

## HUMAN INDIVIDUALITY AND THE GAP BETWEEN SCIENCE AND RELIGION

*by Steven Reiss*

*Abstract.* Personality may play a role in disputes between religion and science. Personality is influenced by sixteen basic desires and core values, which provide the psychological foundation of meaningful experience. How we prioritize these sixteen desires is what makes us individuals. Religious persons may place a low priority on the desire for self-reliance (they enjoy being in need of others), whereas nonreligious scientists may place a high priority on self-reliance. These differences may motivate religious persons to find meaning in images of psychologically supportive deities and may motivate nonreligious intellectuals to find meaning in abstract scientific principles. To bridge the schism between religion and science, we need to appreciate the extent to which spirituality is an individual experience.

*Keywords:* evolution; religion; science; sixteen basic desires.

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The divide between science and religion usually is attributed to competing claims about the origin of the world or the creation of life. In this article, however, I put forth the idea that it is caused partially by differences in what motivates people. If my thesis were valid, a significant gap between science and religion would likely continue (although perhaps not to the same degree) even if all of the claims in the Bible could be shown to be scientifically valid.

The following four propositions comprise my thesis.<sup>1</sup>

*Proposition 1.* Much of our meaningful behavior, including religious experience, is motivated by sixteen basic desires.

*Proposition 2.* Individuals differ significantly in how they prioritize and value the sixteen basic desires.

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*Proposition 3.* Individuals with significantly different priorities among the sixteen basic desires tend to misunderstand and conflict with each other.

*Proposition 4.* Very religious people and nonreligious scientists tend to prioritize differently the basic desire for independence.<sup>2</sup> Many religious people place above-average value on being in need of others (low need for independence), whereas many nonreligious scientists place above-average value on self-reliance (being in need of nobody, not even divinity.) This difference may motivate these groups to find meaning in images of a supportive God versus in abstract scientific principles.

#### THE SIXTEEN BASIC DESIRES

In order to understand how differences in basic motivation may affect disputes between religion and science, let us consider sixteen basic desires and human personalities. This analysis, called sensitivity theory, or the theory of sixteen basic desires (Reiss 2000a; Reiss 2004), represents a theory of personality based on what large numbers of people say motivates them. Many scholars do not realize that past influential efforts to identify the fundamental motives of human behavior were not based on what people said motivated them. When Aristotle ([330 B.C.E.] 1950) touted friendship as an important life goal, for example, he based his opinion on personal experience and rational analysis. He did not survey large numbers of people to learn their opinions regarding friendship. When Sigmund Freud ([1924] 1960) said that sex and aggression are the greatest motives of human behavior, he based his opinion on conversations with a small number of patients. Freud did not ask large numbers of ordinary people about the importance of sex and aggression in their lives. Evolutionary theorists have said that the prime directives for human beings and other organisms are survival and reproduction, but they have not conducted surveys in which large numbers of people reported that they in fact placed highest value on personal survival and reproduction.

In 1996, Susan Havercamp, a psychology graduate student at the time, and I set out to analyze human goals and motives based on what large numbers of people from diverse stations in life said were their most important motives and goals (Reiss and Havercamp 1998). Our aim was to estimate what may be called the “factor structure” of psychologically meaningful experience. More than ten thousand people have been surveyed, including high school and college students, military personnel, athletes, cooks, church groups, Kiwanis clubs, employees of fast-food restaurants, persons with mental retardation, persons with physical disabilities, legal secretaries, human service workers, dentists, seminary students, and elderly people. Because our research required primarily a diverse sample—not a random or representative sample—the samples were well suited for this type of research.

We spent about three months constructing our questionnaire, which initially had about five hundred items on it. We eliminated motives that are not important for explaining meaningful behavior. We eliminated thirst, for example, because drinking water has not been linked to any meaningful behavior. In contrast, eating was included on our questionnaire, because it is influenced by culture.

We decided to eliminate all references to spirituality from our list. Our strategy was to find the psychological components of meaningful experiences and then study how these components are connected to spirituality.

Once we decided on our initial list of 328 survey items, we asked 401 persons to rate anonymously how important each item was to them personally. Their answers were entered into a computer, and a mathematical technique called factor analysis was performed. Essentially, we programmed the computer to assume that the research participants used ten distinct root meanings (called factors) in responding to the 328 items. The computer analyzed thousands of possible root meanings and then showed the ten factors that best summarized all 328 items. We next instructed the computer to redo the analysis on the assumption that eleven factors best summarized the results of the study. The process was repeated for up to twenty factors. The results showed that fifteen categories best summarized our results (Reiss and Havercamp 1998). We later added a sixteenth category, called "saving." We then replicated the study with samples of people from different backgrounds, confirming repeatedly that our sixteen-category model provided a good "fit" to the factor structure of basic motivation (Havercamp 1998).

Skeptical readers may wonder how we know that the research participants told us the truth when they answered our questionnaire. We completed the studies twice—first asking participants to rate themselves and a second time asking caregivers to rate persons with mental retardation. We obtained similar results from these two methods, even though the items were not worded identically when self-ratings versus ratings of others were obtained. We also administered psychological tests of social desirability to our research participants. We found that the social desirability of our questionnaires was low; this means that the questions did not make our research participants defensive, which would have motivated them to give invalid answers.

The sixteen basic desires are shown in Table 1 (Reiss 2000a) on the following page. Each basic desire (e.g., power, curiosity) motivates basic goals (e.g., influence, knowledge), which are desired intrinsically—that is, for their own sake. As a matter of logic, we value that which we desire for its own sake; therefore, the list of sixteen basic desires can be reworded as a list of sixteen fundamental values. The experience of a basic goal produces intrinsically valued feelings called "joys," a different joy for each basic goal. Because human motivation is fundamentally multifaceted, the sixteen joys

**TABLE 1**  
**The Sixteen Basic Desires\***

Desire	Goal(s)	Joy	Strong Desire Motivates	Weak Desire Motivates	Religious relevance (examples)
acceptance	approval, inclusion	positive self-regard	insecurity	self-confidence	salvation
curiosity	knowledge	wonderment	intellectualism	mindlessness, practicality	omniscient gods
eating	food	satiation	strong appetite	weak appetite	Eucharist, dietary rules
family	raise own children	love	spend time with children	childlessness	images of god as son/daughter
honor	morality	loyalty	duty	expedience	God the father
idealism	justice	compassion	concern for the downtrodden	indifference to social causes	charity, social gospel
independence	self-reliance	freedom	self-reliant behavior	need for psychological support	self-sufficient gods
order	organization	stability	planning, perfection	flexibility, spontaneity	immortality; ritual
physical exercise	strength	vitality	energetic behavior	laziness	Almighty
power	influence	efficacy	leadership	nondirective	Lord
romance	sex	lust, beauty	frequent sex	infrequent sex	holy matrimony
saving	collection	ownership	hoarding, frugality	wastefulness	icons, relics
social contact	friendship	fellowship, fun	socialize, party	solitude	congregation festivals
status	prestige	self-significance	wealth, popularity	not keep up appearances	divinity, Hindu castes
tranquility	safety	relaxation	risk adverse, fearful	brave, reckless	gods of inner peace
vengeance	get even, prove self	vindication	aggressive, competitive	peacekeeping, conflict avoidance	God's wrath, war gods

\* In Reiss and Havercamp 1998, idealism was called "citizenship," acceptance was called "sensitivity to rejection," and tranquility was called "sensitivity to aversive sensations." Order within list is without significance.

cannot be reduced further into supercategories such as pleasure versus pain or intrinsic versus extrinsic motivation (Reiss 2004).

The list of basic desires omits certain motives, such as the desire for wealth (see Reiss 2000a). Just as all chemical compounds represent combinations from the Periodic Table of the Elements, many complex motives represent combinations (compounds) from the list of sixteen basic desires. An individual's desire for wealth, for example, may be reducible to a compound motive for status, power, and perhaps saving.

The sixteen basic desires are largely unrelated to each other. This point is worth some emphasis, because it is often challenged. Some colleagues have suggested, for example, significant overlap between status and acceptance. We asked thousands of people how important status is to them, and we found that their answers were of limited significance in predicting how important acceptance was to them ( $r = .36$ ). It may seem to some readers that status and acceptance are strongly connected, but they are quite distinguishable when each is considered as an end (something valued for its own sake).

We validated the sixteen basic desires by showing that each is associated with real-world (non-laboratory) behavior, so that our theory is now based on more sources of evidence than just factor studies. We showed that the sixteen basic desires are associated with how people perform on other psychological tests and with choices people make concerning college major, club membership, and participation in humanitarian efforts (Havercamp and Reiss 2003). Researchers also showed that the sixteen basic desires are connected to diverse behavior such as athleticism (Reiss, Wiltz, and Sherman 2001), culture, scholastic underachievement, panic attacks (Schmidt, Lerew, and Jackson 1997), mental illness (Lecavalier and Tasse 2002), roommate compatibility (Wiltz and Reiss 2003), and developmental disabilities (Dykens and Rosner 1999). The details of this work provided significant evidence that our questionnaires validly assessed the sixteen basic desires.

In conclusion, we developed a personality theory based on what people say motivates them. We hold that much of human motivation is reducible to combinations of the sixteen basic desires shown in Table 1. The list can be reworded as a list of sixteen fundamental values.

#### SCIENTIFIC STUDY OF THE HUMAN SPIRIT

Much of what people do seems aimed at satisfying the sixteen basic desires. When we satisfy a basic desire, we experience a "joy." We feel secure, for example, when we are in an environment with the degree of stability and order we like. We experience love when we spend time with our children and satisfy the desire for family. The satisfaction of each basic desire gives rise to a different joy, so that we go through life trying to experience sixteen different types of intrinsically valued feelings.

Soon after we satisfy a basic desire, the joy dissipates, and the desire reasserts itself. Therefore, we seek activities that make possible repeated satisfactions of our basic desires. Religion is one such activity. In our relationship with God, or by practicing the rituals of an organized religion, we have the potential to experience joys such as love, power, acceptance, status, and security. We can experience the sixteen basic joys repeatedly by praying or practicing religion on a daily basis.

We have the potential to satisfy our desires through secular means, spiritual means, or both. When a person buys an expensive car to feel important, the person is satisfying the desire for status through secular means. When a person focuses on the image of having been created by God, the person is satisfying the desire for status through religious means. People have free choice in deciding the means by which they satisfy their desires.

The sixteen basic desires are relevant to various religious experiences. For example, the desire for power motivates people to experience feelings of influence (see Table 1). Although this desire often is satisfied through leadership or achievement activities, we also can satisfy this desire by imagining the power of God. When a religious person focuses his or her attention on the Almighty's creation of the universe—arguably the greatest achievement imaginable—the worshipper vicariously experiences the joy of efficacy.

By definition, the desire for order motivates people to seek environments that are predictable and stable (see Table 1). Images of God's immortality create in the worshipper a profound sense of permanence that temporarily and partially satisfies the desire for order. The ancient Babylonians, for example, worshipped gods who represented form from chaos but who did not act or intervene in human life (Armstrong 1993). These gods satisfied the basic desire for order. Further, the first sentences of the Bible reveal that creation was orderly.

In conclusion, we have the potential to satisfy repeatedly all sixteen basic desires by practicing religion. As shown in Table 1, we can vicariously experience joys simply by imagining various aspects of divinity.

#### INDIVIDUALITY

Each basic desire is a continuum between two extremes, indicating the strong (high) versus the weak (low) variations of that desire. Individuals aim for different points along each continuum; that is, we seek to experience different intensities and frequencies of each of the sixteen basic joys. For example, powerful or ambitious personalities aim to experience influence and efficacy so frequently and intensely that some cannot stand to see a man walking in one direction without urging him to walk in a different direction. In contrast, nondirective and nonambitious personalities may avoid giving advice because they dislike doing so. When we experience less power than we desire, we seek leadership roles or influence. When we

experience more power than we desire, we seek submission or avoid influence to balance out or moderate our overall experience. How much power we seek depends on who we are.

When it comes to people's priorities among the sixteen basic desires, one size does not fit all. Although everyone is motivated by each basic desire, we are not motivated to the same extent. Each individual sets priorities among the sixteen basic desires in a unique way. Orderly people, for example, seek an above-average (high) degree of organization, whereas flexible people seek a below-average (low) degree of organization. Curious people seek a high degree of intellectual activity (need for cognition), whereas noncurious people seek a low degree of intellectual activity.

My approach to the psychology of religion is most similar to the one advanced by William James and Gordon Allport. In 1902 James put forth the idea that human individuality supports numerous varieties of religious experiences. Allport ([1950] 1961) later struck a similar theme, emphasizing the idea that individuals turn to religion for different reasons. The theory of sixteen basic desires embraces these general ideas and adds details regarding how our individuality affects our motivation toward religion.

#### "NOT GETTING IT"

Individuality may play a role in some conflicts between religion and science. In order to appreciate this, we need to distinguish between two types of communication difficulties: ineffective communication and "not getting it." Ineffective communication occurs when one person lacks sufficient information to understand the behavior of another, as when a man who is under financial stress becomes easily irritated with coworkers. If the coworkers are unaware of the man's financial problems, they may misunderstand the irritability as a lack of interest in the job. When the man informs people at work of his financial problems, his behavior is better understood, although not necessarily accepted. In contrast, "not getting it" occurs when two people prioritize basic goals very differently, so that one is high for a particular basic desire and the other is low for the same basic desire. Additional information does not solve this problem—it only sharpens the differences.

In 1843 George Ramsay, a British philosopher, wrote, "One half of mankind pass their lives at wondering at the pursuit of the other. Not being able either to feel or to fancy the pleasure derived from the other sources than their own, they consider the rest of the world little better than fools, who follow empty baubles. They hug themselves as wise, while in truth they are only narrow-minded" (p. 25).

"Not getting it" is a form of miscommunication associated with the following three elements.

1. *Misunderstanding* refers to the confusion people experience when they cannot understand how anyone could choose basic goals opposite from

their own. Ambitious people, for example, are baffled that nonambitious people would rather be underachievers than hard workers. Nonambitious people do not understand how ambitious people can pass their life at work, sacrificing many pleasures for career success. Neat people are puzzled as to how others can be sloppy, and flexible people cannot understand why neat people become upset when clothes are left lying on a floor.

2. *Self-hugging* is a natural tendency to presume that one's goals lead to the greatest happiness, not just for oneself but also for everybody who attains a certain level of ability or skill. Ambitious people, for example, tend to think that feelings of mastery produce great pleasure not just for themselves but also for everyone. They may believe that nonambitious people would realize the pleasures of mastery experiences if only they worked harder and obtained a higher level of achievement. In contrast, nonambitious people tend to think that ambitious people have some type of underlying psychopathology that causes them to be workaholics. They may think that ambitious people would learn the joy of leisure if they would only stop to smell the roses every now and then. What they do not appreciate is that workaholics already have stopped to smell the roses and discovered that it was not as great a joy as being a workaholic.

Self-hugging is a natural outcome of the tendency to learn about human nature based on our own personal experience. When a man discovers through personal experience that he enjoys working at a leisurely pace, he thinks he has discovered a truth general to human nature, not just a truth applicable to his own nature. Overlooking individual differences, the man assumes that workaholics are seeking fool's gold, sacrificing their current pleasure for future achievements. The possibility that workaholics are doing what is most meaningful to them is either not considered or dismissed out of hand, since it is inconsistent with the individual's experience of how he or she feels when having to complete a lot of work.

To sum up, our individuality is so great that we essentially cannot understand how other people can hold fundamental values opposite to our own. We tend to think that everybody would be better off if they attained the lifestyle or goals we cherish most. We all self-hug and do it frequently.

3. *Everyday tyranny* refers to efforts people sometimes make to change others to be more like them, particularly regarding preferred lifestyles. Curious parents, for example, can use money and criticism to pressure a noncurious child to spend more time on schoolwork. The parents may withhold acceptance unless the child makes a greater effort to become a scholar.

Since "not getting it" occurs between individuals who prioritize one of the sixteen basic desires in opposite ways, it is essentially a conflict of fundamental values. It occurs, for example, between moralistic and expedient people (who are high and low, respectively, on the basic desire of honor), fit and unfit people (who are high and low on the basic desire for physical



exercise), and sensualists and ascetics (who are high and low on the basic desire for romance). For “not getting it” to occur, there must be a significant clash of basic values in regard to the same continuum of motivation.

SCIENCE, RELIGION, AND “NOT GETTING IT”

I propose that part of the schism between science and religion is caused by individual differences in how the sixteen basic desires are prioritized by many nonreligious scientists and religious people. I have studied the basic desires of 558 people who rated themselves as “very,” “somewhat,” and “not” religious. The four largest denominations represented in the sample were Roman Catholic (n=171), Baptist (n=44), Methodist (n=54), and Presbyterian (n=44). Separately, Havercamp studied 49 seminary students enrolled in one of three Midwestern Protestant seminaries: Associated Mennonite Biblical Seminary, Methodist Theological School in Ohio, and Trinity Lutheran Seminary. The results of these studies have been reported in detail elsewhere (Havercamp 1998; Reiss 2000a, b). By way of summary, the results show that religious faith is rooted primarily in positive desires—especially desires for interdependence (low independence), honor, and idealism—rather than in negative desires such as anxiety, fear, or weakness. Persons with a high desire for tranquility (that is, anxious or fearful people) were no more likely than persons with a low desire for tranquility to embrace religion, a result that is inconsistent with theories holding that anxiety motivates religious behavior. Disproportionate numbers of people with a high desire for honor were religious, as were disproportionate numbers of people with a low desire for independence.

The research results most relevant to understanding the schism between religion and science are shown in Table 2: The greater the extent to which people described themselves as religious, the lower was their desire for independence.

The odds were less than one in a thousand that these average differences were chance findings. The results were unrelated to any indicators of psychological weakness, such as “weakness” of will (which falls under the desire

**TABLE 2**  
**Average Basic Desire Scores for Independence (Self-Reliance)**

<b>Group</b>	<b>Basic Desire Score*</b>
Seminary students (n=49)	18.7
Very religious (n=137)	19.9
Somewhat religious (n=335)	21.7
Not religious (n=86)	23.7

\*standard deviation = 7.1

for low power) or insecurity (which falls under the desire for high acceptance). Religious people seek to reduce their independence (presumably from God), but they do not seek to be followers of political leaders or to become powerless people who lack influence.

The desire for independence can be thought of as a continuum between the extremes of total self-reliance (never wants to be in need of others) and absolute dependence (always wants to be in need of others). Where we fall along this continuum shows the mix of experiences we seek between being on our own and being psychologically supported. Independent personalities prefer a mix in which self-reliance is experienced frequently and intensely, even though occasionally (or under special circumstances) they may want to experience psychological support and dependence. Interdependent personalities prefer a mix in which psychological support and being in need of others are experienced relatively frequently and intensely, though occasionally (or under special circumstances) they may want to experience self-reliance.

The results of our research were consistent with religious writings. From a psychological perspective, religious writings are perhaps unique among all literatures in how strongly and frequently the desire to lose one's individuality (loss of the sense of *I*) is described as a joy. Religious people experience absolute dependence on God as a joy.

Many religious people go through daily life with God in their hearts and minds; psychologically, God is with them, and they depend upon God for support to balance out unsettling perceptions of being on their own, separated from God. Some religious writers have described the bliss of mystical union, which is an extreme form of loss of ego independence. Even religious leaders who have not recognized God as an entity, such as Siddhartha Gautama (the man who started Buddhism), have taught that the goal in life is to lose one's independence from nirvana, the unity of consciousness.

The results of our research did not vary systematically with religious denomination. The absence of significant differences along denominational lines is consistent with the writings of religious leaders from a number of denominations who express the view that becoming close to God (and losing a degree of independence in the process) is a joy. Future research is needed, however, to explore the role of religious denomination in greater detail.

Previous researchers have shown that scientists generally place an above-average value on independence (see Roe 1961). Nonreligious scientists appear to be persons of highly independent minds; scientific mythology glorifies the independent thinker who rejects conventional wisdom and develops new solutions to complex problems.

Since many religious people seek low independence, whereas many nonreligious scientists seek high independence, "not getting it" can result be-

tween the communities of faith and of science. Each of the three elements of “not getting it” is apparent. Misunderstanding occurs when religious people criticize scientists for being vain and lacking in humility and when scientists criticize religious people for being weak and submissive. Self-hugging occurs when each group automatically assumes that its values (independence versus interdependence) are best for everyone. Many religious people believe that scientists would be better off if they were more religious and less independent from God. Many nonreligious scientists believe that religious people would be better off if they adopted a more scientific and independent approach to things. Everyday tyranny occurs when the schism results in conflict and in efforts to change or control each other.

#### THE CHALLENGE OF RECONCILIATION

Motivational forces are most likely to influence our thinking on issues that are objectively irresolvable or ambiguous, according to Freud’s theory of projection ([1924] 1960). Because the fundamental claims dividing science and religion are arguably irresolvable based on objective considerations (Wisdom 1950), what we believe on these matters may be influenced significantly by our desires. To some extent, the disputes between religion and science may occur because we tend to believe what we want to believe based on our inner desires, and, on average, there may be significant differences between religious people and nonreligious scientists regarding the inner desire for independence (self-reliance).

Individuals who place a high value on becoming self-sufficient may tend to find meaning in abstract scientific principles. By advancing science, human beings gain self-sufficiency, because they learn how to control the universe to meet their needs. Independent-minded people may feel much more comfortable pursuing science as a path toward self-sufficiency than believing that God holds the keys to their fate. If God is defined as the source of the greatest meaning, many nonreligious scientists may view science as a kind of god. In contrast, people who place a low value on independence may find meaning in images of God as a supportive deity.

Bringing together science and religion may require more than a reconciliation of competing claims such as how the universe came to be. Even if we could reconcile every statement in the Bible with scientific knowledge, many religious people and nonreligious scientists still would not appreciate one another. Many persons of faith would still be puzzled as to how anybody could want to be independent of God and wonder if scientists have embraced a false pride. Many nonreligious scientists would continue to wonder how religious people could be motivated to experience absolute dependence on God or to seek mystical union.

The ideas put forth in this article should be taken as starting points toward a new way of looking at the schism between religion and science.

We have only recently developed the concepts and methods needed to support this new approach, and much more research is needed.

#### NOTES

1. In attempting to advance our psychological understanding of religious experience, we should not confuse the validity of religious beliefs and practices with the psychology of religion. In trying to explain the behavior of people—why some people turn toward religion and others become nonreligious—I am not putting forth a position on the validity of religious claims.
2. My thesis concerns average tendencies, to which there are many exceptions. I realize that religious people can make good scientists and that good scientists can be deeply religious. I suspect that the vast majority of Americans admire both religion and science and are comfortable with the role of each in American society. Nevertheless, I still think there are valid statistical differences in what drives religious people versus nonreligious scientists.

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