

Todd B. Kashdan and Paul J. Silvia

Abstract

An imbalance exists between the role of curiosity as a motivational force in nearly all human endeavors and the lack of scientific attention given to the topic. In recent years, however, there has been a proliferation of concepts that capture the essence of curiosity—recognizing, seeking out, and showing a preference for the new. In this chapter, we combine this work to address the nature of curiosity, where it fits in the larger scheme of positive emotions, the advantages of being curious in social relationships, links between curiosity and elements of well-being, and how it has been used in interventions to improve people's quality of life. Our emphasis is on methodologically sophisticated findings that show how curiosity operates in the laboratory and everyday life, and how, under certain conditions, curiosity can be a profound source of strength or a liability. People who are regularly curious and willing to embrace the novelty, uncertainty, and challenges that are inevitable as we navigate the shoals of everyday life are at an advantage in creating a fulfilling existence compared with their less curious peers. Our brief review is designed to bring further attention to this neglected, underappreciated, human universal.

Keywords: curiosity, interest, meaning, motivation, positive emotions, well-being

In the early days of motivation psychology, human activity was explained by relentless, hydraulic drives. The goal of action, theorists argued, was to reduce intense sensations and achieve a state of quiet, still inertia. Novelty, complexity, and challenge were sources of drive and thus stimuli to be avoided (Hull, 1952). It quickly became obvious, however, that people are never inert. There's more to motivation than reducing drives and filling deficits: People seek out complex and challenging activities, intriguing people, and novel ideas. Curiosity and interest—the core of intrinsically motivated action—are things that classic motivation theories never explained well. Seeking new experiences, preferring complexity over simplicity, and engaging in actions out of intrinsic interest are hallmarks of human action, and they lead psychology to the study of how and why people thrive on novelty and challenge.

This chapter examines what modern psychology knows and doesn't know about curiosity and

interest. Researchers from many areas of psychology have explored the nature, functions, and consequences of being curious. After reviewing this work, we will turn to the uncertain, complex problems that interest contemporary curiosity researchers. At the start, we should note that we'll use "curiosity" and "interest" as synonyms: both refer to a positive motivational-emotional state associated with exploration. In everyday speech, people tend to use "curious" for upcoming events and "interested" for current events, but this doesn't reflect a conceptual difference. Some researchers have proposed differences between curiosity and interest—such as curiosity is aversive but interest is pleasant (e.g., Hidi & Berndorff, 1998)—but so far no research has shown that they differ (Silvia, 2006, pp. 190–191).

What Is Curiosity?

Given over a century of psychological study of curiosity, it is no surprise to find diverse models of

what curiosity is (Kashdan, 2004; Silvia, 2006). The oldest tradition views curiosity as an appetitive, approach-oriented motivational state (Arnold, 1910; Dewey, 1913). Berlyne (1971), for example, proposed that new, complex, and surprising things activate a reward system that generates positive affect. This reward system motivates novelty seeking and rewards exploring novel things. Intense novelty and complexity activate a counterpoised aversion system, which motivates avoidance. The intrinsic motivation tradition—associated with social-personality psychology—traces interest to the operation of organismic needs, particularly needs related to autonomy, relatedness, and competence (Deci, 1992; Ryan & Deci, 2000). When interested, people pursue actions for their own sake instead of for rewards. A tradition rooted in emotion psychology views interest as an emotion (Izard, 1977; Silvia, 2006; Tomkins, 1962). Interest should thus entail facial and vocal expressions, subjective experience, motivational qualities, and adaptive functions across the life span (see chap. 1, Silvia, 2006).

Perhaps most important are the commonalities among these theoretical approaches. All theories of curiosity agree that curiosity is an approach-oriented motivational state associated with exploration. When curious, people ask questions (Peters, 1978), manipulate interesting objects (Reeve & Nix, 1997), read deeply (Schiefele, 1999), examine interesting images (Silvia, 2005), and persist on challenging tasks (Sansone & Smith, 2000). In short, all theories agree that curiosity's immediate function is to learn, explore, and immerse oneself in the interesting event. In the long term, curiosity serves a broader function of building knowledge and competence. Exploring new events fosters learning new things, meeting new people, and developing new skills.

Curiosity can be defined as the recognition, pursuit, and intense desire to explore novel, challenging, and uncertain events. When curious, we are fully aware and receptive to whatever exists and might happen in the present moment. Curiosity motivates people to act and think in new ways and investigate, be immersed, and learn about whatever is the immediate interesting target of their attention. This definition captures the exploratory striving component and the mindful immersion component. By focusing on the novelty and challenge each moment has to offer, there is an inevitable (however slight) stretching of information, knowledge, and skills. When we are curious, we are doing things for their own sake, and we are not being controlled

by internal or external pressures concerning what we should or should not do.

Interest and the Family of Positive Emotions

Although central to positive experience and development, curiosity is not merely another word for happiness, enjoyment, well-being, or positive affect. Curiosity and happiness are distinct positive experiences: they have different functions, causes, and consequences. Silvan Tomkins (1962), writing before the advent of research on positive emotions, proposed that interest and enjoyment play different roles in human development. Interest motivates people to try new things, explore complex ideas, meet intriguing people, and do novel actions. Enjoyment, in contrast, motivates people to form attachments to familiar things and to reinforce activities that were enjoyable before. Tomkins pointed out that these functions can conflict: Interest motivates people to spend their vacation traveling in a new place, whereas enjoyment motivates people to revisit the place they liked last year.

Consistent with Tomkins' view, experiments have found different sources of interest and enjoyment (see Silvia, 2006, pp. 25–29). The dimension of novelty versus familiarity strongly discriminates interest and happiness. In studies of pictures, music, stories, anagrams, and games, interesting things are rated as new, complex, dynamic, and challenging, but enjoyable things are rated as familiar, calming, stable, and resolved (Berlyne, 1971, pp. 213–220; Iran-Nejad, 1987; Russell, 1994). In a recent study of emotional responses to art, Turner and Silvia (2006) found that ratings of interest and enjoyment were unrelated. Disturbing and complex works of art were interesting, whereas calming and simple works of art were enjoyable.

Finally, interest and enjoyment have different consequences. Interest strongly predicts exploratory action, such as how long people visually explore images, how long they listen to music, and how much time they spend on games and tasks. Unlike interest, enjoyment modestly predicts exploratory action. In a study of music, Crozier (1974, experiment 4) found that interest explained 78% of the variance in how long people listened to music, whereas enjoyment explained merely 10%. In a study of visual art (Berlyne, 1974), interest explained 43% of the variance in viewing time, whereas enjoyment explained 14%.

Perhaps curiosity ought to be placed into a different category of emotion. Positive emotions, according to Lazarus (1991), come from appraising

an event as congruent with one's goals. To be interested in something, however, people need not appraise the event as goal-congruent: people are often interested in unpleasant, unfamiliar, and possibly unrewarding activities (Turner & Silvia, 2006). As an alternative, we could place curiosity and interest within the category of "knowledge emotions." Suggested by Keltner and Shiota (2003), this category contains emotions associated with learning and thinking, such as interest, surprise, confusion, and awe. This category highlights curiosity's functional role in building knowledge, skills, and relationships, and it emphasizes the subtle ways in which curiosity contributes to well-being (Kashdan & Steger, 2007).

Is Curiosity Aversive?

One tradition of curiosity research views curiosity as aversive, as a mental itch that must be scratched. Dating to drive reduction models of curiosity (see Fowler, 1965), this approach assumes that curiosity is an aversive experience that motivates its own reduction. Building on Loewenstein's (1994) model of aversive curiosity, Litman (2005) has proposed two facets to curiosity: curiosity as a feeling of interest, and curiosity as a feeling of deprivation. The difference is whether people seek information out of interest or out of frustration at not knowing. These two factors emerge as distinct (although highly related) latent factors in correlational research (Litman & Silvia, 2006). Litman's model raises some interesting questions about curiosity. If curiosity is defined as "wanting to know," then interest and deprivation represent two reasons for wanting to know. If curiosity is defined as a positive motivational-emotional state, then Litman's interest facet is what we mean by curiosity, and Litman's deprivation facet is a different, incurious reason for wanting to know. This is an intriguing program of research, but besides one quasi-experimental study (Litman, Hutchins, & Russon, 2005) it has yet to move beyond correlating global self-report measures with other global measures. Research should examine whether the deprivation facet of curiosity has incremental validity beyond processes such as rumination, neuroticism, and worry. Complex designs are needed to examine the degree to which aversion motivates variants of curiosity and how this process unfolds differently in people's lives.

Individual Differences in Curiosity

Research on state curiosity inspired a wave of research on individual differences related to curiosity. Psychologists have examined global,

higher-order traits associated with curiosity; openness to experience (McCrae, 1996) and sensation seeking (Zuckerman, 1994) are good examples. Other models of curiosity examine lower-order, specific traits. "Trait curiosity" models, which propose individual differences in levels of novelty seeking and exploration, have had a recent flurry of attention (Kashdan, Rose, & Fincham, 2004). According to these mid-range models, trait curiosity explains variance not accounted for by higher-order factors like openness and sensation seeking, so trait curiosity is an appropriate level for examining curiosity. And still other models examine facets of trait curiosity, such as perceptual curiosity (Collins, Litman, & Spielberger, 2004), epistemic curiosity (Litman & Spielberger, 2003), and sensory curiosity (Litman, Collins, & Spielberger, 2005). Trait curiosity models typically assume a spectrum of variation in stable tendencies to experience or express curiosity. A tacit assumption is that states and traits are psychologically equivalent (see Fleeson, 2001): Trait curiosity manifests in the frequency or intensity of state experience (Silvia, 2008).

Recent Discoveries and Unknown Territory Curiosity in the Social World

Although most research on curiosity has focused on responses to nonsocial stimuli (e.g., preferences for bizarre compared to common pictures, surprise endings to stories), it is reasonable to apply curiosity and exploration to other people and social situations. First, social situations are often ambiguous and challenging. These qualities are the reason that social situations offer great opportunities for self-expansion. Partners who offer greater self-expansion opportunities to us are more desirable. The desirable process of self-expansion often transfers over into the relationship itself, enhancing feelings of connectedness and behaviors that work toward the development of meaningful relationships. Second, when people feel that their primary relationship partner is secure and responsive, a typical response is the willingness to seek out possible growth opportunities by exploring, learning, and taking risks (even in the presence of uncomfortable feelings; Ainsworth, Blehar, Waters, & Wall, 1978; Bowlby, 1969). Third, feelings of curiosity may build social bonds by promoting behaviors such as engagement, responsiveness, and flexibility to others' varied perspectives. These curiosity-relevant behaviors are desirable in interpersonal transactions and the formative stages of relationship development (Kashdan & Fincham, 2004; McCrae, 1996). People who are more curious have been shown to experience more positive

social outcomes (Kashdan & Roberts, 2004; Peters, 1978). People with greater curiosity are more receptive to the ambiguity of social activity, and they enjoy growth opportunities as a function of sharing novel events with other people and discovering new information from them. When something interesting happens to us, sharing it with other people (who are good listeners) can transform memories of the event. Describing an interesting event to others serves to strengthen our own curiosity and make it more salient (Thoman, Sansone, & Pasupathi, 2007). The intrinsic value and motivation for a given activity can be increased through this socialization process. Future work may show that the regulatory benefits of other people extend more broadly to the development of long-term interests (chap. 5, Silvia, 2006).

Fourth, research in educational settings has shown that perceptions of threat and supportiveness affect whether people feel curious, explore, and derive the benefits of these behaviors. In general, students with greater curiosity have more academic success than less curious peers (Hidi & Berndorff, 1998; Schiefele, Krapp, & Winteler, 1992). Yet, there are crucial contextual factors that moderate whether curious students thrive academically. Even though students high in trait curiosity initiate 3 times as many classroom questions compared to their less curious peers, both groups become more inhibited when teachers are perceived as threatening (Peters, 1978). In a large study of students in Hong Kong, adolescents with greater trait curiosity who perceived their schools to be academically challenging had the greatest grades and performance on national achievement tests, whereas students with greater trait curiosity in less challenging schools had the worst academic outcomes (Kashdan & Yuen, 2007).

Overall, there is evidence that people differ in the recognition and sensitivity to nonsocial and social stimuli appraised as novel, complex, uncertain, or growth oriented, with particularly curious people deriving more immediate and lasting psychological and social benefits. But there are boundary conditions to these relations, including how people habitually relate to other people and characterize caregivers, romantic partners, friends, teachers, and the degree of fit with institutional settings. Social anxiety, perceiving people as threatening or nonresponsive, insecure relationships, and being situated in less enriching environments can disable curiosity and exploratory tendencies. Despite the appeal of simplistic models of the benefits of curiosity, there are important social and institutional moderating

variables that require careful theoretical and empirical consideration. There has been impressive evidence for examining “curiosity in context” to understand the conditions leading to favorable and unfavorable consequences.

Curiosity and Well-Being

The question of how to develop sustainable increases in well-being is important to humans living amid everyday challenges and suffering and to health professionals interested in intervention. There are several processes that hinder the ability to maintain anything more than short-term changes in well-being, including substantial genetic contributions (Lykken & Tellegen, 1996) and people’s profound ability to adapt to changes in life circumstances (and return to relatively stable baseline levels; Brickman, Coates, & Janoff-Bulman, 1978). As a result, nearly all gains in well-being are temporary because the benefits of positive life circumstances tend to be short-lived.

The functions of curiosity make it an ideal candidate to signaling and producing well-being. Curiosity has been defined as one of the fundamental mechanisms of the biologically based reward sensitivity system (Depue, 1996) and intrinsic motivation (Ryan & Deci, 2000), which have profound influences on well-being. Upon seeking and investing effort in novel and challenging activities, people with greater curiosity expand their knowledge, skills, goal-directed efforts, and sense of self (e.g., Ainley, Hidi, & Berndorff, 2002). Feeling curious also appears to increase tolerance for distressing states of self-awareness that result from trying new things and behaving in ways outside of one’s comfort zone (Kashdan, 2007; Spielberger & Starr, 1994).

Curiosity motivates people to explore the world and challenge themselves, and it is relevant to obtaining life fulfillments. Using cross-sectional and laboratory research designs, people scoring higher on trait curiosity consistently report greater psychological well-being (Naylor, 1981; Park, Peterson, & Seligman, 2004; Vittersø, 2003). In terms of physical well-being, 3-year-old children with greater curiosity and exploratory tendencies demonstrate greater intelligence at age 11 (Raine, Reynolds, Venables, & Mednick, 2002), and older adults in their early seventies with greater curiosity live longer over a 5-year span than their less curious peers (Swan & Carmelli, 1996).

One theoretical model suggests that people with greater curiosity are more selective of and responsive

to activities that are personally and socially enriching, leading to the building of durable psychological resources (for review see Silvia, 2006). Recent work suggests that people with greater curiosity are more reactive to events that offer opportunities for growth, competence, and high levels of stimulation. Over the course of 21 days, people with greater trait curiosity reported more frequent growth-oriented events (such as persisting at goals in the face of obstacles and expressing gratitude to benefactors), greater daily curiosity, and greater sensitivity to these daily events and states (Kashdan & Steger, 2007). In addition, for people with greater trait curiosity, greater daily curiosity was more likely to persist into the next day and in turn, greater daily curiosity led to persistent elevations in perceived meaning and purpose in life. People with less trait curiosity reported greater sensitivity to hedonistic events and states (such as having sex purely for pleasure and binge drinking), but the benefits were short-lived. The effects of curiosity were not attributable to daily negative affect, trait positive affect, or Big Five personality traits. These results suggest that the neglected interplay of trait and state curiosity may be important in the development and sustainability of particular types of well-being (eudaemonia, meaning in life). Also, these data suggest that feelings of curiosity are particularly reactive to novelty and growth potential as opposed to indiscriminate, positively valenced stimuli.

Although the results in this area of study are appealing, incremental validity and the mechanisms that link curiosity to well-being require further study. After all, the list of constructs associated with well-being is enormous, and it will be important to evaluate whether theoretical models of curiosity provide insight into why curiosity is particularly beneficial. Moreover, there are a number of discrepancies that need to be resolved. For example, some research suggests that the pleasures of curiosity are derived from resolving ambiguity and uncertainty (Beswick, 1971; Loewenstein, 1994), whereas other work finds that the process of discovery and meaning making is intrinsically enjoyable (Feist, 1994) and that positive emotions can be sustained by intentionally attending to the lingering uncertainty in a given situation (Wilson, Centerbar, Kermer, & Gilbert, 2005). The resolution may arise from the inclusion of other variables such as feelings of perceived competence during a given task, whether important environmental contingencies depend on the outcome (e.g., betting a paycheck on a single football game, having a deadline to

review a mystery novel), and individual differences in trait curiosity and tolerance for ambiguity.

Clinical Uses of Curiosity

Despite factors that work against the development of increased well-being (e.g., genetic factors, hedonic adaptation), making efforts toward intrinsically valued goals and pursuits may disrupt these stabilizing processes (Hayes, Strosahl, & Wilson, 1999). Arguably, the disposition and state most aligned with these activities is curiosity, which involves active tendencies to seek out, savor, and probe novel distinctions in each moment with an eye toward change and complexity as opposed to stability and familiarity. By focusing on novelty and challenge, people who feel curious challenge their views of self, others, and the world with an inevitable stretching of information, knowledge, and skills. This movement toward intrinsically valued directions appears to be a pathway to the building of meaning in life, with the simultaneous presence of a positive present (mindful engagement, sense of meaningfulness) and future time orientation (search for meaning, planning long-term goals with minimal worry about obstacles). Intuitively, it seems useful to examine changes in trait curiosity and curiosity experiences as an index of engagement, progress, and desired outcomes during the course of intervention efforts.

Although clinical efforts recently have incorporated positive psychological constructs such as positive affect, pleasant events, and optimism, there is insufficient theoretical and empirical attention to curiosity. For people suffering from psychological disorders, intrusive thoughts and anhedonic processes can blunt the experience and expression of appetitive activity. Of particular interest is whether facilitating curiosity can build the self-regulatory resources to withstand the avoidance and disengagement that tends to occur following episodes of extreme anxiety and depression, and whether it can be a backdoor route to approaching, processing, and making meaning of difficult emotional material. In addition, humans are constantly confronted with approach-avoidance conflicts between desired outcomes and contact with unwanted negative feelings, thoughts, and bodily sensations. Using more sophisticated modeling of complex emotional reactions and decisions, scientists can begin to examine whether facilitating curiosity can increase how often people select approach behavior in response to these internal conflicts. Related to this perspective, many clients are ambivalent about whether to

make changes in their behavior (e.g., eating junk food) despite unhealthy consequences (e.g., obesity) and many beneficial reasons for change (e.g., mortality, physical stamina). It is useful to elicit nonjudgmental information on the reasons for and against changing versus staying the same, ask whether and how behavior conflicts with values, and highlight and elicit curiosity in any inconsistencies (see work on motivational interviewing; Miller & Rollnick, 2002). As an intervention, it may be useful to help people elaborate their core values and provide feedback from assessments of everyday experiences and event reactivity. In the pursuit of sustainable sources of pleasure and meaning, these exercises may increase the degree to which behavioral patterns and goal pursuits are congruent with intrinsic values and dominant behavioral tendencies (Sheldon & Elliot, 1999). These techniques and the supportive literature have yet to be considered and adopted by the majority of clinical researchers and practitioners. This is unfortunate because the recovery rates for empirically supported treatments for emotion disturbances tend to be no higher than 40–50% (Westen & Bradley, 2005), suggesting the need for refinements and novel directions, such as targeting intrapersonal curiosity and exploratory tendencies.

A Brief Agenda for the Future Study of Curiosity

Despite over a century of scientific theory and research, there is much that remains to be examined about curiosity. Let us boldly emphasize a few challenges potentially worthy of funding and endless hours of contemplation and execution. First, without question, there is a need for more innovative assessment strategies. We suggest a triangulation approach among self-report technologies, unobtrusive measures, and slices of ecological behavior. Rather than simply asking people face-valid questions, scientists also can examine differential activation of biological processes linked to reward sensitivity and exploratory behavior (e.g., dopaminergic agents, left prefrontal cortex asymmetry) in response to stimuli characterized by novelty, complexity, and uncertainty. In addition, experience-sampling approaches provide repeated measurements of what people do from moment-to-moment in the contexts in which they find themselves. This approach can be a useful means of discovering what curious people do and how people become curious during everyday life. People with greater trait curiosity should seek out more frequent novel and challenging events and react to these events with an orientation characterized by openness and exploration, which in turn promotes the growth of knowledge,

competence, and well-being. These different assessment strategies can be merged to differentiate people who differ in dispositional or hardwired curiosity. Additionally, this approach can shed light on the construct specificity of curiosity from other discrete positive affects and dimensions of temperament and character, and the antecedents and consequences of feeling curious at a particular moment in time.

Second, the mechanisms linking curiosity to hardened outcomes such as mortality, academic and work productivity, creativity, and physical health and illness have yet to be clearly delineated. For example, why should highly curious people live longer than their less curious peers (Swan & Carmelli, 1996)? Several hypotheses can be generated, such as the process of neurogenesis stemming from continued novel and intellectual pursuits, a nondefensive willingness to try less traditional treatments and health strategies, or the psychological benefits of evaluating stressors as challenges and being guided by exploration as opposed to avoidance (e.g., less overactive hypothalamic-pituitary-adrenal axis). An examination of cognitive, behavioral, social, and biological levels of analysis will lead to promising avenues of when and how curiosity leads to desirable outcomes. To better understand the process of how curiosity leads to an expansion of resources or growth, each of these levels of analysis will require an examination of how these mechanisms unfold over time.

Third, the refinements in assessment and basic research should be in the service of working toward the discovery of how to cultivate curiosity in meaningful life domains. Of particular importance is finding alternative ways to aid people suffering from fear, apathy, intolerance of uncertainty, and lives controlled by avoidance and other forms of overregulation. We argue that the facilitation of curiosity may be a useful supplement to treatments designed to increase self-awareness and introspection, cope with and derive meaning from difficult emotional material, and increase recognition, receptiveness, and reactivity to the reward cues that are often ignored or avoided in everyday life. In the ideal, research on curiosity will no longer be the province of social, personality, and developmental psychologists, but will include allied health professionals invested in applying knowledge to prevention and treatment.

Conclusions

There is mounting evidence that curiosity is important to understanding lives that are well

lived. The best way to understand this is to imagine what life would be like without the experience of curiosity. There would be no exploration of the self and world, introspection, search for meaning in life, aesthetic appreciation, scientific pursuits, innovation, and, to some degree, personal growth. When confronted with novelty and challenge, the dominant response tendencies are related to curiosity and anxiety. The literature on anxiety is enormous, but the recognition and study of curiosity has been relatively neglected. We sought to describe some of the basic qualities of curiosity, show how it is unique from other positive emotions, traits, and processes, provide support for how curiosity relates to flourishing in fundamental life domains, suggest some of the social-cognitive and environmental factors that affect curiosity and its benefits, and reveal how much remains to be discovered. To understand how people thrive in general and in particular situations, the multitude of strengths and resources described in this handbook are going to have to be studied in tandem and not in isolation. In this science of human flourishing, curiosity can no longer be ignored.

Three Questions for the Future

1. Why are some people more curious than other people?
2. How can clinicians, counselors, and coaches use curiosity and novelty to enhance everyday life and prevent degenerative conditions such as Alzheimer's disease?
3. How does curiosity influence other constructs in positive psychology, such as meaning in life, maturity, wisdom, spirituality, creativity, and healthy relationships?

References

- Ainley, M., Hidi, S., & Berndorff, D. (2002). Interest, learning and the psychological processes that mediate their relationship. *Journal of Educational Psychology, 94*, 545–561.
- Ainsworth, M. D. S., Blehar, M. C., Waters, E., & Wall, S. (1978). *Patterns of attachment: A psychological study of the strange situation*. Hillsdale, NJ: Erlbaum.
- Arnold, F. (1910). *Attention and interest: A study in psychology and education*. New York: Macmillan.
- Berlyne, D. E. (1971). *Aesthetics and psychobiology*. New York: Appleton-Century-Crofts.
- Berlyne, D. E. (1974). Verbal and exploratory responses to visual patterns varying in uncertainty and in redundancy. In D. E. Berlyne (Ed.), *Studies in the new experimental aesthetics* (pp. 121–158). Washington, DC: Hemisphere.
- Beswick, D. G. (1971). Cognitive process theory of individual differences in curiosity. In H. I. Day, D. E. Berlyne, & D. E. Hunt (Eds.), *Intrinsic motivation: A new direction in education* (pp. 156–170). New York: Holt, Rinehart, & Winston.
- Bowlby, J. (1969). *Attachment and loss: Attachment*. New York: Basic Books.
- Brickman, P., Coates, D., & Janoff-Bulman, R. (1978). Lottery winners and accident victims: Is happiness relative? *Journal of Personality and Social Psychology, 8*, 917–927.
- Collins, R. P., Litman, J. A., & Spielberger, C. D. (2004). The measurement of perceptual curiosity. *Personality and Individual Differences, 36*, 1127–1141.
- Crozier, J. B. (1974). Verbal and exploratory responses to sound sequences varying in uncertainty level. In D. E. Berlyne (Ed.), *Studies in the new experimental aesthetics* (pp. 27–90). Washington, DC: Hemisphere.
- Deci, E. L. (1992). The relation of interest to the motivation of behavior: A self-determination theory perspective. In K. A. Renninger, S. Hidi, & A. Krapp (Eds.), *The role of interest in learning and development* (pp. 43–70). Hillsdale, NJ: Lawrence Erlbaum.
- Depue, R. A. (1996). A neurobiological framework for the structure of personality and emotion: Implications for personality disorders. In J. F. Clarkin & M. F. Lenzenweger (Eds.), *Major theories of personality disorder* (pp. 347–391). New York: Guilford.
- Dewey, J. (1913). *Interest and effort in education*. Boston: Riverside.
- Feist, G. J. (1994). Affective consequences of insight in art and science students. *Cognition and Emotion, 8*, 489–502.
- Fleeson, W. (2001). Toward a structure- and process-integrated view of personality: Traits as density distributions of states. *Journal of Personality and Social Psychology, 80*, 1011–1027.
- Fowler, H. (1965). *Curiosity and exploratory behavior*. New York: Macmillan.
- Hayes, S. C., Strosahl, K., & Wilson, K. G. (1999). *Acceptance and commitment therapy: An experimental approach to behavior change*. New York: Guilford.
- Hidi, S., & Berndorff, D. (1998). Situational interest and learning. In L. Hoffman, A. Krapp, K. A. Renninger, & J. Baumert (Eds.), *Interest and learning* (pp. 74–90). Kiel, Germany: IPN.
- Hull, C. L. (1952). *A behavior system*. New Haven, CT: Yale University Press.
- Iran-Nejad, A. (1987). Cognitive and affective causes of interest and liking. *Journal of Educational Psychology, 79*, 120–130.
- Izard, C. E. (1977). *Human emotions*. New York: Plenum.
- Kashdan, T. B. (2004). Curiosity. In C. Peterson & M. E. P. Seligman (Eds.), *Character strengths and virtues: A handbook and classification* (pp. 125–141). New York: Oxford University Press.
- Kashdan, T. B. (2007). Social anxiety spectrum and diminished positive experiences: Theoretical synthesis and meta-analysis. *Clinical Psychology Review, 27*, 348–365.
- Kashdan, T. B., & Fincham, F. D. (2004). Facilitating curiosity: A social and self-regulatory perspective for scientifically based interventions. In P. A. Linley & S. Joseph (Eds.), *Positive psychology in practice* (pp. 482–503). NJ: Wiley.
- Kashdan, T. B., & Roberts, J. E. (2004). Trait and state curiosity in the genesis of intimacy: Differentiation from related constructs. *Journal of Social and Clinical Psychology, 23*, 792–816.
- Kashdan, T. B., Rose, P., & Fincham, F. D. (2004). Curiosity and exploration: Facilitating positive subjective experiences and personal growth opportunities. *Journal of Personality Assessment, 82*, 291–305.
- Kashdan, T. B., & Steger, M. F. (2007). Curiosity and pathways to well-being and meaning in life: Traits, states, and everyday behaviors. *Motivation and Emotion, 31*, 159–173.

AQ1

- Kashdan, T.B., & Yuen, M. (2007). Whether highly curious students thrive academically depends on the learning environment of their school: A study of Hong Kong adolescents. *Motivation and Emotion, 31*, 260–270.
- Keltner, D., & Shiota, M. N. (2003). New displays and new emotions: A commentary on Rozin and Cohen (2003). *Emotion, 3*, 86–91.
- Lazarus, R. S. (1991). *Emotion and adaptation*. New York: Oxford University Press.
- Litman, J. A. (2005). Curiosity and the pleasures of learning: Wanting and liking new information. *Cognition and Emotion, 19*, 793–814.
- Litman, J. A., Collins, R. P., & Spielberger, C. D. (2005). The measurement of sensory curiosity. *Personality and Individual Differences, 39*, 1123–1133.
- Litman, J. A., Hutchins, T. L., & Russon, R. K. (2005). Epistemic curiosity, feeling-of-knowing, and exploratory behavior. *Cognition and Emotion, 19*, 559–582.
- Litman, J. A., & Silvia, P. J. (2006). The latent structure of trait curiosity: Evidence for interest and deprivation curiosity dimensions. *Journal of Personality Assessment, 86*, 318–328.
- Litman, J. A., & Spielberger, C. D. (2003). Measuring epistemic curiosity and its diverse and specific components. *Journal of Personality Assessment, 80*, 75–86.
- Loewenstein, G. (1994). The psychology of curiosity: A review and reinterpretation. *Psychological Bulletin, 116*, 75–98.
- Lykken, D., & Tellegen, A. (1996). Happiness is a stochastic phenomenon. *Psychological Science, 7*, 186–189.
- McCrae, R. R. (1996). Social consequences of experiential openness. *Psychological Bulletin, 120*, 323–337.
- Miller, W., & Rollnick, S. (2002). *Motivational interviewing: Preparing people for change*. New York: Guilford.
- Naylor, F. D. (1981). A state-trait curiosity inventory. *Australian Psychologist, 16*, 172–183.
- Park, N., Peterson, C., & Seligman, M. E. P. (2004). Strengths of character and well-being. *Journal of Social and Clinical Psychology, 23*, 603–619.
- Peters, R. A. (1978). Effects of anxiety, curiosity, and perceived instructor threat on student verbal behavior in the college classroom. *Journal of Educational Psychology, 70*, 388–395.
- Raine, A., Reynolds, C., Venables, P. H., & Mednick, S. A. (2002). Stimulation-seeking and intelligence: A prospective longitudinal study. *Journal of Personality and Social Psychology, 82*, 663–674.
- Reeve, J., & Nix, G. (1997). Expressing intrinsic motivation through acts of exploration and facial displays of interest. *Motivation and Emotion, 21*, 237–250.
- Russell, P. A. (1994). Preferability, pleasingness, and interestingness: Relationships between evaluative judgments in empirical aesthetics. *Empirical Studies of the Arts, 12*, 141–157.
- Ryan, R. M., & Deci, E. L. (2000). Self-determination theory and the facilitation of intrinsic motivation, social development, and well-being. *American Psychologist, 55*, 68–78.
- Sansone, C., & Smith, J. L. (2000). Interest and self-regulation: The relation between having to and wanting to. In C. Sansone & J. M. Harackiewicz (Eds.), *Intrinsic and extrinsic motivation* (pp. 341–372). San Diego, CA: Academic Press.
- Schiefele, U. (1999). Interest and learning from text. *Scientific Studies of Reading, 3*, 257–279.
- Schiefele, U., Krapp, A., & Winteler, A. (1992). Interest as a predictor of academic achievement: A meta-analysis of research. In K. A. Renninger, S. Hidi, & A. Krapp (Eds.), *The role of interest in learning and development* (pp. 183–212). Hillsdale, NJ: Erlbaum.
- Sheldon, K. M., & Elliot, A. J. (1999). Goal striving, need-satisfaction, and longitudinal well-being: The self-concordance model. *Journal of Personality and Social Psychology, 76*, 482–497.
- Silvia, P. J. (2005). What is interesting? Exploring the appraisal structure of interest. *Emotion, 5*, 89–102.
- Silvia, P. J. (2006). *Exploring the psychology of interest*. New York: Oxford University Press.
- Silvia, P. J. (2008). Appraisal components and emotion traits: Examining the appraisal basis of trait curiosity. *Cognition and Emotion, 22*, 94–113.
- Spielberger, C. D., & Starr, L.M. (1994). Curiosity and exploratory behavior. In H. F. O'Neil, Jr., & M. Drillings (Eds.), *Motivation: Theory and research* (pp. 221–243). Hillsdale, NJ: Erlbaum.
- Swan, G. E., & Carmelli, D. (1996). Curiosity and mortality in aging adults: A 5-year follow-up of the Western Collaborative Group Study. *Psychology and Aging, 11*, 449–453.
- Thoman, D. B., Sansone, C., & Pasupathi, M. (2007). Talking about interest: Exploring the role of social interaction for regulating motivation and the interest experience. *Journal of Happiness Studies, 8*, 335–370.
- Tomkins, S. S. (1962). *Affect, imagery, consciousness: Vol. 1. The positive affects*. New York: Springer.
- Turner, S. A., Jr., & Silvia, P. J. (2006). Must interesting things be pleasant? A test of competing appraisal structures. *Emotion, 6*, 670–674.
- Vittersø, J. (2003). Flow versus life satisfaction: A projective use of cartoons to illustrate the difference between the evaluation approach and the intrinsic motivation approach to subjective quality of life. *Journal of Happiness Studies, 4*, 141–167.
- Westen, D., & Bradley, R. (2005). Empirically supported complexity. *Current Directions in Psychological Science, 14*, 266–271.
- Wilson, T. D., Centerbar, D. B., Kermer, D. A., & Gilbert, D. T. (2005). The pleasures of uncertainty: Prolonging positive moods in ways people do not anticipate. *Journal of Personality and Social Psychology, 88*, 5–21.
- Zuckerman, M. (1994). *Behavioral expressions and biosocial bases of sensation seeking*. New York: Cambridge University Press.

QUERIES TO BE ANSWERED BY AUTHOR (SEE MANUAL MARKS)

IMPORTANT NOTE: Please mark your corrections and answers to these queries directly onto the proof at the relevant place. Do NOT mark your corrections on this query sheet.

Chapter 34

Q. No.	Pg No.	Query
AQ1	373	Please provide place of publication for Kashdan & Fincham (2004).

OUP PRODUCT NOT FOR SALE