Motivation

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1 Introduction

Why do people do what they do? Why do individuals often behave in ways that are contrary to their long-term health or well-being? How does motivation influence product perception, and eventually use? And, vice-versa, how does product perception impact motivation? Over the years the topic of human motivation has been approached from numerous different perspectives. Some approaches have focused their attention on biological and psychological *needs*. Others have focused on *learning*, or how the individual is trained to behave in certain ways by contingencies within their environment. Further approaches place more weight on the *cognitive* processes involved in how each individual understands and evaluates the costs and benefits of behaviors. Still other approaches focus more on the dynamic interplay between emotion and intellect, or how conscious and unconscious factors play varying roles in motivation. The first several sections of this contribution provide a brief overview of different types of motivational theories. Following this we will look at the influence of self-understanding and self-regulatory factors as well as personality differences in motivation, some practical implications, and finally how we might reconcile these many different approaches.

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2   Needs Theories

From the earliest days of psychology, innate needs, or instincts, have been presumed by most theorists to play an important role in human motivation. Early theorists such as William James (1890) and William McDougall (1912) proposed that instincts of various sorts are primary factors in human motivation. McDougall, for example, suggested such instincts as curiosity, nurturing, laughter, lust, and seeking comfort were essential to human behavior. James, as well as Sigmund Freud (1923), focused more on Darwinian instincts—those that are specifically related to survival and reproduction such as cleanliness, fear, anger, and sex/love. Though there were differences among these early theories as to the exact details of how instincts influence motivation, the essence of all was that biological, or innate, drives are the foundation of human motivation; a foundation that is built upon through experience. Throughout the twentieth century, a number of influential theories were proposed along these lines.

2.1   Maslow's Hierarchy of Needs

Probably the most well-known of the more modern needs-based theories of human motivation is Maslow's "hierarchy of needs" (1943). Maslow suggested that, in general, humans seek to satisfy basic physiological needs such as those for food and shelter first. Once those simple physiological needs are met then people turn their attention to other more long-term concerns such as security and safety: Concerns such as being free from the threat of violence and alleviating financial as well as health concerns become of primary concern. Following this, Maslow proposed that humans become free to concentrate on so-called higher order needs such as love/belonging and esteem. Once more fundamental physiological and security concerns are taken care of, people are strongly driven to connect with others. They seek quality relationships such as those between friends, family members, and romantic partners. Upon developing such relationships, the individual, in Maslow's thinking, should eventually form a healthy sense of self-esteem. Humans, he argued, want to be valued and respected by others and, when they experience such respect, they learn to respect themselves.

Once the previously mentioned needs are mastered, Maslow argued, a person becomes more driven to pursue self-actualization, or self-transcendence. Essentially this is a motivation to create, or to express the inner self. Maslow suggested the ultimate goal for humans is to transcend narrow self-interest, but in order to be able to do so, the individual must first master their selfish, individual needs. It is important to note here that, although, the hierarchy of needs is often portrayed as a straight progression from one level to the next, Maslow's thinking was more nuanced. He suggested that, in reality, the levels of personal development and motivation do not progress in a simple linear fashion. Most levels, such as

belongingness and self-esteem for example, are interdependent. Also, there are many times when people forsake more fundamental needs such as security or health for theoretically higher order needs such as love or belongingness.

2.2 ERG Theory: Existence, Relatedness, Growth

Alderfer (1969) reworked Maslow's theory into a simpler non-hierarchical model, which he called ERG Theory. Taking into account the previously mentioned inter-relatedness among Maslow's different levels, Alderfer proposed just three essential need categories: Existence, relatedness, and growth. Existence needs include all physiological and safety needs. Relatedness describes needs for relationships and belonging as well as for respect (i.e. being respected by others). Growth needs include internal aspects of esteem (i.e. self-respect or self-esteem), as well as self-actualization and self-expression related motivations. Alderfer argued that these need categories are not necessarily progressive. Instead all three types of needs operate simultaneously, although the relative importance of particular needs might vary between individuals and depending on the context. The ERG model suggests that if specific needs are not met, or not perceived as attainable, individuals will compensate by focusing more intensely on other needs. For example, if a person's need for personal growth is frustrated, they might focus intensely on social needs or gaining approval from others. Alternatively, if a person is very socially isolated, they might focus their attention on artistic pursuits (self-expression or growth-related needs) or on earning a lot of money (existence or security-related needs). In this way ERG theory can be used to explain some individual and group differences in motivational style, where individuals learn to compensate for perceived shortcomings in their personal or social situations by focusing more intently on other types categories of needs or desires.

2.3 McClelland's Learned Needs

David McClelland, similarly built upon Maslow's work by suggesting a set of three essential motivating needs: *achievement, affiliation,* and *power*. McClelland's theory, however, emphasizes how individuals differ in their focus on each of these primary needs, and how social and cultural background shapes individuals' need profile. McClelland suggested that the emphasis on certain motivators is learned: Everyone is motivated to some degree by needs for achievement, affiliation and power, but we learn over time which are preferred by our cultural surroundings and which we individually are more inclined towards. Thus, each persons' dominant motivations are shaped by their individual experiences as well as by their socio-cultural environment.

2.4   Self-Determination Theory

More recently, Deci and Ryan (2000) have proposed Self-Determination Theory (SDT) which argues that humans have an innate psychological need for autonomy, competence, and relatedness. Essentially, according to SDT, humans want to feel that their actions are freely chosen; that they can function effectively in the areas that are important to them; and they crave high-quality, continuing relationships with other people. To the degree that these needs are satisfied over time, humans tend to function effectively and experience well-being. However, when these needs are thwarted, people tend to exhibit less than optimal functioning and lower levels of life satisfaction. SDT considers many of the less-desirable aspects of human behavior; addiction, aggression, and prejudice for example, to be compensatory reactions to the denial of basic needs, either throughout the course of development or contextually.

2.5   Intrinsic vs Extrinsic Motivation

Ryan and Deci (2000) have also written extensively on the distinction between intrinsic, or internally driven, and extrinsic, or externally driven, motivations. In many cases, external factors such as rewards (say, money or promotions), punishments, or the opinions of others are sources of motivation. Because they are more easily manipulated, such external motivators have been the focus of most learning and motivational theory. Often, however, humans, as well as other animals, are driven by internal factors such as curiosity, enjoyment, interest, and, perhaps, deeply-held values. Intrinsic motivations are not necessarily associated with external rewards. Nevertheless, they can be the source of much long-term effort and creativity.

Research also indicates (see Ryan and Deci for a review) that, depending on various personal and environmental contingencies, motivations can change over time from extrinsic to intrinsic and vice-versa. For example, in some cases, when rewards are provided for an activity that was previously motivated intrinsically, people actually exhibit lower levels of motivation. Other studies have shown that mild threats or risks associated with a behavior can make that behavior more internally motivating (Wilson and Lassiter 1982). Thus, a certain level of risk can actually be motivating. Possibly because the associated excitement is internally rewarding, or possibly because prohibitions can stimulate curiosity which is also, as will be discussed later, an internal motivating factor.

2.6 Basic Emotions and Motivation

From the very early days of psychology, scholars such as William James and Carl Lange have argued for the primacy of physiological states which we interpret as emotions in how humans interpret and react to their surroundings. In recent decades, research on affective neuroscience, or the biology of emotion, has supported the contention that humans, similar to other animals, have fundamental core motivations that are based in neurobiological circuitry. In accord with previously discussed theories, a primary drive to form relationships with other people, or attachments, exists from infancy (Bowlby 1988). Humans are born with specialized neurological circuits that have evolved specifically for social purposes, such as recognizing faces, understanding speech, detecting others' emotions, and mimicking or learning from others' behavior. Essentially, humans are hard-wired from birth to seek out contact with and learn from other humans (Schore 1994). Throughout the lifespan this drive to interact smoothly with others, whom we are evolutionarily dependent upon for survival, actually shapes neural connections within the brain such that humans unconsciously absorb and adhere to social norms of behavior and thought (Quinn 2003).

Expanding further into understanding emotions as fundamental motivators Panksepp (2005) has identified seven human emotions each of which is associated with unique, underlying neural circuitry. These are: Seeking, which is essentially curiosity; a motivational urge towards exploring and understanding one's environment. Fear, a self-protective drive to avoid perceived threats. Nurturing, a drive to connect with and care for others. Panic, anxiety that occurs when interpersonal connections are threatened. Lust, or sexual desire. Rage, or aggression, which is a drive to actively defend against perceived threats (distinct from fear, which motivates one to hide or to flee). Finally, Play which encourages the development of various social and physical skills through active engagement with others. All of these primary emotions are, by nature, innately motivational, though of course, they may at times conflict with each other. Fear or anger, for example, in most situations, will override emotional drives towards seeking/exploring or play. Also, reminiscent of Maslow, physiological needs such as hunger or sleep will generally dull the intensity of emotional drives. Curiosity/seeking and play, for example, are notably reduced when subjects are experiencing hunger or deprived of sleep (Fig. 1).

3 Learning Processes

3.1 Conditioning

The most basic concept involved in learning is generalized in the "law of effect" (Thorndike 1901). This states, in essence, that behaviors followed by satisfying consequences will tend to be repeated and those associated with undesirable results
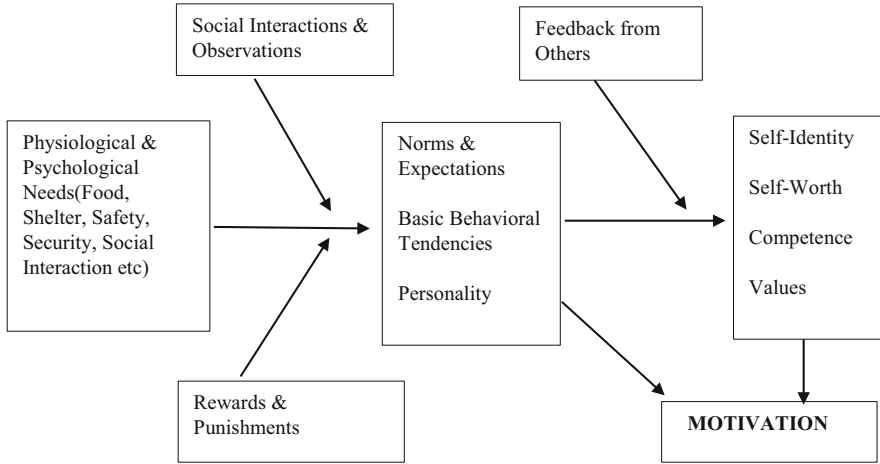
Fig. 1 Generalized needs-based model of motivation: Motivation results from a combination of essential drives, learning, and esteem-related processes

will tend to diminish in frequency. Desirable consequences increase the frequency of a behavior, while undesirable consequences decrease the frequency of behavior. Thus, given a set of physiological and psychological needs, human behavior can be shaped through associating specific behaviors with the satisfaction or denial of various needs. This is referred to as *conditioning*, or *reinforcement*, and it can take numerous forms (Skinner 1938).

What is traditionally referred to as *positive reinforcement* occurs when a behavior becomes associated with desirable outcomes (or rewards). If a person is hungry and they receive some tasty food as a result of a certain behavior, that behavior will be more likely to occur in the future. Similarly, emotional experiences can also reinforce behavior: If a behavior results in positive feedback from others, such as a feeling of social acceptance and belonging, that behavior will be more likely to be repeated. Behavior is also encouraged if it eliminates or reduces the impact of some negative stimulus. For example, if someone feels anxious and they drink a glass of wine and the feeling of anxiety goes away, they will be more likely to drink wine in the future, especially if they are feeling anxious. This is termed (somewhat confusingly) *negative reinforcement* because the behavior is negating, or removing, a negative stimulus. It still, however, encourages the same behavior to occur in the future. Therefore, it is a source of motivation or reinforcement.

Certain consequences, in contrast, tend to reduce the frequency of a behavior: These are termed punishments. Again, punishments can be both positive and negative in nature. A behavior might result in physical pain or some other unpleasant emotion such as fear; this is (again counter-intuitively) *positive punishment*. Positive punishment is a painful physical or mental experience that is associated with a behavior, spanking or scolding for example, which has the effect of reducing the behavior in the future. Such punishments are termed as positive because they

add an undesirable association to a behavior. In contrast, *negative punishment* also reduces associated behaviors, but it associates the behavior with the loss, or removal of, positive reinforcers. For example, if a child's bad behavior is associated with losing access to a valued toy or not being given cake after dinner, it is termed as negative punishment. It is still punishment, because it reduces the likelihood of a behavior occurring in the future. However, in the case of positive punishment, a behavior results in a negative consequence that would not have existed before. In the case of negative punishment, a behavior results in the loss of some previously valued, or rewarding, experience. In either case, the associated behavior will be less likely to occur in the future. Hence the label *punishment*.

It is worth noting in this context, that the type of reinforcement associated with a specific behavior can change over time. Someone might begin using drugs, for example, because it provides them with a feeling of elation, a high, which is a *positive reinforcement*. Later, if they become addicted, they might be motivated more by the desire to escape from the physical discomfort associated with withdrawal. This is a *negative reinforcement*, but still an incentive to continue using. Eventually, if they were to arrive at the point where they lost their home or wife or children because of their drug use, this would be a type of *punishment* (negative punishment). They are losing something that they value, therefore they are more motivated to stop using.

Considering the relation of risk perception to conditioning and motivation, it is important to also consider the concept of immediacy: If a punishment is expected to occur in the future it will be strongly discounted in motivational force when compared to rewards that are expected immediately (Skinner 1953). Of course, there are many ways in which expected future costs or rewards might influence behavior: The size of the reward/cost; perceived likelihood of the outcome; current appetitive state; and individual differences, all play a role in such situations. Nevertheless, with all other factors remaining constant, there is a strong overall tendency to devalue future rewards and risks in comparison to currently available rewards or costs. This concept is discussed at length in a separate contribution of this volume entitled *temporal discounting of future risks*.

3.2 Social Learning

Although most early research on learning focused on the direct effect of rewards and punishments on behavior, more recently, the understanding that relatedness and social contact are central to human motivation, has led psychologists to focus more on the effects of social context, and how human behaviors are shaped by the behaviors of others within their social group. Bandura et al. (1961) identified these processes as *social learning*. A key finding from social learning research is the concept of *modeling*, that behaviors can be learned through observation alone. People, especially children, are keen observers of others, and they tend to imitate behaviors that they observe as rewarding for other people. The observer does not

need to have a direct experience of being rewarded for a particular behavior themselves in order to be motivated to engage in that behavior (Bandura 1977). They merely need to observe the behavior in others and perceive it to be associated with some desirable outcome such as, say, physical pleasure or social acceptance. Thus, given the importance that humans place on social relatedness and acceptance, if behaviors are portrayed or interpreted as normative for a social group, the desire to fit into that social group can in itself become a strong motivator to engage in those behaviors (Erbaydar et al. 2005).

Through such social learning processes, humans absorb, largely unconsciously, wide ranges of behaviors and cognitive patterns which, over time, become engrained in their understanding of who they are, and what is normal (Erikson 1959; Quinn 2003). Considered from this perspective, the vast majority of day-to-day human behavior is not motivated by cognitive evaluations, but by fundamental, survival-based, tendencies for human beings to learn from and fit into their social surroundings. When deep-seated, culturally learned, normative behavior and cognitive tendencies are challenged by new information, as often as not, an array of defense mechanism are employed to reframe or reinterpret such new information in ways which are less threatening (Festinger 1957). This concept is discussed further in the section titled *cognitive dissonance*.

3.3 Social Influences on Risk Perception

Specifically considering how social and cultural learning processes relate to the perception of risk, Kasperson et al. (1988) has described a series of processes that lead to the social amplification (or, conversely, attenuation) of risk. Kasperson argues that the perception of risk is not, for the public at large, based upon a mathematical assessment of the probabilities and magnitudes of potential events. Instead, risk perception results from a combination of intuitive biases, personal interests, and cultural values. Individuals and groups through their psychological and cultural reactions to risk-related stimuli create secondary social and economic effects which ripple throughout the rest of society often causing the public to either greatly overestimate or underestimate the risks involved in certain behaviors or events.

Essentially Kasperson suggests that risk perception, and social learning in general, tends to have a kind of snowballing effect. People's emotional reactions to events, as well as the observed reactions of other people can cause chain-reaction-like effects that either increase or decrease the societal perception of and reaction to risk. Traditional, strictly analytical, risk analyses neglect such social effects. Thus, their results often differ greatly from how the public perceives the severity of different risks. One example of such social amplification processes is the perception of risk from terror attacks: Americans often rate the risk of terror attacks as a great threat to their safety, when in fact they are about 2000 times more likely to die in an automobile accident than a terrorist attack. The news coverage and

emotional shock involved in terrorist attacks causes the actual risk involved to be greatly overrated compared to using a product that is a normal part of day-to-day life such as motor vehicles. Likewise, the risks involved in using other products that are deeply embedded in many cultures, such as alcohol and tobacco, are often grossly under-perceived due to their normalization.

4 Cognitive Models of Motivation

4.1 Equity Theory

Adams' Equity Theory (1963) describes motivational tendencies related to the perceived fairness of a situation. Individuals tend to evaluate the effort put into an activity in relation to what they receive, or expect to receive, in return. Essentially, the individual desires an equitable, or balanced, relationship between their effort expended and what they receive in return. When there is an imbalance, or effort begins to outweigh rewards he becomes de-motivated. Equity theory posits that these perceptions of fairness are rooted largely in how the individual views his own situation relative to others'. If he perceives others to be receiving greater benefits in relation to their efforts, for example, if a student sees classmates continually receiving better marks while putting in the same or less study time, he will be less motivated to study. Optimal motivation, thus, occurs when individuals perceive their situation to be equitable; that they are being treated fairly and receiving appropriate recognition or other compensation for their efforts.

4.2 Expectancy

Expectancy Theory (Vroom 1964) proposes that the individual weighs expected rewards vs. desired results. The individual makes decisions by estimating how well the expected results of a behavior match with desired results. The *valence*, or degree of desirability, of an outcome is the first element of this evaluation. Potential outcomes are evaluated in terms of how desirable or undesirable they are. The individual also evaluates *instrumentality,* or their perceived ability to achieve an outcome. Given these variables, *expectancy* is estimated: The individual forms a subjective impression how likely it is that a specific action will lead to various outcomes, and those outcomes are weighted by their relative desirability. Winning the lottery, for example, is a very desirable outcome, however, its likelihood is quite low, but also the relative cost of a lottery ticket is low. Given the high level of desirability, many people are still motivated to buy lottery tickets despite the low possibility of winning. Expectancy theory, thus, suggests a calculus involving the desirability, achievability and costs or risks involved when making decisions.

4.3   Social Cognitive Theory

Later in his career, Bandura (1986), expanded on his theory of social learning to include more cognitive factors. His newer Social Cognitive Theory (SCT) thus includes consideration of the moderating and self-regulatory capacities involved in cognitive evaluations. Similar to expectancy theory, Bandura suggests that actions are evaluated based upon the desirability and likelihood of expected outcomes. SCT, however, specifically emphasizes the role that social modeling plays in such evaluations. Cognitive evaluations are based on standards, or benchmarks, that are shaped through observing and interacting with others. These standards guide the manner in which individuals value rewards and evaluate potential behaviors. Bandura particularly emphasizes three cognitive factors involved in motivation: *Self-efficacy;* do they feel that they can effectively perform the action? *Feedback*; what kind of response do they receive, or expect to receive, when they perform the action? And, *environmental context*; what environmental factors are present that either encourage or discourage that behavior? Thus, similar to expectancy theory, social cognitive theory argues that the individual weighs several factors against each in making decisions, but Bandura places special emphasis on the anchoring role of social standards and socio-environmental context in these evaluations.

5   Conscious and Unconscious Processing

5.1   Psychodynamic Theory

In contrast to the idea of motivation being either strictly rational or based upon instinct, Freud (1923) proposed a more dynamic, multi-layered structure of the human psyche. Freud argued, similar to other needs theorists that the root of all human motivation lies in evolutionarily-based psychological and physiological drives, but he also asserted that such instinctual drives are engaged in constant interplay with other aspects of the mind which are oriented towards the outside world and fitting into the social environment. Freud termed the instinctual part of human nature the "id". When born, he argued, a child possesses only the id; the set of drives and wants that allow it to live and feel satiated. This id operates, in Freud's terms, according to the "pleasure principle": It merely wants to feel good, to satisfy its' needs. The id is essentially unconscious. Though the conscious mind may be aware of the id's desires and wants, it cannot negate them. The conscious mind instead, over time, develops an understanding of how to satisfy the id within its' existing physical and social constraints. What Freud terms the "ego", or the self, is a mechanism that develops over time which enables the individual to satisfy his needs. People learn the necessary skills and social protocols to get what they want and need within their physical and social environment. Freud referred to this as the

"reality principle". The ego, or self, must balance the unconscious desires and needs of the id with the external constraints of living amongst other people in a physical world. Thus, in Freud's view humans possess the ability to rationally evaluate costs and benefits as many cognitive theories propose. However, such rationality is essentially beholden to unconscious urges which, at many times, contradict the self's rational evaluations as well as society's moral codes. In other words, Freud argued that humans can behave rationally at times, however, at bottom they are driven by instinct.

5.2   Fast and Slow Thinking

More recently, Nobel Prize winner Daniel Kahneman (2011) has provided extensive evidence for the various ways in which human thought processes are affected by unconscious biases as opposed to being strictly rational evaluations. Essentially, Kahneman concludes that there are two modes of thought that humans generally engage in: Type 1, or "Fast" thinking, and type 2 or "Slow" thinking. Fast thinking (also sometimes called "hot" cognition) is instinctive, stereotypic, and emotional; while slow thinking (or "cold" cognition) is logical, deliberative, effortful, and relatively infrequent. Kahneman has found that much of human cognition is guided by "heuristics", or mental shortcuts which circumvent logic, although often the individual believes that they are being rational when engaging in such thinking.

Many such heuristics have been experimentally established. Some that are particularly relevant to the evaluation of risk are: A general tendency towards optimism, which includes a belief that we have control over our lives, as well as a strong bias towards considering only evidence that we have experienced directly. In other words, when evaluating risk, individuals will tend to consider data that they have gathered personally: If an individual has positive associations with a product, but has not personally experienced negative consequences of its' use, he will tend to weigh his own positive personal experiences much more heavily than abstract potential downsides. "Framing" of information is also a key factor in how people make judgments. For example, if one states: "90% of consumers who use this product experience no ill effects"; instead of "10% of consumers who used this product became ill", people will tend to judge the risks as less severe. Similarly, Kahneman has established an "availability" heuristic, which demonstrates a human tendency to weight readily available (i.e. oft repeated) information especially heavily in decision making. Thus, if someone consistently hears of the benefits from using a product, but only occasionally hears of any negative repercussions, they will tend to focus more on the readily accessible (oft-repeated) information.

6 Self-Understanding and Motivation

Psychologists have gradually been developing an understanding of the importance of personal identity, or a sense of oneself and how one fits into the broader society, in motivation (Erikson 1959). Humans seem to have an innate desire to make sense of their existence and do this by creating internal stories or narratives (McAdams 2001) that provide context and meaning to their day-to-day existence and the activities that they find themselves engaged in (Quinn 2003). As has been discussed extensively to this point, humans engage in behaviors for a multitude of reasons, many of which are not strictly rational. The individual, however, generally wants to feel good about himself. He wants to feel that his behaviors make sense and are justified. This allows him to maintain a positive sense of self, which is important for maintaining future engagement with the world. Thus, there is a core motivation for individuals to portray themselves internally, in their own personal narratives, as well as externally, in how they present themselves to other people in a rationally consistent and meaningful way. Reminiscent of Kahneman's bias towards optimism, people are generally driven towards believing that they are correct and justified in what they do.

6.1 Cognitive Dissonance

A correlate of this desire for consistency is the well-established tendency towards cognitive dissonance reduction (Festinger 1957). Essentially, when the individual experiences inconsistency, such as having contradictory beliefs or inconsistent patterns of thought and behavior, he experiences anxiety, or discomfort, and is motivated to eliminate the inconsistency. This, termed *dissonance reduction*, can be accomplished by either changing one's behavior or changing one's cognitions. For example, if someone learns that a product they have been using is potentially harmful, they could stop using it, or they could alter that cognition by saying to themselves that they and their friends have been using the product for a long time and have seen no ill-effects, therefore it must be fine. They might even attribute the information to some kind of left-wing conspiracy to harm their preferred brand, and thus become even more loyal to the product. Such entrenchment of behavior in the face of threat has been demonstrated extensively in research related to Terror Management Theory (Greenberg et al. 1997). Specifically, in the face of threat, people tend to defend themselves psychologically by strengthening their association with key aspects of their identity, such as political beliefs or well established behaviors. Threatened people express greater levels of loyalty to social groups, ideas, and norms that they identify with. Thus, especially in the case of well-established behaviors or social norms, perceived threats could actually increase the individual's motivation to engage in risky behaviors (Fig. 2).
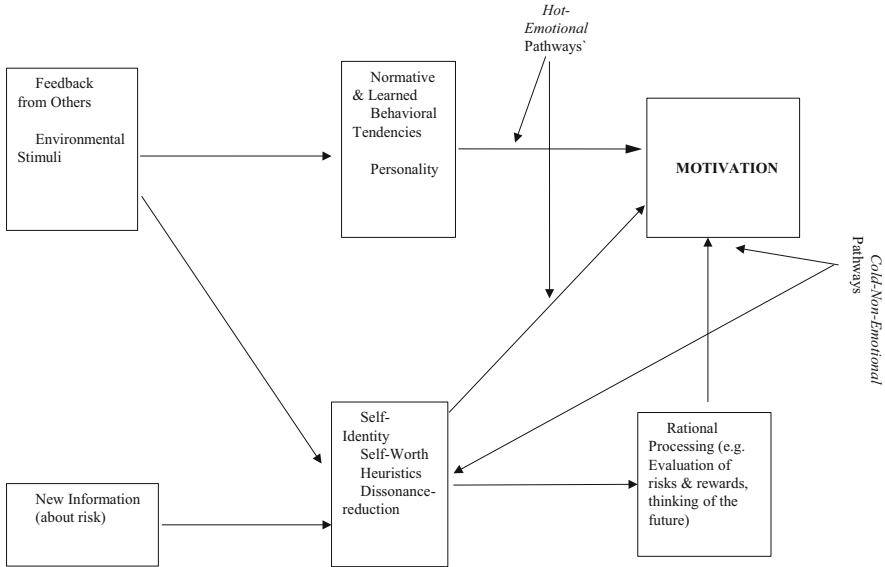
Fig. 2 Simplified model illustrating multiple processing pathways. Information first passes through the individual's self-structures and is subject to dissonance reduction. When in a non-aroused state, rational structures can become engaged and influence motivation. Most times, especially during emotional arousal, these rational pathways are bypassed in favor of well-rehearsed behavioral strategies and self-promotion/protection

7 Personality Factors and Individual Differences in Motivation

Decades of research has shown that, across cultures, individuals tend to differ across a relatively small number of personality traits which are stable throughout the lifespan. Eysenck (1952) first identified two essential dimensions to personality: Extraversion vs. introversion; a person's tendency to be outgoing, sociable and energetic as opposed to reserved and reflective, and neuroticism vs. stability; a person's tendency to be sensitive, nervous, and prone to negative emotions, as opposed to being emotionally stable and calm. Starting with Tupes and Christal (1961) a number of researchers have expanded the number of personality dimensions to five, often referred to as the "Big Five". In addition to Eysenck's dimensions of extraversion and neuroticism, the big five also includes openness, conscientiousness, and agreeableness. Openness is the degree to which the individual is open to new experiences, curious about new ideas and creative, as opposed to cautious, pragmatic, and consistent. Conscientiousness is the degree to which the individual is organized, self-disciplined, and dutiful as opposed flexible, spontaneous, and possibly unreliable. Finally, agreeableness is the tendency to be cooperative, compassionate, and helpful, as opposed to competitive, mistrustful, and

antagonistic towards others. Differences in personality can influence how risk is perceived.

7.1 Individual/Personality Differences in Risky Behavior

Generally, research has shown that young adults who engage in risky behaviors share a number of traits: They are non-traditional, and tend not to be harm-avoidant. They are less self-controlled and less careful. (Caspi et al. 1997). Additionally, youths who engage in multiple risky behaviors tend to be more aggressive than those engaging in only one type of risky behavior. Interestingly, such differences in personality and behavior appear to have roots in early childhood, if not genetics. "Under-controlled children", meaning those who had difficulty sitting still, or, were impulsive, irritable, and out of control, at age 3, were more likely to engage in risky behaviors at age 21 (Caspi et al. 1997). Similarly, Zuckerman and Kuhlman (2000) found that risky behaviors such as binge drinking, smoking, drug use and risky sex tend to be interrelated: Those that engage in one risky behavior are more likely to engage in others. Risky behaviors also closely relate to personality traits such as impulsivity and aggression/hostility.

There are, however, contradictory findings with regard to sociability. Zuckerman and Caspi found opposite relationships in regard to sociability and risky behaviors. Likely this difference stems from differences between the contexts of the studies. One study (Caspi) using a community sample found that greater sociability led to less drinking, while the other (Zuckerman) which sampled students at a university with a strong drinking culture found sociability to relate to higher levels of binge drinking. This difference can probably be interpreted in terms of a general desire for social acceptance: In contexts where a majority of people engage in risky behaviors, people will be more likely to engage in those behaviors. Although risky behaviors might be frowned upon by the general public, context can play a large role in how individuals, especially highly sociable individuals relate to such risk.

7.2 Individual Differences in Assessing the Future

The perceived delay of potential costs or benefits is also important in risk assessment. Generally, the level of motivation associated with an expected reward or punishment decreases with the amount of time assumed to fall in between a behavior and its' potential reward or punishment. Studies, however, also point to individual differences in the tendency for discounting the future. Generally, those with higher levels of extraversion show a preference for immediate gratification. Those with addictive tendencies such as heavy drinkers and drug users also tend to place less weight on future consequences (Ainslie and Monterosso 2003). In

contrast, those with higher IQs, or greater cognitive capacity, tend to value future consequences more highly (Hirsh et al. 2010).

Situational factors, such as emotional state, also play a role in the degree to which people consider future costs or benefits. During states of emotional arousal, for example when viewing photos of attractive women, or after winning a game, people tend towards pursuing immediate gratification and disregarding future consequences. This is especially true of those high in extraversion (Wilson and Daly 2004).

7.3 Lack of Motivation

Patients exhibiting clinically low levels of motivation generally have an altered perception of how effort relates to reward (Gard et al. 2014). Essentially, those who show abnormal lack of motivation tend to see the effort involved in pursuing any particular goal as far outweighing any possible benefits involved; effort is overvalued while rewards are undervalued. As discussed in the previous section on cognitive factors, similar thought processes probably relate to de-motivation even in non-clinical populations. When individuals feel ineffective at performing a task; when they lack self-efficacy or feelings of competence, they are less motivated. Also, when the individual feels as their situation is unfair, or they are not receiving appropriate rewards for the effort that they expend, they are less motivated. Similarly, when individuals perceive environmental barriers or social impediments to effectively performing an action they will be less motivated.

8 Motivation and Risk Perception

Although the topic is too complex to sum up neatly, several broad conclusions can be arrived at with regard to motivation and risk perception.

8.1 Human Thinking Is Generally Based on Shortcuts

In general, humans tend to focus on the ideas/associations that are most readily accessible. Those ideas, good or bad, that have been repeated often and those that have been introduced recently will be recalled most readily (Kahneman 2011). People also tend to prefer and have a positive bias towards what is familiar and deeply embedded within their social environment (Quinn 2003). Emotional state is also important, when people are experiencing strong emotions they will tend not to engage in rational assessments (Kahnemann 2011) and they will be more likely to choose products based on superficial qualities or previous patterns. Similarly, there

is a tendency for people to overvalue the present, weighing current rewards much more highly than future costs. This tendency is especially strong during times of high emotional arousal as well as for those with extraverted personalities (Hirsh et al. 2010).

8.2 Humans Want to Feel Socially Connected and Capable

Belonging and relatedness are powerful motivators (Deci and Ryan 2000). Humans have a basic need to feel that they are a part of a group and that they are socially connected. When they feel ostracized or that their social relationships are at risk, it is interpreted emotionally as a threat to their very existence (Greenberg et al. 1997). Conversely, when individuals feel that they are accepted and that their position as part of a valued group is secure, they feel relaxed and empowered (Ryan and Deci 2000). Thus, given the choice of doing something that is socially normative and that will make the individual feel more connected to desirable others, the individual is strongly motivated to devalue any risks that might be associated with that behavior. Similarly, humans want to feel competent, and that their actions are freely chosen (Deci and Ryan 2000). If they or their social group are engaging in certain behaviors or consuming certain products, they are often motivated to do the same and to protect their self-image by devaluing the risks and overvaluing the benefits associated with those behaviors.

8.3 People Want to Feel that They Are Consistent and Correct

People have a basic need for cognitive consistency; they want to be able to consider themselves to be rational and sensible (Festinger 1957). Generally, people will be motivated to choose products whose perceived benefits far outweigh any potential risks (Vroom 1964). However, given conflicting evidence, humans generally prefer information that allows them to feel competent and consistent (Ryan and Deci 2000) and they are biased towards filtering information in ways that allow them to feel they are not making poor decisions (Asch 1951). Finally, when people are threatened with a high level of risk, they tend to retreat towards the safety of their cultural and social norms (Greenberg et al. 1997). Oftentimes the most salient risk or benefit is not so much inherent in the product itself but how that product relates to their important relationships and their social embeddedness. The perception of serious risk makes people even more motivated to conform to social norms, and less likely to engage in strictly rational evaluations.

   In the end, humans do have the capability of performing rational evaluations and carefully assessing the costs and benefits associated with products. Most day-to-day

decisions, however, are based upon less effortful mental shortcuts which allow them to maintain their self-image while efficiently navigating their physical and social worlds.

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