

Intrapersonal curiosity: Inquisitiveness about the inner self

Jordan A. Litman^{a§}, Oliver C. Robinson^b and James D. Demetre^b

^aInstitute for Human & Machine Cognition, Ocala, FL, USA; ^bDepartment of Psychology, Social Work & Counseling, University of Greenwich, London, UK

ABSTRACT

Intrapersonal Curiosity (InC) involves inquisitively introspecting to better understand one's inner self. A pool of 39 face-valid InC items was administered to 1005 participants, along with other curiosity, personality, self-awareness, self-regulation, and psychological well-being scales. Three InC factors with good model fit were identified, from which four-item ($\alpha \geq .89$) subscales were developed: "Understanding one's Emotions and Motives," "Reflecting On one's Past," and "Exploring one's Identity and Purpose." InC correlated positively with other measures of curiosity, evidencing convergence; weak correlations to conceptually unrelated constructs demonstrated divergence. Higher InC scores corresponded to perceptions of having less available self-knowledge, heightened sensitivity to others' expressions, a greater tendency to privately introspect, increased distress, and more concern about how to best cope with worry over self-relevant threats.

ARTICLE HISTORY

Received 17 February 2016
Accepted 25 October 2016
Published online
21 November 2016

KEYWORDS

Curiosity; Intrapersonal knowledge; introspection; self-concept; self-knowledge

Introduction

Curiosity is the desire for new information expected to stimulate positive feelings of "interest" (I) or eliminate unknowns in order to improve comprehension when feeling "deprived" (D) of knowledge (Litman, 2005, 2008, 2010; Litman, Crowson, & Kolinski, 2010). Consistent with the state-trait theory of motivation and personality (e.g., Spielberger, 2006), individual differences in dispositional tendencies to experience I- and D-type curiosity are associated with the degree to which corresponding curiosity-states are expressed (Litman, Hutchins, & Russon, 2005; Spielberger & Starr, 1994). Although dispositional tendencies to experience and express I- and D-type curiosity overlap given their shared association with desiring new knowledge (e.g., Litman & Silvia, 2006), they differ considerably in how they orient individuals toward self-directed learning. I-type curiosity corresponds to a modest appetite for knowledge, which is activated by opportunities for new discoveries that will be satiated if such discoveries generate situational interest and positive mood (Litman, 2005; Renninger & Hidi, 2011; Silvia, 2008). I-type curiosity is empirically associated with positive affect, enjoyment of novelty-seeking, and delight in finding out new discoveries (Lauriola et al., 2015). D-type curiosity is a more intense "need to know" that involves a bothersome experience of puzzlement, which is activated by finding information gaps in an associative network of knowledge;

CONTACT Jordan A. Litman  jlitman@ihmc.us

[§]Institute for Human & Machine Cognition, Ocala, FL, USA

successfully filling these gaps to sate D-type curiosity is highly rewarding (Gruber, Gelman, & Ranganath, 2014; Kang et al., 2009; Litman et al., 2005; Loewenstein, 1994). D-type curiosity is positively correlated with negative affect, and concern about the accuracy of newly attained knowledge. D-type curiosity is hallmarked by persistence in “connecting the dots” in order to resolve conundrums (Koo & Choi, 2010; Lauriola et al., 2015; Litman et al., 2005; Litman, 2010; Litman & Mussel, 2013; Richards, Litman, & Roberts, 2013).

In previous research, individual differences in dispositional tendencies to experience and express I- and D-type curiosity have been investigated in regard to seeking out different kinds of new information, including intellectually stimulating ideas or facts (Litman, 2008), sensory-perceptual stimulation (Collins, Litman, & Spielberger, 2004), and interpersonal knowledge about other people’s experiences and feelings (Litman & Pezzo, 2007). While I-type curiosity plays at least *some* role in virtually all forms of information-seeking (Collins et al., 2004), prior research suggests that D-type curiosity plays a particularly important role in both Epistemic Curiosity (EC) (i.e., intellectual inquisitiveness) (Gruber et al., 2014; Powell, Nettelbeck, & Burns, 2016) and Interpersonal Curiosity (IPC; Litman & Pezzo, 2007). Additionally, research on IPC suggests there is considerable overlap between being curious about others and of the self, and that curiosity for both sources of “people information” share neurological markers indicative of D-type curiosity, suggesting there may be common ground in the experience and expression of D-type EC, IPC, and inquisitiveness about the self (Han et al., 2013). However, inquisitiveness about one’s inner self – i.e., being curious about *intrapersonal knowledge* – has received surprisingly little attention.

Historically, research that has emphasized intrapersonal knowledge has focused on the degree to which individuals are aware of their self-concept or the situation-specific schemata that comprise it (Markus, 1977; Scheier & Carver, 1985). Related lines of research have explored the availability of intrapersonal knowledge in regard to self-regulation (Brackett & Mayer, 2003), impression management (Alicke & Sedikides, 2009), or in self-evaluating one’s potential to overcome challenges (Bandura, 1993). Other related studies have investigated intrapersonal knowledge as it pertains to motives for maintaining consistency in self-perceptions (Fazio, Effrein, & Falender, 1981), including the degree to which people have confidence in the overall stability of their self-concept (Campbell et al., 1996).

Access to intrapersonal knowledge has also been studied in relation to social comparison (Corcoran, Crusius, & Mussweiler, 2011), markers of psychological well-being such as self-esteem (Suls, Lemos, & Stewart, 2002), or individuals’ knowledge of their emotional states (e.g., Campbell et al., 1996; Mayer, Salovey, & Caruso, 2004). In sum, the bulk of prior research on intrapersonal knowledge has primarily focused on self-exploration in terms of the *facility* with which individuals can access and utilize available self-knowledge in the service of achieving specific, utilitarian social goals. However, not much consideration has been given to curiosity – the desire for new knowledge for its own sake – as a distinct reason for introspective self-exploration.

One exception is theory and research on *mindfulness* (e.g., Carlson, 2013; Davis, Lau, & Cairns, 2009), which is primarily concerned with the use of specific strategies to achieve a heightened awareness of intrapersonal knowledge. However, as with other popular areas of research on intrapersonal knowledge, mindfulness research has also focused mainly on the utilitarian value of intrapersonal knowledge, with only limited consideration of the role of curiosity; within the context of mindfulness, curiosity has been addressed primarily as an approach to analyzing one’s reactions to social events in real time (Lau et al., 2006), rather

than as a motive to inquisitively explore the vast pool of intrapersonal knowledge that comprises the inner self, which is more in keeping with the construct of curiosity. Thus, our review of the research literature on intrapersonal knowledge has led us to conclude there has been far greater emphasis on the utility or degree of awareness of one's intrapersonal knowledge, rather than on the motive to initiate and persist in seeking it *as a self-directed goal unto itself*, similar to other dimensions of curiosity that motivate learning more about other areas of knowledge (e.g., scientific or historical facts).

Research on state and trait curiosity has found strong evidence that self-directed learning – whether to stimulate one's interest or reduce feelings of knowledge-deprivation from information gaps – may be construed as a unique goal unto itself, in which learning new knowledge is not derivative of other motives or goals, but rather is in and of itself rewarding (Montgomery & Monkman, 1955). Keeping these ideas in mind, we posit that a dimension of curiosity oriented toward gaining new intrapersonal knowledge for its own sake, may have been largely overlooked in psychological research on the self. We refer to this newly proposed dimension of curiosity as *Intrapersonal Curiosity (InC)*, which, consistent with the extant literature on other forms of curiosity, is theorized to involve self-directed exploration of the inner self *for the primary goal of better knowing and understanding the inner self*.

As previously noted, D-type curiosity, a motive theorized to underlie efforts to better understand a given subject by identifying and filling in relevant knowledge gaps, has been found especially important for understanding experiences of inquisitiveness for intellectual facts as well as information about others and the self (e.g., Han et al., 2013). Thus, we conceptualized individual differences in InC as reflecting dispositional tendencies to introspectively explore the nature of one's inner self, by first identifying, and then subsequently striving to fill information gaps in one's available self-knowledge for the primary purpose of achieving a better, more complete understanding of the inner self. Building on this working definition of InC, we reasoned that InC might underlie inquisitiveness about one's true nature and identity (“Who am I?”), wrestling with making sense of the meaningfulness or wisdom of one's past experiences (“How did I get here, and what if I'd made different decisions?”), analyzing or questioning the nature and reasons for one's emotional states (“How and why am I feeling this way?”), or contemplating tough questions about the inner self, such as “What is my purpose in life?” In short, InC may be conceptualized as the desire to introspectively investigate one's innermost self for the purpose of solving the enigma of “what is my true self,” as a goal unto itself, without the necessity of having other ulterior purposes.

Of course, intrapersonal knowledge undeniably has many utilitarian social applications (e.g., self-regulation, impression management). However, simply wanting to better know the self for no other reason than achieving a more accurate and meaningful understanding of the inner self is precisely what makes InC a potentially important but understudied construct. Investigation of the extent to which introspective self-exploration is guided by a fundamental desire to accurately know the self has enormous implications for how (or whether) one utilizes that knowledge. Although introspective inquisitiveness is theorized to play an important role in the process of maintaining day-to-day psychological well-being (Kashdan & Fincham, 2004) and in facilitating personal growth over the entire lifespan (Erikson & Erikson, 1997; Maslow, 1968), the pursuit of intrapersonal knowledge has been primarily examined in regard to its value in socially constrained, rather than more personal and self-directed, contexts.

As a distinct psychological construct, we view the study of individual differences in the experience and expression of InC as potentially critical to understanding the most rudimentary questions about engaging in self-directed, introspective examination of the inner self. Building on this proposition, we regard InC to be uniquely concerned with the degree to which individuals ask themselves “how accurately do I really want to know myself, even if having this knowledge is distressing, and whether or not I use or share that knowledge?” Accordingly, consideration of InC as a distinct psychological construct may help clarify who is more or less likely to introspectively inquire about self-relevant threats such as genetic risk for disease, or the willingness to critically consider and evaluate aspects of one’s identity in regard to intimate relationships, personal values, or relevant cultural norms, beyond merely responding to specific external factors that “force” such questions (e.g., as in impression management). InC may also be important in whether or not individuals choose to reflect honestly on the extent to which their luck or skill has mattered over the course of their life, which may have broader implications for the formation or change in one’s efficacy expectations (e.g., Bandura, 1993).

Given the dearth of research on tendencies to experience and express curiosity for intrapersonal knowledge, the major goal of the present study was to develop and validate an internally consistent psychometric instrument for assessing individual differences in InC as a dispositional trait. We also examined the dimensionality of InC as a psychological construct, and hypothesized that emergent factors would correspond to inquisitiveness about different domains of intrapersonal knowledge (e.g., nature of one’s identity vs. meaningfulness of experiences in one’s life), from which valid and reliable subscales might be constructed. Based on evidence that D-type experiences are found to be particularly relevant to the phenomenology of desiring knowledge about both self and others (Han et al., 2013), we theorized that individual differences in InC would be expressed in dispositional tendencies to be more cognizant of information gaps in one’s self-knowledge, such gaps being detected through private introspection. Accordingly, we hypothesized that measures of individual differences in InC would demonstrate convergent validity by correlating positively with other measures of curiosity, especially IPC and D-type curiosity, based on relevant findings in previous research. Additionally, we further hypothesized that if introspective inquisitiveness about the inner self facilitates the recognition of knowledge gaps (i.e., like D-type curiosity), we also hypothesized that InC would be more associated with experiences of negative affect over positive, given that detecting such gaps has been previously found to involve some degree of negative affectivity (c.f., Litman, 2010). We also hypothesized that InC would demonstrate divergence from measures of constructs that are conceptually unrelated to IPC or curiosity (particularly D-type), as evidenced by relatively weak relationships to the Big Five, with the possible exception of Neuroticism, given our view that InC, like D-type curiosity, involves some negative affectivity.

Given our theoretical view that tendencies to experience and express InC would be associated with tendencies to find gaps in one’s intrapersonal knowledge, we hypothesized that higher levels of InC would correspond to perceptions of having *lower* levels of available self-knowledge. Thus, we explored relationships between InC and constructs highly relevant to having/utilizing self-knowledge, including knowledge of one’s “authentic” self and emotional self. However, as InC is also conceptualized as involving a tendency toward considerable introspection, we also hypothesized it would correlate positively with self-consciousness – especially *private* (over public) self-consciousness. As such, even though

both level of self-knowledge and the act of introspection correspond to different expressions of overall self-awareness, we anticipated divergence between individuals' perceptions of their intrapersonal knowledge being available and their tendencies to desire it. Indeed, our theoretical orientation implies that higher levels of dispositional InC should correspond to an overall greater tendency to perceive oneself as *chronically lacking* sufficient intrapersonal knowledge. Consequently, we also hypothesized that skills partially dependent on the availability and utilization of self-knowledge, such as interpersonal self-regulation, would be weakly related to InC at best.

Additionally, we examined relationships between InC and psychological well-being, and hypothesized that if InC involved tendencies to detect gaps in one's self-knowledge, it may also be associated with higher levels of social anxiety and depression, but lower levels of self-esteem – all of which are undesirable conditions that might be associated with tendencies to feel one has insufficient intrapersonal knowledge. Finally, in keeping with our view that InC, like other D-type aspects of curiosity, reflects a disposition to seek missing knowledge expected to fill relevant information gaps, we also hypothesized that motives to introspectively seek more self-knowledge would correlate positively with individual differences in tendencies to want knowledge that might be useful in coping with worry over self-relevant threats.

Method

Participants

The participants were 1005 volunteers (411 women) throughout the UK, including South East and London (36%), South West (9%), Midlands (17%), North East (8%), North West (12%), Scotland (9%), Wales (6%), and Ireland (3%). Participants' ages ranged from 15 to 90 ($M = 30.8$, $SD = 17.1$). Given the large pool of respondents from a very heterogeneous, representative sample of individuals from across the UK, we split the group into two subsamples via random selection. The major criteria in generating our subsample groups was that each subsample had to be composed of approximately the same demographic make-up in terms of the ratio of women to men, region of origin in the UK, and mean age. Subsample 1 consisted of 507 respondents, (Women $N = 259$) and Subsample 2 was made up of 498 respondents (Women $N = 252$).

Instruments and measures

InC item pool: We constructed 39 face-valid items that expressed introspective inquisitiveness about the inner self, including one's identity, the meaningfulness of past experiences, one's purpose in life, and one's feelings. To ensure sufficient breadth, we also included items that described introspecting on self-regulatory processes ("I try to analyze and interpret the reasons for what I do or say") and contemplating future selves ("I think about my future and wonder what tomorrow may bring"). Although we theorized that InC motivated identifying gaps in one's self-knowledge, the awareness of which was hypothesized to be associated more with negative affect than with positive affect, we avoided use of valence-laden terms in our items (e.g., "dislike"; "enjoy") to minimize potential response bias. For each item, participants indicated how they "generally feel" on a four-point frequency scale ranging from "Almost Never" to "Almost Always."

Interpersonal Curiosity scale (IPC; Litman & Pezzo, 2007; $\alpha \geq .70$). The IPC scale is a 17-item measure of desire to learn new information capable of filling in knowledge gaps about other people. The IPC scale includes three 5-item subscales: Curiosity about Emotions (CEm); Spying and Prying (SP); and Snooping (Sn), and used the same rating format as the InC items. The IPC scales were included to assess convergent validity with measures of InC.

Epistemic Curiosity scales (EC; Litman, 2008; $\alpha \geq .75$). The EC scales include two 5-items intellectual curiosity scales, one measuring desire to have new discoveries expected to stimulate one's *interest* (I-type), and one that measures feeling uncomfortably *deprived* (D-type) of knowledge needed to fill bothersome information gaps relevant to intellectual subjects. The EC scales used the same rating format as the InC items, and were also included for purposes of assessing convergent validity

Positive and Negative Affect Schedule (Watson, Clark, & Tellegan, 1988; $\alpha \geq .84$). The PANAS is composed of two 10-item scales, comprising single adjectives that described either positive or negative affective states. Participants indicated how much they felt each emotional state within the "past few hours" on a five-point scale ranging from "Very slightly" to "Extremely." These measures were included in order to assess the valence of affectivity associated with InC.

Big Five Inventory-10 (BFI-10; Rammstedt & John, 2007). The BFI-10 include two-item measures of Extraversion, Neuroticism, Openness, Agreeableness, and Conscientiousness, scored on a five-point scale ranging from "Strongly Disagree" to "Strongly Agree." The authors of this instrument reported strong correlations with the full BFI ($r > .74$). These measures were included to assess divergence between InC and other conceptually distinct constructs.

Revised Self-Monitoring Scale (Lennox & Wolfe, 1984; $\alpha \geq .70$). The Revised Self-Monitoring Scale consists of 13 items and 2 subscales that measure interpersonal self-regulation: Ability to Modify Self-Presentation and Sensitivity to Expressive Behaviour of Others. Each item is rated on a six-point Likert-scale ranging from "Strongly Disagree" to "Strongly Agree." This scale was included as a measure of interpersonal skills that rely on the availability of one's self-knowledge.

Authenticity Scale (Wood, Linley, Maltby, Baliousis, & Joseph, 2008; $\alpha \geq .69$). The Authenticity Scale includes three measures of authentic self-awareness; one positive indicator (Authentic Living), and two negative indicators, (Accepting External Influence and Self-Alienation). For this study, negative indicators were reverse-scored and combined with the positive indicators to create a 12-item "Authentic-Self" scale, scored on a 7-point Likert-scale ranging from "Does not describe me at all" to "Describes me very well." This instrument was included as a measure of participants' perceptions of their available self-knowledge, and knowledge-based self-awareness.

Psychological Treatment Inventory-Alexithymia Scale (PTI-AS; Gori, Giannini, Palmieri, Salvini, & Schulberg, 2012; $\alpha = .88$). The PTI-AS is a five-item scale that measures perceptions of lacking available self-knowledge about one's emotions on a five-point scale, ranging from "Not at all" to "A great deal." Higher scores on this scale also assesses having access to less self-knowledge, and therefore lower levels of knowledge-based self-awareness.

Self-Consciousness Scale (Fenigstein, Scheier, & Buss, 1975). The Self-Consciousness Scale contains 23 items that assess Private and Public Self-Consciousness (i.e., aspects of introspective self-awareness) and Social Anxiety. Responses were scored on a five-point Likert-scale, ranging from "Extremely uncharacteristic" to "Extremely characteristic" of me. We also examined relationships between two 5-item component measures of Private

Self-Consciousness: A Self-Rumination subscale, which assesses tendencies to dwell on distressing thoughts, and Self-Reflection, which measures the extent to which individuals attempt to make sense of who they are (Mittal & Balasubramanian, 1987; Trapnell & Campbell, 1999). The self-consciousness scales were included as measures of different aspects of introspection-oriented self-awareness tendencies, while the anxiety scale was included as a measure of lower levels of psychological well-being.

Center for Epidemiological Studies Depression-10 (CESD10; Zhang et al., 2012; $\alpha = .88$). The CESD-10 measures depressive symptoms, for which respondents indicated the frequency of each symptom during the past week on a scale of 0 (low) to 3 (consistently). Like the Social Anxiety scale, this measure was also included as an indicator of lower levels of psychological well-being.

Self-Esteem Scale (Rosenberg, 1965; $\alpha = .85$). The Self-Esteem Scale is a 10-item measure of psychological well-being derived from self-knowledge of evaluations of the self as being good or “worthy.” This scale utilizes a four-point metric ranging from “Strongly Disagree” to “Strongly Agree.” This scale was included as a measure of higher levels of psychological well-being.

Incurious Worry Reduction Motive (IWRM; Litman & Lunsford, 2010; $\alpha \geq .71$) scales. The IWRM includes two 6-item measures of the degree to which individuals want new information to cope with worry over self-relevant threats. The Focus on Distress (IWRM-FD) scale measures wanting verification of being safe from potential threats; the Focus on Relief (IWRM-FR) scale involves preferring news that confirms the existence of a threat in order to better prepare for it. The IWRM also used the InC rating format.

Procedure

Participants were recruited via a professional service, and offered a small incentive (£2) for completing the questionnaires, which were administered online. Participants were informed about the study and asked for consent. Debriefing, including information about where to get help if participation aroused any negative feelings, was provided to respondents upon completion.

Results

In keeping with the recommended respondent-to-item ratio of at least 10:1 (Nunnally, 1978; Streiner & Norman, 2008; Yong & Pearce, 2013), all preliminary analyses of the 39 InC items were based on the total number of respondents that comprised Subsample 1 ($N = 507$). Given evidence of a “short list” of best items that would still allow for the “rule of 10” criterion, our plan was to investigate potential gender differences in subsequent analyses. The preliminary analysis of responses to the InC items by Subsample 1 suggested they all assessed a relatively homogenous construct ($\alpha = .97$). To determine if InC was multidimensional as theorized, and to identify the psychometrically best items, responses by Subsample 1 to the 39 InC items were submitted to iterated principal-axis exploratory factor analysis, using the SMC to estimate communality. Examination of the eigenvalue scree plots (17.98, 1.79, .85, .52, .44, ...) suggested extraction of three factors, which accounted for 94% of the common variance, was optimal; parallel analyses of the eigenvalues corroborated this interpretation (Hays, 1987). Given the InC items’ strong internal consistency, correlated factors that reflected

distinct domains of introspective inquiry were expected; thus, oblique (promax) rotation was utilized (Rummel, 1970). Factor meaningfulness was interpreted based on the content of the items that had the strongest dominant salient loadings for both sexes on a single factor without salient secondary loadings.

One large factor comprised items about introspecting with the goal of better *Understanding one's Emotions and Motives* (UEM; "I try to understand my emotions"). A second factor was found to involve *Reflecting On one's Past* (ROP; "I imagine what my life might have been like if I had taken different paths"). A third factor was defined by items that referred to *Exploring one's Purpose and Identity* (EPI; "I wonder about my purpose in life"; "I ask myself whether I really know who I am"). Notably, all items that directly addressed self-regulation or wondering about the future had either weak single or dual loadings, and thus were dropped. On the basis of these analyses, a total of 18 items with the strongest dominant loadings on a single factor, minimal secondary loadings, item-content judged most theoretically consistent with the underlying construct each factor assessed, and least redundancy in wording were selected and submitted to a second EFA, conducted separately for the women ($n = 259$) and men ($n = 248$) of Subsample 1.

As before, eigenvalue scree plots (Women = 9.12, 1.54, .58, .22, .15, ...; Men = 8.14, 1.11, .71, .30, .22, ...) and parallel analyses suggested three factors should be extracted with promax rotation (inter-factor correlations: Women $r_{12} = .53$, $r_{13} = .63$, $r_{23} = .66$; Men $r_{12} = .56$, $r_{13} = .63$, $r_{23} = .61$); abbreviated item-wording, and rotated item loadings are reported in Table 1 by gender. On the basis of these analyses, the best items for measuring each factor for both men and women in Subsample 1 were selected based on loading-magnitude as well as validity and clarity of item content. To enhance parity of reliability estimates across subscales, it was considered desirable to select an equal number of items to measure each dimension. As factor III (EPI) consisted of only four items, all four were selected to form an InC-EPI subscale. For factor II (ROP), we chose the four items with strongest loadings for an InC-ROP subscale. For Factor I (UEM), we began by choosing the first three items with highest loadings; in selecting a fourth and final item, the remaining items with the strongest loadings for both women and men were further examined, and their content carefully considered. Only one of these items was judged as most clearly describing efforts to understand the actual meaning of one's emotions or motives, while the others were judged as referring more to self-evaluations of one's abilities or preferences. As these more "evaluative" items were deemed less consistent with our theoretical definition of InC-UEM, they were dropped. Thus, a total of 12 items were selected to form an InC total scale, consisting of three 4-item subscales.

Although the EFA supported our theoretical view that InC was multidimensional, given the strong inter-factor correlations (*Mean* $r = .60$), we compared fit between one- and three-factor models in separate maximum likelihood confirmatory factor analyses for women and men in Subsample 2 ($N = 498$, Women = 252). As noted in Table 2, all fit indices for the three-factor model were superior to the one-factor model for both sexes, including significantly lower Chi-squares (Women: $\Delta\chi^2 = 397.69(3)$, $p < .001$; Men: $\Delta\chi^2 = 195.69(3)$, $p < .001$). Overall, the three-factor model was considered to have acceptable fit, especially given that this study represented only the very early stages of research on individual differences in InC (c.f., Hu & Bentler, 1999). To further evaluate the likelihood that our three-factor model would cross-validate among other samples, we examined the Expected Cross Validation Index (ECVI), which indicates degree of discrepancy between the predicted covariance matrix and ones that would be obtained in repeated validation samples of equivalent size; the model

Table 1. Rotated factor loadings of InC items for women ($n = 259$) and men ($n = 248$) in Subsample 1.

	UEM	ROP	EPI
<i>Try to make sense of how I feel</i>	.90/.55	.01/.11	-.13/.14
<i>Try to understand the source of my emotions</i>	.74/.59	-.01/-.07	.16/.24
<i>Analyze and interpret things I do or say</i>	.72/.69	.06/.01	.06/.12
<i>My actions, think about what they say about me</i>	.66/.67	.08/.07	.06/.24
Reflect upon what I stand for as a person	.65/.47	-.09/.21	.22/-.06
Think deeply about what I believe to be right/wrong	.62/.47	-.09/.11	.08/.16
Think about why I like/dislike something	.61/.57	.12/.07	.08/.08
Think about/assess my own strengths and weaknesses	.63/.60	.09/.18	.12/-.03
When I want something/question reasons for wanting it	.57/.61	.07/.00	.01/-.08
<i>Imagine what my life would have been like if I had taken different paths</i>	-.06/-.09	.89/.92	.06/.00
<i>Wonder about how life would have been if different decisions were taken in past</i>	-.09/.06	.89/.77	.05/.12
<i>Think about alternative choices I might have made</i>	.01/.27	.73/.64	.16/-.01
<i>Reflect upon how good or bad decisions in life have been</i>	.23/.27	.72/.64	-.10/-.01
Contemplate my past/how I got to where I am today	.19/.09	.63/.53	.06/-.01
<i>Find myself thinking about reason for my existence</i>	.07/-.09	.04/.14	.75/.81
<i>Wonder about my purpose in life</i>	.01/-.04	.14/.21	.70/.68
<i>Ask myself "Who am I really?"</i>	.11/.17	.04/.02	.68/.72
<i>Question whether I know who I am</i>	.08/.17	.23/-.04	.61/.65

Notes: UEM = Understanding Emotions and Motives; ROP = Reflecting On Past; EPI = Exploring Purpose and Identity; Left-of-diagonal = Women; Right-of-diagonal = Men; Items listed in descending magnitude of loading on dominant factor for women; dominant salient loadings in bold; Items are abbreviated; items selected for subscales in italics.

Table 2. Goodness of fit indices for InC factor models for women ($n = 252$) and men ($n = 246$) in Subsample 2.

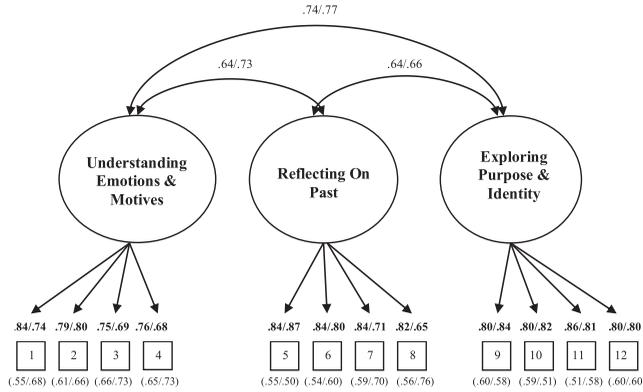
Index	Model		
	Null	1-Factor	3-Factors
$\chi^2(df)^*$	1978.40(66)* 1628.60(60)*	539.32(54)* 307.30(54)*	141.63(51)* 111.61(51)*
CFI	-	.75 .84	.95 .96
NNFI	-	.69 .80	.94 .95
RMSEA[95% CI]	-	.19[.18-.21] .14[.12-.15]	.08[.07-.100] .07[.05-.09]
ECVI[95% CI]	-	2.39[2.10-2.71] 1.47[1.25-1.71]	.80[.67-.96] .69[.58-.84]

Note: Top-values = Women, Bottom-values = Men.

* $p < .01$.

that yields the smallest ECVI is interpreted as demonstrating the greatest potential for predicting future sample-covariances (Browne, 2000). We also reported 95% confidence intervals, which indicate that any random samples selected from our population would demonstrate fit characteristics within these limits. As may be noted in Table 2, the ECVI for the three-factor model was smaller than the one-factor model for both women and men, indicating we would find similar fit statistics in other samples. Figure 1 depicts the three-factor InC model; all loadings were strong ($M = .79$) and significant ($p < .001$) for both women and men.

Summary statistics, Cronbach's alphas and Pearson correlations among the InC scales and between the InC scales and the other measures of curiosity, Big Five, and affectivity are reported in Table 3. Given evidence of relative equivalence in the dimensionality of InC for women and men from the previous analyses, we reported these data for the total sample



- | | | |
|---|---|--|
| <p>Understanding Emotions & Motives ($\alpha=.89/.88$)</p> <ol style="list-style-type: none"> 1. Try to make sense of how I feel 2. Try to understand source of my emotions 3. Analyze and interpret things I do or say 4. My actions, think about what they say about me | <p>Reflecting On Past ($\alpha=.90/.84$)</p> <ol style="list-style-type: none"> 5. Imagine what my life have been like taken different paths 6. Wonder about life if different decisions in past 7. Think about alternative choices I might have made 8. Reflect upon how good or bad decisions in life have been | <p>Exploring Purpose and Identity ($\alpha=.87/.81$)</p> <ol style="list-style-type: none"> 9. Find myself thinking about reason for my existence 10. Wonder about my purpose in life 11. Ask myself "Who am I really?" 12. Question whether I know who I am |
|---|---|--|
- Left-of-diagonal=Women, Right-of-diagonal=Men

Figure 1. Path diagram of final InC model for women ($n = 252$) and men ($n = 246$) in Subsample 2.

Table 3. Zero-order and partial correlations between the InC scales with other curiosity scales, affectivity, and the big five for the total sample ($N = 1005$).

		<i>M(SD)</i>	α	Zero-order <i>r</i>				Partial <i>r</i>		
				InC-Total	InC-UEM	InC-ROP	InC-EPI	InC-UEM	InC-ROP	InC-EPI
Curiosity	InC-Total	29.51(8.51)	.92							
	InC-UEM	9.90(3.06)	.89	.85						
	InC-ROP	10.68(3.16)	.85	.85	.57					
	InC- EPI	8.92(3.62)	.89	.90	.65	.64				
	I-type EC	14.04(3.20)	.86	.34	.36	.26	.27	.23	.04	.03
	D-type EC	12.61(3.57)	.86	.41	.38	.35	.33	.20	.13	.04
	IPC-Total	39.70(10.24)	.91	.51	.51	.42	.40	.31	.16	.02
	IPC-Snooping	11.41(3.70)	.86	.39	.39	.33	.29	.23	.13	-.01
	IPC-Cur.	14.10(3.63)	.88	.46	.53	.34	.32	.42	.08	-.07
	Emotions IPC-Spying/ Prying	9.95(3.70)	.82	.43	.37	.36	.38	.12	.14	.13
Affectivity	Positive Affect	28.16(8.80)	.92	.01	.13	-.07	-.04	.23	-.11	-.11
	Negative Affect	16.54(8.12)	.94	.40	.27	.32	.43	-.03	.08	.28
Big Five*	Extraversion	3.16(1.90)	.62*	-.09	-.02	-.12	-.09	.08	-.09	-.06
	Agreeableness	2.39(1.53)	.32*	-.13	-.05	-.16	-.13	.08	-.12	-.06
	Conscientious- ness	3.21(1.78)	.59*	-.13	.00	-.15	-.17	.16	-.10	-.16
	Neuroticism	3.80(1.94)	.67*	.28	.18	.28	.28	-.03	.14	.14
	Openness	3.00(1.73)	.39*	.15	.16	.12	.11	.10	.04	-.01

Notes: UEM = Understanding Emotions and Motives; ROP = Reflecting On Past; EPI = Exploring Purpose and Identity. $p < .001$ when $r \geq .11$ in bold.

*Each is a two-item scale, thus Spearman-brown correction is reported (Eisinga, te Grotenhuis, & Pelzer, 2013).

($N = 1005$, women = 511). To clarify the unique relationships between each InC subscale and all other measures, partial correlations between each InC subscale, in which their overlap with each other was held constant, are also reported in this table (c.f., Litman, 2008). Unsurprisingly, the InC measures were all strongly positively correlated with each other. Alphas for all InC measures were strong ($\alpha \geq .81$), especially given their relative brevity (Cortina, 1993). While there was no significant gender difference for the InC total scale, nor for ROP or EPI, men scored significantly lower than women on InC-UEM ($M_{\text{men}} = 9.66$, $SD = 2.99$; $M_{\text{women}} = 10.13$, $SD = 3.11$; $t = -2.42(996)$, $p < .05$; $d = .15$), suggesting men were somewhat less curious about their feelings. As hypothesized, the InC scales correlated positively with all curiosity scales, particularly IPC, demonstrating convergence. In examining partial correlations between InC and IPC, it is noteworthy that their overlap was due primarily to InC-UEM, and greatest between this subscale and IPC-CEm, consistent with the idea that both assess curiosity about people's emotions. Also as hypothesized the InC scales tended to be somewhat more strongly associated with D-type than I-type curiosity, although the differences in magnitude were somewhat lower than expected.

Consistent with hypotheses, the InC total scale was uncorrelated with positive affect, but associated positively with negative affect. Examination of the partial correlations revealed that only the InC-EPI correlated positively with negative affectivity, while EPI and ROP were associated negatively with positive affect. Partial correlations also indicated that InC-UEM was uniquely *positively* associated with positive affect, and unrelated to negative affect, which was unexpected. These results suggested that identifying knowledge gaps in regard to one's purpose/identity or past experiences tends to be associated with either less positive emotions or the presence of some negative affect as predicted, whereas introspective analysis of knowledge gaps pertaining to one's feelings was relatively more positive. As hypothesized, InC correlated weakly with the Big Five measures, providing evidence of divergence. However, also as hypothesized, the strongest of these correlations was a positive one between total InC and Neuroticism.

Summary data, alphas, and correlations between the InC scales, measures of available self-knowledge, introspection tendencies, self-knowledge related interpersonal skills, psychological well-being, and tendencies to cope with worry over self-relevant threats are reported in Table 4. With the exception of InC-UEM, the other InC measures were associated with lower levels of perceived available self-knowledge, as evidenced by mostly negative relations to Self-authenticity and positive associations with Alexithymia. These results supported our hypothesis that higher levels of InC are associated with tendencies to perceive oneself as lacking intrapersonal knowledge. As hypothesized, InC was positively associated with the measures of tendencies to engage in greater introspection, consistent with our view that InC involves introspective forms of inquisitiveness. Also as hypothesized, InC correlated more strongly with private than public self-consciousness, which was especially evident for InC-UEM. Additionally, given the relatively strong overlap between the InC scales and the Private Self-consciousness scale, on the basis of the zero-order correlations among these instruments, and to clarify interpretation of these relationships with different aspects of self-awareness that reflected introspection aimed at attaining more intrapersonal knowledge, we also examined the zero-order and partial correlations between the InC subscales with two major dimensions of aspects of private self-consciousness, rumination, and reflection; the former is theorized to be associated more with experiences of negative affect while the latter is considered more related to genuinely introspecting in order to seek new



Table 4. Zero-order and partial correlations between the InC scales and measures of available self-knowledge, introspection tendencies, self-knowledge interpersonal skills, psychological well-being, and coping with worry for self-relevant threats for the total sample ($N = 1005$).

	$M(SD)$	α	Zero-order r					Partial r		
			InC-Total	InC-UEM	InC-ROP	InC-EPI	InC-UEM	InC-ROP	InC-EPI	
Available self-knowledge	43.38(7.85)	.88	-.35	-.18	-.31	-.40	.14	-.12	-.30	
	10.48(4.02)	.91	.37	.22	.36	.38	-.10	.17	.24	
Introspection tendencies	31.48(6.61)	.81	.66	.66	.50	.57	.42	.10	.19	
	14.50(4.35)	.80	.66	.59	.52	.61	.28	.13	.29	
	17.56(3.01)	.60	.36	.47	.24	.24	.41	.01	-.09	
	22.77(5.89)	.84	.48	.43	.42	.41	.17	.18	.10	
Self-knowledge interpersonal skills	25.01(5.00)	.87	.03	.12	.03	-.05	.19	.02	-.17	
	21.99(3.93)	.85	.33	.40	.28	.21	.31	.11	-.11	
	18.90(5.72)	.84	.25	.15	.24	.24	-.05	.13	.12	
	9.98(6.74)	.89	.44	.26	.42	.45	-.10	.21	.28	
	28.26(6.34)	.92	-.41	-.20	-.40	-.45	.19	-.21	-.33	
Coping w/self-relevant worry	16.51(4.53)	.91	.52	.47	.45	.44	.22	.19	.10	
	19.19(3.98)	.87	.31	.32	.28	.21	.22	.12	-.06	

Notes: UEM = Understanding Emotions and Motives; ROP = Reflecting On Past; EPI = Exploring Purpose and Identity; SC = Self-Consciousness. $p < .001$ when $r \geq .11$ in bold.

self-knowledge (Trapnell & Campbell, 1999). While all three InC measures had relatively small positive correlations with the rumination subscale, the InC-UEM subscale, which emphasizes a desire to fill information gaps pertaining to self-knowledge about one's internal feeling states and motives, had a moderately strong correlation with self-reflection; corrected for attenuation due to low reliability (Joreskog, 1971), the magnitude of this correlation was even stronger ($r_{\text{corrected}} = .56$).

Consistent with hypotheses, the InC measures were only very weakly, and for EPI, negatively, associated with the interpersonal self-regulation ability of Self-Presentation. However, contrary to expectations, InC correlated somewhat more strongly with Sensitivity to Expressive Behaviour of Others; partial correlations suggested these findings were primarily due to overlap with InC-UEM, suggesting introspective inquisitiveness about one's own feelings is associated with taking note of the feelings and mannerisms of others. As hypothesized, the correlations with psychological well-being and distress suggested that InC, particularly EPI and ROP, is associated with lower self-esteem, greater depression, and more social-anxiety. However, unexpectedly, InC-UEM was somewhat positively associated with self-esteem. Finally, as hypothesized, the InC scales correlated positively with endeavoring to cope with worry over self-relevant threats, presumably by introspectively seeking new self-knowledge.

Lastly, to verify that the relationships between InC with the other curiosity measures was indeed stronger than with the measures of available self-knowledge and introspection-tendencies (i.e., that InC measured a novel aspect of curiosity and was not merely measuring different forms of self-awareness), we also examined the average absolute magnitude of overlap among these scales. As expected the InC scales were much more highly correlated to the measures of EC and IPC (*Mean* $r = .42$) as compared to the relationship between the self-knowledge and introspection scales with the EC and IPC measures (*Mean* $r = .19$). Moreover, the self-knowledge and introspection scales were more highly related to each other (*Mean* $r = .44$) than they were to the measures of curiosity.

Discussion

The present study identified three InC factors that reflected individual differences in tendencies to inquisitively introspect about different domains of intrapersonal knowledge. Twelve items were selected to form an internally consistent InC total scale that consisted of three 4-item subscales, which demonstrated acceptable model fit. InC was positively associated with other forms of curiosity, providing evidence of convergent validity, while weaker relations to other constructs evidenced divergent validity. Consistent with our view that seeking new information about people, whether self or other, tends to overlap, InC scores showed their strongest convergence with the IPC scales. Additionally, in keeping with our view that individual differences InC underlies tendencies to identify "gaps" in one's intrapersonal knowledge, the InC scales were generally found to be more strongly related to D-type curiosity as compared to I-type.

We hypothesized that InC might map onto the degree to which individuals feel they are chronically lacking in intrapersonal knowledge, as well as the extent to which they tended to introspect in order to attempt to mitigate this condition. This hypothesis was supported on the basis of the direction and magnitude of the correlations with measures of different facets of introspection, available self-knowledge, and interpersonal skills that are at least

somewhat dependent on self-knowledge. Also consistent with this theoretical position, we found that the correlation between InC and other forms of curiosity was stronger than the relationship between perceived self-knowledge and introspection tendencies (i.e., different aspects of self-awareness) and curiosity; moreover, the various self-awareness scales were more highly related to each other than they were to the curiosity scales. This finding is in line with the theoretical view that InC is primarily a motive to acquire new information, and is psychologically distinct from different expressions of self-awareness, even though they (logically) overlap to some extent. Of course, it is not possible to address all questions about any construct in a single study, and there are a number of highly relevant constructs of relevance to InC that should be examined in future research (e.g., self-concept clarity, social comparison motives, mindfulness), which will help to elucidate the nature of InC and help to determine whether it represents a truly distinct construct.

We also hypothesized that InC scores would be more strongly associated with negative over positive affective conditions given our view that InC's overlap with D-type experiences and an orientation to be more aware of apparent information gaps would mean that InC also overlaps to some extent with negative affect; with the exception of the UEM subscale, we found evidence of positive associations between InC with Neuroticism, depression, and social anxiety. While the hypothesized relationships with negative affect (or lack of positive affect) was based on evidence from previous research that the recognition of knowledge gaps results in mildly unpleasant affectivity until the gap is filled (Litman et al., 2005), another possible interpretation for these associations is that tendencies to experience negative affect may activate introspective inquisitiveness aimed at endeavoring to cope with the unpleasant experiences that underlie such conditions. This interpretation is supported on the basis of evidence that the InC measures tended to be positively correlated with tendencies to try and cope with worry over self-relevant threats. However, there is a third explanation consistent with both the "information-gap" and the "affect as information" interpretation (e.g., Clore, Gasper, & Garvin, 2001): It may be that if individuals tend to find themselves experiencing unhappy moods without a clear situational cause, the recognition of a discrepancy between expected and actual mood could also activate InC-related states. Of course, the ultimate causes for real time introspective inquisitiveness will need to be explored in future research, so this remains an open question that begs further investigation.

With the exception of InC-UEM subscale, InC was negatively associated with measures of available self-knowledge, and had generally weak associations with the measures of interpersonal skills that rely on self-knowledge. We also hypothesized that InC would be associated with an orientation toward greater introspection over attention to others; these hypotheses were supported on the basis of stronger associations with private over public self-consciousness. The relationships between InC and the two components of private self-consciousness, particularly in the case of the InC-UEM scale with Private Self-Reflection, suggested that InC tendencies correspond to perceptions of chronically lacking self-knowledge, while also having a clear desire to engage in introspection in order to gather more intrapersonal knowledge. In keeping with this interpretation it is worth noting that in previous research, clarity of self-concept has been found positively correlated with self-esteem, positive affect, and extraversion, and negatively with private self-consciousness, negative affect, and neuroticism, which in many respects may reflect the *opposite* of InC as a psychological construct (Campbell, Assanand, & DiPaula, 2003). This will be worth exploring in future research.

An important limitation of the present study is that it did not examine whether InC predicts relevant behaviors, such as diary-journaling or using self-help books and websites – activities that may improve mental health and facilitate personal growth via in-depth self-exploration (Robinson & Wright, 2013). In keeping with this idea, and consistent with prior theory and research that finds dispositional traits are predictive of the intensity and expression of corresponding emotional-motivational states (Spielberger, 2006), we would expect individual differences in InC to involve tendencies to be more motivated to introspectively explore the inner self over a range of situations, which will be important to investigate in future research.

While intrapersonal knowledge may be useful for many utilitarian purposes (e.g., self-regulation, impression management), besides simply wanting to better understand the self for no other specific utilitarian reason other than better knowing one's inner self is precisely what makes InC a potentially important but understudied construct. Building on this idea, and on the relevant literature on curiosity (particularly, D-type), we predicted that given the theorized nature of InC, individuals with higher levels should be more willing to invest time and effort to dig deeply into their own psyche, determined to achieve the most accurate assessment of their inner self, even if that leads to subjectively unpleasant conclusions. With this in mind, the present study found little evidence for a positive relationship between InC and common markers of psychological well-being – at least in the sense of being “carefree” or “happy” – although, InC-UEM was uniquely associated with relatively positive outcomes, which demands further exploration.

Thus, we find ourselves left with a fascinating open question: Do individuals with higher levels of InC prefer to know themselves more accurately even if that knowledge reveals something undesirable about the self? This is a complex question that will be important to explore in future research. Beyond the relevant literature on adaptive self-regulation, the extent to which psychological well-being is enhanced or diminished more by a “favorable but less accurate” vs. “less favorable but more accurate” interpretation of the self may map onto the coping strategies individuals might choose to utilize during times of stress (e.g., positive reframing vs. denial). In keeping with this idea, there is evidence in the relevant literature that suggests coping strategies that may require some self-exploration can be a “double edged blade”; for example, research suggests that “acceptance” may promote feeling capable of overcoming new challenges, but may also inform individuals about their limitations as well, resulting in a mix of positive and negative post-stress related impacts (Litman & Lunsford, 2009).

Given the nature of InC as a psychological construct, we see potential value in using these newly developed instruments to more deeply explore the extent to which introspective self-exploration is guided by a desire to know the self accurately or not, as well as the underlying reasons for so doing (e.g., social motives vs. purely wishing to better know the self). In our view, this in and of itself has enormous implications for how one utilizes (or chooses not to utilize) intrapersonal knowledge. Likewise, another important goal for future research on InC will be to explore relationships between InC and intrapersonal aspects of emotional intelligence (e.g., Mayer et al., 2004); it is not clear from the present study whether individuals with higher levels of InC actually have less available intrapersonal knowledge or rather that they simply *believe* this to be the case.

Guided by previous theory and empirical research findings on the overlapping construct of IPC (e.g., Han et al., 2013), we conceptualized InC as a motive to identify gaps in one's

knowledge of the inner self. Additionally, we found that the best psychometric indicators of InC as a psychological construct were items with content that referred to inquisitive introspection about one's past and present rather than wondering about what the future may hold in regard to the self. One possible explanation for these findings is that thinking about one's "future-self" corresponds to a different form of InC that lends itself more to *imagination* and "looking ahead" rather than *introspection* and "looking inward"; both forms of intrapersonal inquisitiveness are likely to play important, though different, roles in better knowing the self.

Bearing in mind our proposed distinction between *introspection* and *imagination*, we feel it is necessary to address one other important limitation in our approach to the measurement of InC as a psychological construct: Given our theoretical orientation that InC (like IPC) corresponded more to D-type curiosity and the detection of gaps in one's self-knowledge, the content of items comprising our InC item-pool did not emphasize attitudes more in keeping with I-type curiosity, such as having affectively positive interests in novelty-seeking or having optimistic expectations that self-exploration may lead to unexpected discoveries about the self (Lauriola et al., 2015).

Given that I-type expressions of curiosity are associated with greater open-mindedness and the seeking out of new discoveries, it is reasonable to posit that if the D-type dimension of InC investigated in the present study involves filling in information gaps about one's past and present self (i.e., who one was or currently is), then an I-type InC dimension might be associated with exploring possibilities about or who one might come to be. As a fairly simple example, one possible I-type expression of InC might motivate seeking out novel self-relevant hobbies or pastimes, such as seeking out new and interesting books or art. Indeed, the discovery of an interest in any new subject always has the potential to inform us, at least to some extent, about who we are. However, these expressions of curiosity ultimately differ very little from those that motivate the exploration of new ideas or new sensory-perceptual experiences – dimensions of I-type curiosity that are already validly and reliably assessed by existing measures of epistemic and perceptual curiosity, respectively (e.g., Collins et al., 2004; Litman & Spielberger, 2003).

In our view, a much more meaningfully distinct expression of I-type InC would involve a motive for individuals to go beyond a purely introspective, information-gap closing approach, to developing a deeper understanding the self that may orient individuals to explore completely new frontiers in how they construe their identity, their purpose, and their meaning in life. We posit that these hypothesized, unique I-type expressions of InC might underlie a desire to discover new, self-relevant knowledge that may help orient individuals toward the achievement of *self-transcendence* (Koltko-Rivera, 2006). As a psychological construct, self-transcendence is theorized to involve developing a reconceptualization of the self through seeking personally meaningful connections to a greater cause (e.g., the betterment of others), endeavoring to discover higher universal or spiritual truths, striving to attain a heightened level of open-mindedness and acceptance of others, and developing a deeper appreciation of the personal value of learning and discovery overall (Koltko-Rivera, 2006; Smith & Schwartz, 1997; Yeager et al., 2014).

Accordingly, we would hypothesize that this posited I-type "self-transcendence oriented" dimension of InC to have positive correlations with measures of self-transcendence achievement (e.g., Reed, 1986, 2003) as well as theoretically related constructs such as altruism, spirituality, openness, and psychological well-being (c.f., Wong, 2016). Likewise, we might

also expect very different relationships between an I-type “self-transcendent oriented” InC dimension and the self-knowledge measures that were included in the present study (e.g., introspection-tendencies). Building on this intriguing idea, if the correlations were opposite in sign, it might suggest that better understanding who one is via introspective inquisitiveness may be a prerequisite to later discovering who one might ultimately become. While further speculation on additional InC dimensions goes beyond the scope of the present study, it will be an especially important subject for future research on curiosity about the self.

Disclosure statement

No potential conflict of interest was reported by the authors.

Funding

This research was funded by a grant provided by Macmillan Science and Education.

References

- Alicke, M., & Sedikides, C. (2009). Self-enhancement and self-protection: What they are and what they do. *European Review of Social Psychology, 20*, 1–48.
- Bandura, A. (1993). Perceived self-efficacy in cognitive development and functioning. *Educational Psychologist, 28*, 117–148.
- Brackett, M. A., & Mayer, J. D. (2003). Convergent, discriminant, and incremental validity of competing measures of emotional intelligence. *Personality and Social Psychology Bulletin, 29*, 1147–1158.
- Browne, M. W. (2000). Cross-validation methods. *Journal of Mathematical Psychology, 44*, 108–132.
- Campbell, J. D., Assanand, S., & DiPaula, A. (2003). The structure of the self-concept and its relations to psychological adjustment. *Journal of Personality, 71*, 115–140.
- Campbell, J. D., Trapnell, P. D., Heine, S. J., Katz, I. M., Lavallee, L. F., & Lehman, D. R. (1996). Self-concept clarity: Measurement, personality correlates, and cultural boundaries. *Journal of Personality and Social Psychology, 70*, 141–156.
- Carlson, E. N. (2013). Overcoming the barriers to self-knowledge: Mindfulness as a path to seeing yourself as you really are. *Perspectives on Psychological Science, 8*, 173–186.
- Clore, G. L., Gasper, K., & Garvin, E. (2001). Affect-as-information. In J. P. Forgas (Ed.), *Handbook of affect and social cognition* (pp. 121–144). Mahwah, NJ: Erlbaum.
- Collins, R. P., Litman, J. A., & Spielberger, C. D. (2004). The measurement of perceptual curiosity. *Personality and Individual Differences, 36*, 1127–1141.
- Corcoran, K., Crusius, J., & Mussweiler, T. (2011). Social comparison: motives, standards, and mechanisms. In D. Chadee (Ed.), *Theories in social psychology* (pp. 119–139). Oxford: Wiley Blackwell.
- Cortina, J. M. (1993). What is coefficient alpha? An examination of theory and applications. *Journal of Applied Psychology, 78*, 98–104.
- Davis, K. M., Lau, M. A., & Cairns, D. R. (2009). Development and preliminary validation of a trait version of the toronto mindfulness scale. *Journal of Cognitive Psychotherapy, 23*, 185–197.
- Eisinga, R., te Grotenhuis, M., & Pelzer, B. (2013). The reliability of a two-item scale: Pearson, Cronbach or Spearman-Brown? *International Journal of Public Health, 58*, 637–642.
- Erikson, E. H., & Erikson, J. H. (1997). *The life cycle completed. Extended version with new chapters on the ninth stage of development*. New York, NY: W.W. Norton.
- Fazio, R. H., Effrein, E. A., & Falender, V. J. (1981). Self-perception following social interaction. *Journal of Personality and Social Psychology, 41*, 232–242.
- Fenigstein, A., Scheier, M. F., & Buss, A. H. (1975). Public and private self-consciousness: Assessment and theory. *Journal of Consulting and Clinical Psychology, 43*, 522–527.

- Gori, A., Giannini, M., Palmieri, G., Salvini, R., & Schuldberg, D. (2012). Assessment of alexithymia: Psychometric properties of the psychological treatment inventory-alexithymia scale (PTI-AS). *Psychology, 3*, 231–236.
- Gruber, M. J., Gelman, B. D., & Ranganath, C. (2014). States of curiosity modulate hippocampus-dependent learning via the dopaminergic circuit. *Neuron, 84*, 486–496.
- Han, C., Li, P., Warren, C., Feng, T., Litman, J., & Li, H. (2013). Electrophysiological evidence for the importance of interpersonal curiosity. *Brain Research, 15*, 45–54.
- Hays, R. D. (1987). PARALLEL: A program for performing parallel analysis. *Applied Psychological Measurement, 11*, 58.
- Hu, L., & Bentler, P. M. (1999). Cutoff criteria for fit indexes in covariance structure analysis: Conventional criteria versus new alternatives. *Structural Equation Modeling, 6*, 1–55.
- Joreskog, K. G. (1971). Statistical analysis of sets of congeneric tests. *Psychometrika, 36*, 109–133.
- Kang, M. J., Hsu, M., Krajbich, I. M., Loewenstein, G., McClure, S. M., Wang, J. T.-Y., & Camerer, C. F. (2009). The wick in the candle of learning: Epistemic curiosity activates reward circuitry and enhances memory. *Psychological Science, 20*, 963–973.
- 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). Hoboken, NJ: Wiley.
- Koltko-Rivera, M. E. (2006). Rediscovering the later version of Maslow's hierarchy of needs: Self-transcendence and opportunities for theory, research, and unification. *Review of General Psychology, 10*, 302–317.
- Koo, D. M., & Choi, Y. Y. (2010). Knowledge search and people with high epistemic curiosity. *Computers in Human Behavior, 26*, 12–22.
- Lau, M. A., Bishop, S. R., Segal, Z. V., Buis, T., Anderson, N. D., Carlson, L., ... Devins, G. (2006). The toronto mindfulness scale: Development and validation. *Journal of Clinical Psychology, 62*, 1445–1467.
- Lauriola, M., Litman, J. A., Mussel, P., De Santis, R., Crowson, H. M., & Hoffman, R. R. (2015). Epistemic curiosity and self-regulation. *Personality and Individual Differences, 83*, 202–207.
- Lennox, R. D., & Wolfe, R. N. (1984). Revision of the self-monitoring scale. *Journal of Personality and Social Psychology, 46*, 1349–1364.
- Litman, J. A. (2005). Curiosity and the pleasures of learning: Wanting and liking new information. *Cognition and Emotion, 19*, 793–814.
- Litman, J. A. (2008). Interest and deprivation dimensions of epistemic curiosity. *Personality and Individual Differences, 44*, 1585–1595.
- Litman, J. A. (2010). Relationships between measures of I- and D-type curiosity, ambiguity tolerance, and need for closure: An initial test of the wanting-liking model of information-seeking. *Personality and Individual Differences, 48*, 397–402.
- Litman, J. A., Crowson, H. M., & Kolinski, K. (2010). Validity of the interest- and deprivation-type epistemic curiosity distinction in non-students. *Personality and Individual Differences, 49*, 531–536.
- Litman, J. A., Hutchins, T. L., & Russon, R. K. (2005). Epistemic curiosity, feeling-of-knowing, and exploratory behaviour. *Cognition and Emotion, 19*, 559–582.
- Litman, J. A., & Lunsford, G. D. (2009). Frequency of use and impact of coping strategies assessed by the COPE inventory and their relationships to post-event health and well-being. *Journal of Health Psychology, 14*, 1–10.
- Litman, J. A., & Lunsford, G. D. (2010). Incurious motives to seek information about potential threats. *European Journal of Personality, 24*, 1–17.
- Litman, J. A., & Mussel, P. (2013). Development and validation of German translations of interest- and deprivation-type epistemic curiosity scales. *Journal of Individual Differences, 34*, 59–68.
- Litman, J. A., & Pezzo, M. V. (2007). Dimensionality of interpersonal curiosity. *Personality and Individual Differences, 43*, 1448–1459.
- 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 diversive 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.
- Markus, H. (1977). Self-schemata and processing information about the self. *Journal of Personality and Social Psychology*, 35, 63–78.
- Maslow, A. (1968). *Toward a psychology of being* (2nd ed.). New York, NY: Van Nostrand Reinhold.
- Mayer, J. D., Salovey, P., & Caruso, D. R. (2004). Emotional intelligence: Theory, findings and implications. *Psychological Inquiry*, 15, 197–215.
- Mittal, B., & Balasubramanian, S. K. (1987). Testing the dimensionality of the self-consciousness scales. *Journal of Personality Assessment*, 51, 53–68.
- Montgomery, K. C., & Monkman, J. A. (1955). The relation between fear and exploratory behavior. *Journal of Experimental Psychology and Animal Behavioral Processes*, 1, 326–334.
- Nunnally, J. C. (1978). *Psychometric theory* (2nd ed.). New York, NY: McGraw-Hill.
- Powell, C., Nettelbeck, T., & Burns, N. R. (2016). Deconstructing intellectual curiosity. *Personality and Individual Differences*, 95, 147–151.
- Rammstedt, B., & John, O. P. (2007). Measuring personality in one minute or less: A 10-item short version of the Big Five Inventory in English and German. *Journal of Research in Personality*, 41, 203–212.
- Reed, P. G. (1986). Developmental resources and depression in the elderly. *Nursing Research*, 35, 368–374.
- Reed, P. G. (2003). The theory of self-transcendence. In M. J. Smith & P. Liehr (Eds.), *Middle range theories in nursing* (pp. 145–165). New York, NY: Springer.
- Renninger, K. A., & Hidi, S. (2011). Revisiting the conceptualization, measurement, and generation of interest. *Educational Psychologist*, 46, 168–184.
- Richards, J. B., Litman, J. A., & Roberts, D. H. (2013). Performance characteristics of measurement instruments of epistemic curiosity in third-year medical students. *Medical Science Educator*, 23, 355–363.
- Robinson, O. C., & Wright, G. R. T. (2013). The prevalence, types and perceived outcomes of crisis episodes in early adulthood and midlife: A structured retrospective-autobiographical study. *International Journal of Behavioural Development*, 37, 407–416.
- Rosenberg, M. (1965). *Society and the adolescent self-image*. Princeton, NJ: Princeton University Press.
- Rummel, R. J. (1970). *Applied factor analysis*. Evanston, IL: Northwestern University Press.
- Scheier, M. F., & Carver, C. S. (1985). The self-consciousness scale: A revised version for use with general populations. *Journal of Applied Social Psychology*, 15, 687–699.
- Silvia, P. J. (2008). Interest—The curious emotion. *Current Directions in Psychological Science*, 17, 57–60.
- Smith, P. B., & Schwartz, S. H. (1997). Values. In J. W. Berry, M. H. Segall, & C. Kagitcibasi (Eds.), *Handbook of cross-cultural psychology: Vol. 3. Social behavior and applications* (2nd ed., pp. 77–118). Boston, MA: Allyn & Bacon.
- Spielberger, C. D. (2006). Cross-cultural assessment of emotional states and personality traits. *European Psychologist*, 11, 297–303.
- 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: Lawrence Erlbaum Associates.
- Streiner, D. L., & Norman, G. R. (2008). *Health measurement scales: A practical guide to their development and use*. Oxford: Oxford University Press.
- Suls, J., Lemos, K., & Stewart, H. L. (2002). Self-esteem, construal, and comparisons with the self, friends, and peers. *Journal of Personality and Social Psychology*, 82, 252–261.
- Trapnell, P. D., & Campbell, J. D. (1999). Private self-consciousness and the five-factor model of personality: Distinguishing rumination from reflection. *Journal of Personality and Social Psychology*, 76, 284–304.
- Watson, D., Clark, L. A., & Tellegan, A. (1988). Development and validation of brief measures of positive and negative affect: The PANAS scales. *Journal of Personality and Social Psychology*, 54, 1063–1070.
- Wong, P. T. (2016). Meaning-seeking, self-transcendence, and well-being. In A. Batthyany (Ed.), *Logotherapy and existential analysis: Proceedings of the Viktor Frankl Institute* (Vol. 1, pp. 311–321). Cham, CH: Springer.
- Wood, A. M., Linley, P., Maltby, J., Baliousis, M., & Joseph, S. (2008). The authentic personality: A theoretical and empirical conceptualization and the development of the Authenticity Scale. *Journal of Counseling Psychology*, 55, 385–399.

- Yeager, D. S., Henderson, M. D., D'Mello, S., Paunesku, D., Walton, G. M., Spitzer, B. J., & Duckworth, A. L. (2014). Boring but important: A self-transcendent purpose for learning fosters academic self-regulation. *Journal of Personality and Social Psychology, 107*, 559–580.
- Yong, A. G., & Pearce, S. (2013). A beginner's guide to factor analysis: Focusing on exploratory factor analysis. *Tutorials in Quantitative Methods for Psychology, 9*, 79–94.
- Zhang, W., O'Brien, N., Forrest, J. I., Salters, K. A., Patterson, T. L., et al. (2012). Validating a shortened depression scale (10 item CES-D) among HIV-positive people in British Columbia, Canada. *PLoS ONE, 7*, e40793.

Appendix: The Intrapersonal Curiosity (InC) Scale

A number of statements that people use to describe themselves are given below. Read each statement and then select the appropriate response using the scale below to indicate how you *generally* feel. There are no right or wrong answers. Do not spend too much time on any one statement, but give the answer that seems to describe how you *generally* feel.

1 = Almost Never 2 = Sometimes 3 = Often 4 = Almost Always

1. I wonder about my purpose in life.
2. I imagine what my life might have been like had I taken different paths.
3. I try to make sense of how I feel.
4. I find myself thinking about the reason for my existence.
5. I think about alternative choices I might have made.
6. I try to understand the source of my emotions.
7. I question whether I really know who I am.
8. I reflect upon how good or bad my decisions in life have been.
9. I reflect upon my actions and think about what they say about me.
10. I ask myself "Who am I really?"
11. I wonder about how my life would be right now if I had made different decisions in my past.
12. I try to analyze and interpret the reasons for what I do or say.

Scoring the InC Scale and subscales

InC Total Scale = sum of all items

InC-Understanding Emotions and Motives = 1 + 4 + 7 + 10

InC-Exploring Purpose and Identity = 3 + 6 + 9 + 12

InC-Reflecting On Past = 2 + 5 + 8 + 11