & Nijhuis, 2001), and educational psychology (e.g., Kohn, 1993).

In this article, I examine how various end goals relate to each other. I consider the meaning of the concept of IM and ask, What, if anything, justifies classifying end goals into a unitary, global category of intrinsic motivation? In discussing this issue, I do not consider the phenomenon of "undermining effects," in which extrinsic rewards decrease intrinsic motivation. These effects have been discussed in detail in numerous prior publications (Deci, Koestner, & Ryan, 1999; Eisenberger & Cameron, 1996; Reiss & Sushinsky, 1975). I propose a theory of end goals, called the *theory of 16 basic desires,* and summarize evidence showing the multifaceted nature of end motives. I begin the discussion by considering the behaviorist concept of drive, because IM was developed to show the limitations of this concept.

Drive Theory

Thorndike's (1911) law of effect reduced human motivation to categories of reward and punishment. This law holds that responses are strengthened when they lead to satisfaction and weakened when they lead to punishment. Psychologists studying learning soon realized Thorndike's law is a tautology, or a proposition that is circular (true by definition). The following statements, for example, are circular with respect to each other: "Rewards strengthen behavior" and "Any event that strengthens behavior is a reward."

The concept of drive was introduced to escape from the circularity of the law of effect (Brown, 1961). Instead of identifying *reward* as any stimulus or satisfying event that strengthens behavior, drive theorists defined it as a reduction in a state of deprivation. The statements "Drive reduction strengthens behavior" and "Drive reduction occurs when a state of deprivation is lessened" are not circular with respect to each other.

Hull (1943) recognized four types of drives: hunger, thirst, sex, and escape from pain. In many animal learning experiments, investigators have induced drives by depriving animals of an important need prior to the experiment. The deprivation of food, for example, establishes food as a powerful reward, increasing the animal's motivation to learn responses that produce food (Skinner, 1938). Much of animal

learning theory is based on the results of psychological studies with food-deprived or water-deprived animals.[2]

Unitary IM Theory

The unitary construct of IM was put forth as an alternative to drive theory. The initial insight was that many of the motives not explained well by drive theory—motives such as exploration (curiosity), autonomy, and play—have common properties. To a large extent, unitary IM theory initially represented an attempt to show the essential differences between drives and what psychodynamic theorists have called *ego motives*.

In the past, the distinction between drives and IMs has been thought to have a physiological basis, at least according to some published remarks. The general idea was that drives such as hunger and thirst arise from "tissue needs" involving "peripheral" components of the nervous system, whereas IMs arise from psychological or cognitive processes involving primarily central neural activity. Deci (1975), for example, wrote that the primary effects of IM "are in the tissues of the central nervous system rather than in the non-nervous system tissues" (p. 61). This physiological paradigm for distinguishing drives from IMs always lacked scientific support; indeed, we now know that it is physiological nonsense. Motives such as hunger and thirst, for example, involve significant central nervous system or cognitive activity (Berntson & Cacioppo, 2000). Both the behaviorist concept of *drive* and the concept of IM as *nondrive* have no precise physiological meaning and originally were put forth at a time when little was known about the physiology of motivation.

Mastery

White's (1959) article on competence motivation (mastery) was arguably the start of the current era of scholarship on IM. White (1959) asserted that exploration, manipulation, and play are not drives originating from states of deprivation partially because they are not related to "visceral needs comparable to hunger, thirst, or sex" (p. 301). Exploration and play "cannot be regarded as leading to any kind of consummatory response" (p. 301). He further

argued that motives that are not drives have "very vital common properties" (p. 318). In particular, such motives are concerned with "effective interactions with the environment, under the general heading of competence" (p. 317). White's motive for competence has been variously called *effectance motivation, competence motivation,* and *mastery.* Deci (1975) later embraced White's hypothesis that competence motivation is a common property of nondrives, defining IM as behavior "which a person engages in to feel competent and self-determining" (p. 61).

White appreciated the need to validate his idea of effectance motivation. He wrote, "No doubt it will at first seem arbitrary to propose a single motivational conception in connection with so many diverse kinds of behavior. What do we gain by attributing motivational unity to such a diverse array of activities?" (White, 1959, p. 318). He cited both Piaget (1952) and anecdotal observations to support his hypothesis that effectance motivation is common to exploration, manipulation, and play.

White speculated on the development of effectance motivation. He suggested that in both infants and young children,

> it seems sensible to conceive of effectance motivation as undifferentiated. Later in life it becomes profitable to distinguish various motives such as cognizance, construction, mastery, and achievement. It is my view that all such motives have a root in effectance motivation. (White, 1959, p. 323)

Some of the appeal of White's (1959) theory is suggested by the behavior of young animals and children. Young lion cubs, for example, sometimes seem to be bursting with energy—they get into mischief, play with the other cubs, explore their environment, and have a tendency to wander away from the group. In other words, they express self-assertive energy as play, exploration, manipulation, a desire for physical

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[2] Inducing drive prior to experiments lessens the influence of individual differences in motivation (trait motives), which I later argue is the key to understanding and predicting much of human behavior. If John has a much stronger appetite than Sam, for example, this may be evident under many circumstances but less so when both John and Sam are significantly deprived of food and extremely hungry. The typical behaviorist animal learning experiment was poorly suited for observing the effects of individual differences in motivation (Reiss & Havercamp, 1996).

exercise, and a desire for autonomy. They create a strong impression that these behaviors are linked by a common motive of self-assertion.

Anecdotal observations, however, do not constitute scientific evidence. As far as I could determine, no researcher has presented scientific tests of the hypothesis that mastery is the aim of exploration, autonomy, and play. White (1959) cited as evidence for his hypothesis anecdotal examples of children at play and his interpretations of what those children were really aiming for with their behavior. Although his interpretations were reasonable and perhaps even insightful, they did not rise to the standards of scientific evidence. Part of the difficulty with White's hypothesis is the lack of quantification and measurement, which are two pillars of a scientific approach. As Harter (1981) put it, "The global nature of this construct [effectance motivation] has made it difficult to operationalize. White's formulation does not readily lend itself to an empirical test" (p. 301).

White (1959) did not develop a measure of competence motivation. He did not assess correlations between competence motivation and various IMs, showing that they are significantly higher than correlations between competence motivation and drives. White did not propose specific studies to test his concept. He did not say what might falsify his theory. He developed some interesting ideas, but he did not put forth scientific support for those ideas.

Kagan (1972) recognized the need to develop measures of effectance motivation. He suggested that they be developed on the basis of principles similar to those used in the Thematic Apperception Test (TAT; Murray, 1943). No such measure, however, has been validated. The validity of the TAT, moreover, has been called into question (Zubin, Eron, & Schumer, 1965). Today, few researchers use the TAT or other storytelling techniques to measure motivation.

White's (1959) argument that mastery is a common element of the IMs is based on a very broad interpretation of competence motivation. He defined competence motivation so broadly that it includes nearly all motives. One could argue, for example, that drives also express a desire to interact effectively with the environment. In hunger, for example, people want to become effective hunters to find food. Some people spend a considerable amount of energy

to become sexually effective in attracting others. By putting forth a sufficiently general definition of competence motivation, it seems possible to argue that nearly any collection of diverse motives may have common elements.

The hypothesis that effectance motivation is undifferentiated at birth and later differentiates into the various IMs has not been tested. Nobody has observed the predicted process of differentiation of mastery motivation. Nobody has conducted measurements of effectance motivation in an undifferentiated state and in its predicted differentiated form, showing that the former is linked to the latter.

In conclusion, children show a need to feel competent and master their environments. This need, called mastery, is important in childhood development and in human behavior generally. The relationship between mastery and other ego motives, however, is not well understood. Researchers need to develop methods to explore more fully White's hypothesis that mastery is the aim of important ego motives such as exploration, manipulation, and autonomy.

Intrinsic Pleasures

Intrinsic pleasure is another common characteristic of IMs, according to unitary theorists. This viewpoint holds that people are motivated to engage in activities they expect to experience as pleasurable. When the pleasures are inherent to the behavior or activity itself—such as drawing for its own sake—IM is imputed (Ryan & Deci, 2000; Weiner, 1995). When the pleasures are external to the behavior or activity—such as drawing for a good player award—extrinsic motivation is imputed. As Deci and Ryan (1985) put it, "When people are intrinsically motivated, they experience interest and enjoyment, they feel competent and self-determining, they perceive the locus of causality for their behavior to be internal, and in some instances, they experience flow" (p. 34). Weiner (1995) defined IM as a source of motivation arising from the *enjoyment* of an activity.

Are IMs pleasurable? IM theorists may have erred in embracing *hedonism,* the philosophy that pleasure motivates behavior. Over the centuries, scholars have shown a number of significant limitations of pleasure theories. Applied to the concept of intrinsic pleasures, for

example, we may question whether IM theorists have exaggerated the extent to which certain activities really are pleasurable.

IM theorists arguably have exaggerated the motivational significance of intellectual pleasures. They have held that everybody is born with the potential to enjoy learning (e.g., Kohn, 1993). When students do not enjoy learning, as in the example of high school underachievers, IM theorists blame ineffective teaching, boring curricula, and the widespread use of extrinsic incentives such as grades (Kohn, 1993). To motivate students in school, unitary IM theorists advise teachers to find ways to make learning fun (Lepper & Cordova, 1992) and to tap into students' natural curiosity.

IM theorists have presented little scientific evidence to support the hypothesis that everybody is born with the potential to enjoy learning. Anecdotal examples of adolescents and adults show that many people react to intellectual activities as if they were unpleasant. People often sustain thought on a problem for no more than brief periods of time; the overwhelming majority of adults do not read books; documentaries are among the least popular forms of film; and even many academics reduce intellectual activity soon after they earn a tenured teaching position. These examples are arguably signs that intellectual activity is naturally unpleasant under many circumstances or if engaged in for more than a few minutes at a time.

IM theorists may have put forth a misleading, almost romanticized description of the inquiry process. The inquiry process is not always pleasurable and often involves significant negative emotions. Many scientists have written about the agony of the creative inquiry process and the emotional ups and downs of research.

Whereas IM theorists have said that the psychological aim of inquiry is intellectual pleasure, the multifaceted theory I propose later in this article implies that aims of inquiry are learning and knowledge. Under my viewpoint, highly curious people desire knowledge and understanding so strongly they pursue the inquiry process even when they must endure anxieties, severe criticism, devastating failures, and other frustrations. Knowledge is the end goal of curiosity, but thinking, exploration, and problem solving are not necessarily pleasurable. Thinking can be frustrating, exploration can

arouse fear (James, 1890/1950), and problem solving can be frustrating.

In conclusion, one problem with the concept of intrinsic pleasures is that it implies that intrinsically motivated behavior is more enjoyable than it seems to be. Intrinsic pleasure may not be a common characteristic of IMs because sometimes IMs are not necessarily pleasurable.

Does intrinsic pleasure motivate much behavior? Even when the performance of an intrinsically motivated behavior is enjoyable, we cannot assume that the behavior was motivated by the anticipation of such pleasure. Pleasure can be a consequence of behavior rather than a motivating cause.

According to philosophical critiques of hedonism (e.g., Russell, 1945), pleasure is a consequence of gratification of a motive other than pleasure seeking. Please consider Csikszentmihalyi's (1990) hypothesis that intrinsically motivated people climb mountains in order to experience a special kind of pleasure called *flow*. Reiss (2000a) suggested that flow is a consequence of satiating the desire for physical activity, not an intrinsic property of climbing. Csikszentmihalyi (2000) replied that people who have never climbed before may not know the joys of climbing but that after a person learns that climbing is pleasurable, that individual subsequently climbs in order to experience such pleasures. "If I feel happy after hiking in the mountains," argued Csikszentmihalyi (2000), "chances are I will want to experience that happiness again and take another hike" (p. 1163). Pleasures are both "causes and consequences" of behavior, according to Csikszentmihalyi (2000).

Not so. If I am physically tired, for example, I will not enjoy climbing mountains. The enjoyment does not arise from the act of climbing per se, only from the act of climbing while satiating the motive for physical exercise. The pleasure is not inherent to the activity but is a nonmotivational byproduct of satiating the desire for physical activity.

Suppose that Mary is a curious person who reads, learns, and then experiences pleasure. Suppose that Susan is an active person who climbs a mountain and then experiences pleasure. In predicting and explaining the behavior of these two people, we need to know that one person is motivated by curiosity and the other is

motivated by fitness. We add nothing significant by invoking unitary IM theory and arguing that it was "anticipated pleasure" or "flow" that motivated each.

Individual Differences

Unitary theory seems inconsistent with individual differences regarding different IMs. If competence motivation is the developmental origin of both autonomy and curiosity, people with above average competence motivation also should develop above average autonomy and curiosity, and so trait autonomy and trait curiosity should be significantly correlated. Highly autonomous people should be highly curious. These implications of unitary IM theory are unsupported by scientific evidence. In factor studies of the Reiss Profile psychometric instrument (Reiss & Havercamp, 1998), moreover, the correlation between factors assessing trait autonomy (independence) and trait curiosity was virtually nil ($r = .05$, $N = 1,154$). Because highly autonomous people are not necessarily highly curious, how can autonomy and curiosity be about the same thing (mastery)?

Conclusion

White (1959) put forth the thesis that IMs such as curiosity, autonomy, and play have common characteristics justifying a "single name" (p. 317), meaning a single category of motivation. No common characteristics have been shown scientifically. Neither competence motivation nor intrinsic pleasure has been shown to distinguish IMs from drives. White's hypothesis lacks adequate scientific support and seems inconsistent with individual differences. White himself admitted that his hypothesis was speculative in that the IMs appear to be too diverse to have significant common characteristics.

Multifaceted Nature of End Goals

Throughout history many scholars have expressed a multifaceted theory of end motivation ("doing something for its own sake"). Aristotle, for example, identified 12 end motives: confidence, pleasure, saving, magnificence, honor, ambition, patience, sincerity, conversation, so-

cial contact, modesty, and righteousness. Descartes (1637/1958), on the other hand, listed six "passions of the soul." He wrote, "There are only six [intrinsic motives] which are simple and primitive, viz., wonder, love, hatred, desire, joy and sadness. All others are composed of these six" (Descartes, 1637/1958, p. 291). James (1890/1950) and McDougall (1926) recognized between 8 and 20 "instincts."[3] When psychodynamic psychology gained influence, Murray (1938) reinterpreted McDougall's list of instincts into a list of 20 basic psychological needs.[4] Maslow (1943) also put forth a theory of diverse human motives.

Some psychologists have taken strong exception to efforts to develop lists of end motives. Critics have argued that 8 to 20 fundamental motives are too many to be studied profitably (Freeman, Anderson, Azer, Girolami, & Scotti, 1998). Biologists study scores of enzymes, and chemists study 115 elements. Because we do not say that biologists study "too many" enzymes or that chemists study "too many" elements, why should we think that 8 to 20 basic motives are "too many" for psychologists to study? Scientific rules permit psychologists to study as many fundamental motives as can be identified. We do not want to invent a motive for every behavior, of course, but we also do not want to proceed according to invalid, preconceived notions of how many motives there are.

Evolutionary theory suggests a multifaceted model of IMs. When we consider the various IMs, they seem relevant to different survival needs, suggesting possibly distinct motives controlled by different genes. Efficacy, for example, motivates building nests and other forms of shelter, which have the survival value of pro-

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[3] In the James–McDougall theory, a human instinct is an automatically occurring desire or motive, not a rigid pattern of unlearned behavior. The idea is that people do not deliberately choose their psychological needs. As Aristotle (330 BCE/1953) put it, people choose means, not ends. Aristotle was making a valid point in logic (if an individual attempted to choose an end, the option chosen would be instrumental to the criteria on which the choice was based). In contrast, James and McDougall were reporting anecdotal observations of human behavior.

[4] Henry A. Murray (1938) acknowledged the origin of his famous list of needs when he wrote, "This classification of needs is not very different from lists constructed by McDougall, Garnett, and a number of other writers" (p. 84).

tecting animals from harsh environmental elements. Autonomy—the desire for freedom—motivates animals to leave the nest when they come of age, spreading the search for food over a larger geographical area. These considerations suggest at least a possibility of separate evolutionary histories, which supports the idea that IMs are multifaceted.

Factorial Studies of End Motivation

Since 1995, I have been developing a list of diverse IMs, variously called the *theory of 16 basic desires* or *sensitivity theory*. My graduate students and I have been gathering evidence showing the reliability, factorial validity, and behavioral validity of this list. By validating a variety of largely unrelated end motives (what people seek for its own sake), my colleagues and I have sought to show that end motivation is, in fact, multifaceted.

Reiss and Havercamp (1996, 1998) defined *basic or fundamental motives* to have three features: (a) end purposes (IMs), (b) universal motivators, and (c) psychological importance. The criterion of psychological importance is intended to focus multifaceted theory on behaviors that historically have been central to psychological personality theory. Eating, for example, is considered to be psychologically important because aspects of culture, many everyday activities, and some clinical disorders are concerned with food and food preparation; on the other hand, thirst is not considered to be a fundamental motivator because it does not account for a significant amount of everyday behavior of interest to psychologists. Without the criterion of psychological significance, there may be scores of basic motives additional to those considered in this article, including one for each biological need.

We began our effort to identify the basic motives of human behavior by developing a list of every motive we could imagine. We consulted a variety of reference sources and asked colleagues for suggestions. We obtained ideas from Murray's (1938) theory of needs, motivational studies, psychopathology articles and books, and psychiatric classification manuals. We pared down our initial list of items by eliminating redundancies and motives that have relatively little psychological significance. As a

result of this process, an initial list of nearly 500 items was reduced to 328 items.

Reiss and Havercamp (1998) asked research participants to rate how important each of the motives we identified was in determining their behavior. Initially, we conducted four factor studies (three exploratory studies and one confirmatory study), each with a different sample of participants. The combined total of 2,554 people included people of diverse ages (12 to 76) and stations in life (e.g., high school students, college students, military people, fast food workers, seminary students, human service providers, nursing home residents). The results of an initial confirmatory factor study supported a 15-factor solution. On the basis of these results, we constructed a self-report instrument, called the Reiss Profile of Fundamental Goals and Motivational Sensitivities. The initial version of the instrument assessed 15 fundamental motives.

We developed a scale to assess saving, or the desire to collect, which was added as a 16th factor because we became convinced that collecting is an end motive we had overlooked. In a study of 512 adults solicited from sources in urban and rural Ohio, Havercamp (1998) confirmed the 16-factor solution (the original 15 factors plus saving) to the revised 128-item Reiss Profile instrument.

In conclusion, when people were asked to self-report their motives, they reported 16 factor-distinct categories of psychologically significant end motives (IMs). Any effort to reduce this list to only a few categories would result in the loss of significant information, and this should produce a vastly inferior system (compared with the full 16 basic desires) for analyzing and predicting people's behavior.

Reliability of factors. Test–retest reliabilities for the Reiss Profile have been reported (Havercamp & Reiss, 2003; Reiss & Havercamp, 1998), with mean correlations of .83 (range = .80 to .96) for 2-week reliability and .80 (range = .69 to .88) for 4-week reliability. These test–retest reliabilities exceed those reported for some personality tests such as the Minnesota Multiphasic Personality Inventory–2 (Butcher, Dahlstrom, Graham, Tellegen, & Kaemmer, 1989). They support the hypothesis that the Reiss Profile assesses trait motives.

Reiss and Havercamp (1998) reported Cron-

bach's alpha coefficients of internal reliability for each of 15 scales (all except saving). The median alpha value was .86 (range .70 to .92), suggesting good internal reliability for the Reiss Profile scales.

Social desirability. Havercamp and Reiss (2003) assessed the social desirability of the Reiss Profile with a sample of 171 undergraduate student volunteers, who completed both the Reiss Profile and the Marlowe–Crowne Social Desirability Scale (MCSDS; Crowne & Marlowe, 1960). The correlations computed between the MCSDS and each of the Reiss Profile scales ranged in absolute value from .01 to .39 ($Mdn = .09$, $M = .16$). For sake of comparison, Jackson (1984) reported correlations between the Personality Research Form (PRF) and social desirability scales ranging from .01 to .44 ($Mdn = .20$, $M = .22$). These results show that the Reiss Profile self-reports are minimally affected by social desirability.

Universal values. Additional support for the multifaceted model comes from research on values. Factorial studies of values should produce results similar to factorial studies of end goals because, as a matter of logic, all end goals are values, and ultimate values are potentially motivating, or reasons to instigate behavior. (Because ends and values are logically related ideas, for centuries motivation was studied under the topic of ethics—for example, Aristotle's lecture notes on motivation were published in his book *Nichomachean Ethics;* Aristotle, 330 BCE/1953.)

These considerations imply that empirically derived lists of basic desires and universal human values should be similar. In a series of studies analyzing survey data from 97 samples from 44 countries, Schwartz (1994) identified 10 universal values. All 10 of Schwartz's universal values correspond to basic motives in Reiss's system. Schwartz's value of power, for example, falls under Reiss's motive called power. Additional "matches" are Schwartz's value of achievement and Reiss's motive of power; Schwartz's hedonism and Reiss's social contact are similar because each includes fun-loving behavior; Schwartz's excitement is the opposite of Reiss's tranquility (the same motive but assessed from different ends of a continuum); Schwartz's self-directing falls under Reiss's motive of independence; Schwartz's value universalism is Reiss's motive of ideal-

ism; Schwartz's benevolence falls under Reiss's motives of family and social contact; Schwartz's tradition falls under Reiss's honor; the value of conformity as defined by Schwartz falls under Reiss's motive for vengeance; and Schwartz's value of security falls under Reiss's motive of order. The two bodies of research, thus, produced significantly similar results, showing the multifaceted nature of ultimate values or IMs.

Theory of 16 Basic Desires

Reiss's theory of 16 basic desires, which is summarized in Table 1, is put forth as a multifaceted model of IM, alternative to the unitary models of IM. Hypothesis 1 is that each of the 16 basic desires is a trait motive. With the possible exceptions of the motives of idealism and acceptance, the 16 basic desires motivate animals as well as people (Hypothesis 2). Theoretically, the 16 basic desires are considered to be genetically distinct with different evolutionary histories (Hypothesis 3). The satiation of each basic desire produces an intrinsically valued feeling of joy, a different joy for each basic desire (Hypothesis 4). Loosely speaking, people behave as if they are trying to maximize their experiences of the 16 intrinsic joys.

Although everybody embraces the 16 basic desires, individuals prioritize them differently (Hypothesis 5). Generally, the most important basic desires for explaining a person's behavior are those that are unusually strong or unusually weak compared with appropriate norms. For example, some people devote much of their time to satiating their desire for curiosity, others seek power, and still others are out for revenge. Those basic desires that are neither strong nor weak compared with appropriate norms are generally less important in explaining a person's behavior. The satiation of a basic desire is always temporary; soon after we satisfy a basic desire, the motive reasserts itself and needs to be satisfied again. After we socialize, for example, the desire for social contact may reassert itself within hours.

Each basic desire is theoretically regarded as a continuum of potential motivation anchored by opposite values (Hypothesis 6). As shown in Figure 1, the theory of 16 basic desires holds that individuals are motivated to aim for a point

Table 1
Reiss's 16 Motives

Motive name	Motive	Animal behavior	Intrinsic feeling
Power	Desire to influence (including leadership; related to mastery)	Dominant animal eats more food	Efficacy
Curiosity	Desire for knowledge	Animal learns to find food more efficiently and learns to avoid prey	Wonder
Independence	Desire to be autonomous	Motivates animal to leave nest, searching for food over larger area	Freedom
Status	Desire for social standing (including desire for attention)	Attention in nest leads to better feedings	Self-importance
Social contact	Desire for peer companionship (desire to play)	Safety in numbers for animals in wild	Fun
Vengeance	Desire to get even (including desire to compete, to win)	Animal fights when threatened	Vindication
Honor	Desire to obey a traditional moral code	Animal runs back to herd when stared at by prey	Loyalty
Idealism	Desire to improve society (including altruism, justice)	Unclear: Do animals show true altruism?	Compassion
Physical exercise	Desire to exercise muscles	Strong animals eat more and are less vulnerable to prey	Vitality
Romance	Desire for sex (including courting)	Reproduction essential for species survival	Lust
Family	Desire to raise own children	Protection of young facilitates survival	Love
Order	Desire to organize (including desire for ritual)	Cleanliness rituals promote health	Stability
Eating	Desire to eat	Nutrition essential for survival	Satiation (avoidance of hunger)
Acceptance	Desire for approval	Unclear: animal self-concept?	Self-confidence
Tranquility	Desire to avoid anxiety, fear	Animal runs away from danger	Safe, relaxed
Saving	Desire to collect, value of frugality	Animal hoards food and other materials	Ownership

of moderation (called a *set point* or *sensitivity*)—in other words, people generally are motivated to experience what Aristotle called a moderate mean. Most people aim for a moderate degree of power, a moderate degree of status, a moderate degree of knowledge, and so on for each basic desire. Individual differences, however, are significant (Hypothesis 5). In Figure 1, for example, Henry aims for a lower degree of social contact than does Jake. When

the amount of social contact Henry or Jake experience is less than they desire, they are motivated to socialize. When the amount of social contact they experience is about what they desire, they are temporarily satiated. When the amount of social contact is more than they desire, they are motivated to be alone to balance out their experiences.

Suppose that Henry and Jake attend a party that lasts 3 hours. Henry enjoys the party at first
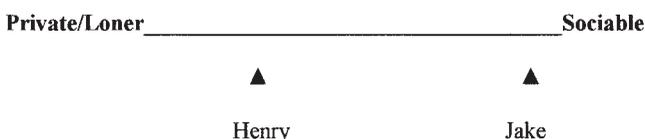
Private/Loner_____Sociable

▲   ▲

Henry   Jake

Figure 1. The basic desire for social contact as a continuum of end motivation.

but then feels uncomfortable because he is experiencing much more social activity than he desires. Jake, on the other hand, still wants more fun when the party ends. After the party, Henry goes home and spends the next morning alone to balance his experience toward a low average amount of social contact, whereas Jake goes to the nearest bar to keep the party rolling.

The theory of 16 basic desires holds that what is motivating are discrepancies between the amount of an intrinsic satisfier that is desired and the amount that was recently experienced (Hypothesis 7). When a person experiences more power than he or she desires, the individual is motivated to be submissive for a period of time to balance experience toward the desired rate. When a person experiences less power than he or she desires, the individual is motivated to be domineering for a period of time. Thus, a person who generally has a powerful personality may at times be motivated to be submissive, and a person with a submissive personality may at times be motivated to be dominant.

According to the theory of 16 basic desires, vengeful people are motivated to experience high degrees of vindication, competition, contentiousness, conflict, and aggression, whereas peacemakers are motivated to experience low degrees of these experiences. When a vengeful person experiences a period of time—say, a few days—that is conflict free, the individual is motivated to get into arguments, fights, and competitions. The longer the period of time that is conflict free, the stronger becomes the motivation to pick a fight with somebody. If the individual "goes too far" and provokes more of a fight than he or she had anticipated, the person becomes motivated by peacemaking behavior to balance experience back toward the individual's Aristotlean mean (de Waal, 1989). On the other hand, peacemakers are generally conflict avoidant and motivated to experience a below average degree of strife. When peacemakers experience even ordinary amounts of everyday strife and conflict, they become motivated to make peace. Their tolerance for strife is much below that of the average individual.

As was noted previously, basic desires organize our attention, cognitions, feelings, and behavior into a coherent action or whole (Hypothesis 8). We pay attention to stimuli that are relevant to the satisfaction of our desires, and we tend to ignore stimuli that do not satisfy our desires. A person with a strong desire for vengeance, for example, is attentive to possible insults or provocations, whereas a person with a weak desire for vengeance may not even notice an insult. A person with a strong desire for order pays attention to how neat and clean a room is and notices when things are out of place. In contrast, a person with a weak desire for order may not even notice when dirty dishes are in the sink or the house is a mess.

Validation of 16 Basic Desires

In science we choose the competing theory that potentially explains the most data. Multifaceted theory seems to have significant generality of application: Reiss (2000b) has shown how it is at least theoretically possible to hold that human relationships, careers, family life, sports, and spirituality are organized to satiate the 16 basic desires. The 16 basic desires also have been applied to psychopathology (Reiss & Havercamp, 1996) and to mental retardation (Dykens & Rosner, 1999; Wiltz & Reiss, 2003). Reiss's model of 16 basic desires was developed in the tradition of comprehensive personality theories, but unlike previous global personality theories, Reiss's model is testable.

Is self-report a valid basis to determine that motives are multifaceted? Do people validly self-report their motives? Are they just "talking"? Validation research on the 16 basic desires has produced significant evidence that what people say motivates them is consistent with how they behave in the "real world."

Convergent validity. The convergent validity of the Reiss Profile is the extent to which individual factors correlate with other scales intended to measure the same or similar constructs. Havercamp and Reiss (2003) showed that the Reiss Profile power and order scales correlated .55 and .60, respectively, with the dominance and order scales of the PRF. This is noteworthy because the PRF scales have been validated against the Strong Vocational Interest Blank. For college student populations, the PRF scale for dominance predicts social behavior (Jaccard, 1974) and participation in student activities (Pierce & Schwartz, 1971). Further, the Reiss Profile scale for tranquility has been cor-

related with the Reiss–Epstein–Gursky Anxiety Sensitivity Index (Peterson & Reiss, 1992) because of significant overlapping item content (Havercamp & Reiss, 2003).

Validated profiles. A series of studies were conducted to evaluate how the 16 motives are related to behavior. Because motivation has diverse applications, these studies evaluated issues as varied as spirituality, sports, and choice of club or college major.

In a study of religious motivation, Reiss (2000c) tested 558 adults who had identified themselves as very, somewhat, or not religious. How religious a person identified himself to be (called *religiosity*) was associated with above average (high) Reiss Profile motivational scores for honor and family and with below average (low) scores for vengeance and independence (autonomy). The study showed that religiosity is a valid predictor of how people self-report their 16 basic desires.

The finding that religiosity is associated with high honor suggests that people choose a religion partially out of a desire to be loyal to one's parents and heritage. People overwhelmingly choose the religion of their parents. The finding that low vengeance is associated with religiosity may reflect the Christian value of kindness and "turning the other cheek." Family values also drive people to religion, suggesting that religion provides a psychological means of strengthening family life.

The finding that religiosity is associated with a desire for low independence (low autonomy) is particularly interesting. Many religious writings encourage "opening one's heart to God." Under the theory of 16 basic desires, this message expresses a desire for psychological support, which plays a central role in the universal human need to moderate the psychological sense of autonomy (existence as an independent being). The results of testing with the Reiss Profile in fact showed that the more religious a person was, the greater was the individual's motivational score for psychological support (low independence). The results implied that people embrace images of supportive and attentive deities not because they fear death but primarily because images of these gods moderate feelings of autonomy, which many people experience as aversive when the feelings are too strong.

Although turning to god images for psychological support is sometimes misunderstood as a weakness of religious people (hence, the criticism that people use God as a "psychological crutch"), the results of testing with the Reiss Profile showed that, at least for the sample of people tested, the religious desire for psychological support was unrelated to any desire for weakness. Although religious people had a low score for independence (probably reflecting the desire for support from God), they had an average score for power (implying they do not seek submission to secular leaders). Hence, many religious people find appealing the message that opening oneself to God is a sign of strength. The Bible, for example, teaches that submission to God can produce such strength that the faithful will be able to toss mountains into the sea.

Since antiquity, religious leaders have taught that autonomy needs to be moderated; in Buddhism, for example, the ultimate aim is to become One with the Nirvana. The theory of 16 basic desires recognizes a human need to moderate autonomy to an individually determined sensitivity level, so that too much autonomy relative to the sensitivity point is experienced as aversive. In unitary IM theory, however, autonomy is explicitly regarded as a joy and implicitly regarded as an infinite joy. As we have seen, the results of studies of spirituality support multifaceted theory.

If the 16 basic desires are truly fundamental to human behavior, however, they should be able to explain not only deeply meaningful activities such as religion but also recreational activities such as sports. Reiss, Wiltz, and Sherman (2001) administered the Reiss Profile to 415 college students who had participated in zero, one, or two or more varsity sports at the high school or college level. How many sports the student participated in, called *athleticism,* was found to be associated with motivational traits for physical exercise, social contact, family, vengeance, power, and low curiosity. As was expected, the single most important correlate of sports participation was the intrinsic enjoyment of physical exercise. The difference in the strength of the motive for physical exercise between students who had played zero versus two or more varsity sports was about a full standard deviation. Although the association be-

tween intrinsic enjoyment of physical exercise and athletic participation may strike some as obvious, actually it is inconsistent with unitary IM theory, which has held that mastery is the primary intrinsic motivation shown by athletic participation (Deci & Ryan, 1985).

Havercamp and Reiss (2003) showed motivational profiles for eight interest groups, providing additional evidence linking the 16 basic desires to real-world behavior. The groups were college students who joined fraternities and sororities at a state university, philosophy majors, Reserve Officers' Training Corps students, volunteers, culinary students, dieters, seminarians, and varsity athletes.

P. Kavanaugh (personal communication, December 2002) tested on the Reiss Profile a group of 49 high school sophomores who were doing poorly in school. They scored low for curiosity, honor, and idealism and moderately high for vengeance and social contact. This pattern of results suggests that the students were easily frustrated by intellectual effort and that they were psychologically disconnected from their parents (low honor) and community (low idealism) but were connected to peers (high social contact). How these students self-reported their motives was consistent with what was known about their behavior in terms of their low achievement and high rate of disciplinary problems.

Correlation Matrix

Evidence that the 16 basic desires are largely unrelated to each other supports multifaceted theory. Havercamp (1998) calculated the average correlations among the 16 factors of the Reiss Profile at about .15. More than 81% of the values in the intercorrelation matrix had an absolute value of less than .20, indicating that the scales were largely unrelated. The most strongly related scales are power and status ($r = .58$), vengeance and status ($r = .54$), and honor and idealism ($r = .48$). These results support a multifaceted approach to end motivation and argue against unitary theories.

Conclusion

Since antiquity, scholars have debated whether human motives can be reduced to a few global categories. Ancient Greek philosophers, for example, distinguished between motives associated with the body (such as hunger and thirst) and those associated with the intellect (such as curiosity, morality, and friendship). In the early part of the 20th century, Freud (1916/1963) argued that all motives are ultimately about sex. Hedonists, on the other hand, reduced all motives to pleasure seeking versus pain avoidance.

The concept of IM can be viewed as a modern example of the effort in motivational reductionism. IM theorists divide motives into two global categories: drives (also called *extrinsic motivation*) and intrinsic motivation. Drives are about biological survival needs, whereas IMs pertain to what some have called *ego motives*. Hunger, thirst, and pain avoidance are paradigm examples of drives, whereas curiosity, autonomy, and play are paradigm examples of IMs.

White (1959) put forth the thesis of commonalities among IMs; specifically, he argued that IMs are about competence (mastery). In advancing his idea of competence motivation, White explicitly acknowledged that his thesis seems implausible because he was asserting commonalities among a diverse collection of motives. Although many embraced White's ideas because they seemed to broaden the study of motivation to include ego motives, White offered no scientific evidence to support his theory of competence motivation—he developed no measure, conducted no studies to test his idea, and did not suggest any specific studies that might confirm or falsify his hypothesis. In the 50 years since White wrote his article, no scientific evidence has emerged directly showing that competence motivation is the underlying theme of diverse ego motives such as play, curiosity, and autonomy. Further, no scientific evidence has been put forth directly supporting White's hypothesis that IMs have a common origin: There is no direct scientific evidence for the hypothesis that people are born with "undifferentiated" competence motivation that later is manifested as the motives of mastery, autonomy, play, and curiosity. Further, the distinction between drive motivation arising from the organs or periphery and intrinsic motivation arising from the central nervous system or brain is physiological nonsense.

The hypothesis that "intrinsic enjoyment" is common to IMs also remains unproved. Arguably, this hypothesis implies significant similarities between global IM theory and the flawed philosophy of hedonism. It is unclear whether "intrinsic enjoyment" is a unitary phenomenon: Ancient Greek philosophers, for example, argued that pleasures differ in kind (Aristotle, 330 BCE/1953), implying that pleasure theory cannot support unitary or global theories of motivation. Further, logicians have identified errors in pleasure theory, noting that pleasure theorists sometimes confuse consequence for cause. Pleasure is often not intrinsic to an activity; it occurs as a consequence of satiating motives (Russell, 1945). Whether pleasure is experienced depends on a person's motivation; for example, mountain climbing can be pleasant when one desires physical exercise but unpleasant when one is tired and desires rest. Thus, it is not mountain climbing per se that is pleasurable but the potential the activity holds for satiating motives, such as the motive for physical activity or the motive for achievement. Logicians say that pleasure is usually a nonmotivational byproduct of satiating motives, not the aim of the motive (Russell, 1945).

A number of empirical considerations argue against unitary theory and in favor of multifaceted theories. Human individuality may be too diverse to be described adequately in terms of global categories such as IM and extrinsic motivation. Many people who are strongly motivated toward play are not necessarily strongly motivated by intellectual curiosity or autonomy. If curiosity and autonomy both are motivational because of a universal desire for competence, why are some people motivated much more by curiosity than autonomy or vice versa? It is unclear how observations of such individual differences can be made consistent with the theory that play, curiosity, and autonomy are really about the same motive, a desire for competence.

Reiss and Havercamp's research on 16 fundamental desires provides additional evidence of the multifaceted nature of end motivation. This theory provides a comprehensive analysis of individual differences in trait motives. A series of factorial studies have confirmed the 16-factor model (Reiss & Havercamp, 1998); similarly, values (logically, values express *end*

motives) also have been shown to be multifaceted (Schwartz, 1994). Competence is only one of the values people hold—it is not the common root of diverse values. People also value ends such as status, social contact, revenge, physical activity, and autonomy.

Evidence for multifaceted theory extends significantly beyond the initial factorial studies suggesting 15 and 16 factor solutions for basic motivation. All 16 basic motives have been validated against criterion behavior outside laboratories and experiments (see Havercamp & Reiss, 2003). Concurrent validity and social desirability studies also support the multifaceted model.

The sensitivity model holds that 16 genetically distinct desires (IMs) combine to determine many psychologically significant motives. The model supports numerous predictions about behavior and provides standardized measures (such as the Reiss Profile self-report version) needed to test the validity of the predictions. Future research is indicated to study this model and the role of the 16 basic desires in human behavior. This theory, if valid, shows the multifaceted nature of human IMs. Researchers studying unitary IM theory need to show they can predict behavior as well as or better than Reiss's model by reducing the 16 motives to one or two categories. In contrast, multifaceted theorists need to continue to show that behavior is better predicted and explained with a comprehensive, multifaceted list of IMs than is possible with a reductionism approach.

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