Perceptions of Walls: An Exploration of Trait Affect and Personality in a Cross Cultural Study of Perception of Risks Related to the Edward Snowden Case

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Abstract

In this within subjects study, we explored the role of trait affect, personality, and culture on an individual's information seeking behavior about the Edward Snowden case. We also considered how these factors may affect an individual's perception of risks related to Snowden's actions. We used Amazon's Mechanical Turk to conduct two surveys five weeks apart with respondents in both India and the U.S. After accounting for differences in age, education, and gender, early findings suggest that trait affect and personality are associated with how people acquire and understand information as well as the information sources they choose to use. We also found that culture played a significant role in shaping how our respondents perceived the Snowden case and the implications of risk associated with his actions. Since our study is explorative and our respondent sample was limited by our survey method, these findings warrant further analyses.

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1   Introduction

Edward Snowden, a former Booz Allen Hamilton contractor and National Security Agency (NSA) employee, leapt into the public eye on June 5, 2013. In a series of exposé articles, The Guardian shared Snowden's story about U.S. intelligence programs PRISM and XKeyscore, detailing how the government had been collecting both telephone metadata and Internet records as a part of their surveillance. The Guardian's timeline of Snowden's release of information he previously swore to keep secret reads like a spy novel: four laptops used to gain access to highly classified materials; the appearance of a man carrying a Rubik's cube; a week's worth of interviews in a Kowloon hotel room; secret court orders; indictments of U.S. Internet giants; and statements from world leaders (Gidda, 2013). As this is being written, most people who have access to news sources know of his story, and many have formed opinions about his actions in breaking down walls of secrecy. For example, Snowden's Wikipedia article has been edited more than 3,500 times since user Mboverload created it on June 9, 2013, and as of the writing of this paper, it has been viewed more than 3,513,600 times. Not surprisingly, it was also marked for deletion on June 10, 2013, and it continues to generate a great deal of debate: should Edward Snowden be classified as a dissident and whistle-blower or a traitor?

This question begs many others, and how a person answers may depend not only upon what one knows, but also upon how one has come to what one knows. In this exploratory study, we examine how individual factors, information sources, and cultural values may be associated with how persons view Snowden and his behavior.

2 Background

In this section, we first discuss affect, the type of affect under investigation in the current study, and the role it has on risk perceptions. This is followed by a discussion of personality dimensions and the role they may play in how individuals seek out information.

2.1 Affect

Affect, as a non-cognitive aspect of information seeking and sense-making, can influence perception and judgment. In this study, we focus on trait affect, a persistent type of affect.

2.1.1 Affect, Mood, and Emotion

Within the literature, affect has come to mean several different things and has often been used interchangeably with mood and emotion (Ekman & Davidson, 1994; Isen, 1984; N Schwarz & Clore, 1996; Waters, 2008). This is understandable in one respect since these are all interrelated concepts, but doing so makes it difficult to compare and judge the validity of studies.

For purposes of this research, we distinguish three dimensions of affect. Emotion is characterized as a generally short-lived and intense reaction to an event or stimulus, whereas mood is longer-lasting and milder in degree (Isen, 1984). Both terms represent a type of affect and can be classified as affective states (Waters, 2008; Watson & Tellegen, 1985). Affective states include: fear, sadness, guilt, hostility, shyness, fatigue, surprise, joviality, self-assurance, attentiveness, and serenity (Watson & Clark, 1994). However, these dimensions represent only states of the broader concept of affect.

State affect fluctuates over time and varies in intensity (Grös, Antony, Simms, & McCabe, 2007; Watson, Clark, & Tellegen, 1988). Emotion, a short-lived type of affect, will generally vary considerably over relatively short time periods. Emotion(s) may ultimately become mood depending on the intensity, frequency, and overall context of the experienced emotion(s).

In contrast to these affective states, trait affect represents a more stable and generally life-long type of affect (Grös et al., 2007; Watson et al., 1988). In many respects, it can be considered part of one's personality. In fact, research has supported the close relationship between trait affect and personality traits (Watson et al., 1988; Watson & Tellegen, 1985). Similar to personality, trait affect changes very little over time. One way to further conceptualize the difference between them is to think of trait affect as the baseline for state affect. An individual with a generally positive trait affect is more likely to have a positive mood and experience emotions that are more positive.

2.1.2 Affect in Risk Perceptions

Affect influences or alters how individuals perceive things. These altered perceptions have an effect on the decisions people make (Curry & Youngblade, 2006; Isen, 1984; E. J. Johnson & Tversky, 1983; Smith & Kirby, 2001; Waters, 2008). While there is a lack of consensus on the specific mechanisms by which affect influences risk decisions, there is nonetheless general agreement that this influence does exist (Bower, 1981; Clore, Gasper, & Garvin, 2001; Finucane, Alhakami, Slovic, & Johnson, 2000; J. Forgas, 1995, 2008; E. J. Johnson & Tversky, 1983; Kahneman, Slovic, & Tversky, 1982; Norbert Schwarz & Clore, 2003; Slovic, Finucane, Peters, & MacGregor, 2007). One of the primary manners in which affect influences risk decisions is by the effect it has on how individuals perceive risk.

The primary mechanism through which affect influences risk perceptions is the optimistic bias (Borkenau & Mauer, 2006; Helweg-Larsen & Shepperd, 2001; Lerner & Keltner, 2001; Rhee, Ryu, & Kim, 2005; Waters, 2008). Basically, those with a greater positive affect (and/or lower negative affect) will make more optimistic judgments related to risk than those with a higher negative affect (and/or lower positive affect). This is explained in part by the priming mechanism of affect. A few studies serve to further illustrate this bias.

In an experiment involving a real risk-taking task using betting chips, Isen and Patrick (1983) found that participants in the group with positive affect were more likely to engage in low-risk behavior by betting more than those in the neutral affect group. Once the level of risk increased, however, participants in the positive affect group were less likely to engage in the risk task compared to the other group (p. 199). The authors noted that these findings are consistent with earlier research suggesting that those who feel good will behave in a manner that preserves that feeling (see Isen & Simmonds, 1978). Their second experiment had findings contrary to this one, but this may have been due to the hypothetical nature of the risk scenario in the second experiment compared to the first experiment that involved real betting (p. 200).

Other research using valence-based approaches have generally been consistent with the findings of the first experiment (Isen & Geva, 1987; Isen, Nygren, & Ashby, 1988). Additionally, research that has gone beyond valence-based approaches have found that specific emotions and dimensions of emotions (i.e., certainty) impact likelihood estimates as well (DeSteno, Petty, Wegener, & Rucker, 2000; Druckman & McDermott, 2008). Thus, affect has the potential to influence risk perceptions in several different ways. The formation of risk perceptions are important given their role in decision making.

2.1.3   Affect as Positive and Negative

The predominant approaches taken in conceptualizing affect have been valence-based. This includes affect as either positive or negative on a bipolar continuum (E. J. Johnson & Tversky, 1983), and positive affect and negative affect as two distinct dimensions (George, 1989; Watson et al., 1988; Watson & Tellegen, 1985). The former approach has largely been replaced by the latter in recent years due to its higher degree of convergent and discriminant validity (Watson & Clark, 1997).

Positive affect is related to the frequency of pleasant events and satisfaction, whereas negative affect is related to stress and poor coping (Watson et al., 1988). An individual with high positive affect does not necessarily have low negative affect and vice versa as they are largely independent dimensions. Thus, it is possible for an individual to have high positive affect and high negative affect, simultaneously.

In this study, we operationalize trait affect as two distinct constructs — trait positive affect and trait negative affect — while also acknowledging that there are other intricacies of trait affect that cannot be fully captured by these two constructs.

2.2   Personality

Since Carl Jung's theory about personality was published in 1921, researchers have continued to rely on, investigate, and question his construct of extraversion/introversion (E/I) (Carrigan, 1960) and the role of personality in influencing individual differences. Jung was not the first psychologist to recognize personality types. Before Jung, both Jordan (1890) and Gross (1902) had explored psychological theories based on type (Hildebrand, 1958). Jung, however, is a definitive personality type theorist, and his concept of extraversion/introversion as an innate yet fluid continuum persists.

Jung (1923) defined the two psychological types as being differentiated by the direction of their interests. He believed the extraverted individual is one who is oriented toward the external object; whereas, the introvert turns away from the external object and is oriented toward the inner self. Jung also held that the E/I construct is compensatory and that the conscious and unconscious balance one another. Therefore, extraversion is defined by an outward-facing disposition; whereas, introversion is defined by an inward-facing disposition, but the two are not mutually exclusive. In addition to identifying the E/I construct, Jung proposed combinations of functional types: thinking; feeling; sensing; and intuiting.

Today, the most popular measure of personality type is the Meyer-Briggs Type Indicator (MBTI), which is based on Jung's personality theories. Although popular, the MBTI is not considered as accurate or predictive as the Big Five, an instrument based on work done by Tupes and Christal in the 1960s and revised by several different groups of researchers since (Tupes & Christal, 1961). Like the MBTI, the Big Five relies on an individual's responses to a series of statements to determine an individual's degree of E/I

as well as to measure other personality traits such as agreeableness, conscientiousness, neuroticism, and openness. In this study, participants responded to The Big Five Inventory, which is based on the Big Five (Benet-Martínez & John, 1998; John, Donahue, & Kentle, 1991; John, Naumann, & Soto, 2008).

2.2.1   Biological Basis of Personality

Personality is almost always measured via self-report. However, like Jung, most researchers believe individuals are hard-wired—biologically destined — to be more or less extraverted/introverted. If an individual's general placement along the E/I continuum is inborn, then personality may be a more dominant trait than other demographic factors often considered in social science research.

In 1967, Eysenck published early research about personality, citing cortical activity as the most salient factor in explaining the differences between extroverts and introverts (Eysenck & Eysenck, 1967a, 1967b). His work suggested introverts have more cortical activity and are, therefore, more sensitive to external stimulation; whereas extroverts have less cortical activity and, therefore, seek external stimulation.

Building on Eysenck's research, scientists have investigated physiological and neurological connections to personality type and environmental stimulation by mapping physical reactions as diverse as amounts of salivation (Corcoran, 1964); eye movements (Gray, 1970); skin conductance (Fowles, Roberts, & Nagel, 1977); caffeine induced arousal and its effects on verbal performance (Gilliland, 1980); cerebral blood flow (D. L. Johnson et al., 1999); electroencephalograms (EEG) and empathy (Gale, Edwards, Morris, Moore, & Forrester, 2001); and brain activity in individuals with high sensory processing sensitivity (Jagiellowicz et al., 2011). These studies indicate personality has a biological basis and may be a dominant, constant set of traits that contribute to individual differences.

2.2.2   Personality, Information Seeking Behavior, and Sense-Making

If personality is a biological, dominant, and relatively constant set of traits that shapes an individual's perception, then personality may also contribute to how individuals create personal information frameworks, how they seek and make sense of information. A host of researchers have investigated how situational differences shape information seeking behavior and information management strategies, and several researchers (Miller & Jablin, 1991; Tidwell & Sias, 2005) have begun to consider how individual differences, including personality traits, contribute to information seeking and sense-making.

Citing Miller & Jablin (1991) as an exception, Tidwell & Sias (2005) write, "robust and stable personality traits are generally ignored in information-seeking research" (p. 54). However, Heinström (2005) found that among university students completing their Master's theses, extroverted students tended to seek information by engaging in broad scanning versus fast surfing and deep diving and while Heinström concludes that personality alone does not determine information-seeking behavior, she notes that it does create boundaries for how an individual seeks information (p. 244). Additionally, Heaton and Kruglanski (1991) observed that, when time constraints are involved, introverts may feel a need for cognitive closure and be less likely to process conflicting information once they have made decisions. They may also be more likely to show negative affect toward people who disagree with their opinions (p. 165).

Other studies have considered the connection between personality traits and general information behavior (Heinström, 2003) and the consumption of political information (Gerber, Huber, Doherty, & Dowling, 2011). Still, other scholars have pursued research regarding personality and different uses of the Internet, including both social and information gathering motivations (Amiel & Sargent, 2004; Hamburger & Ben-Artzi, 2000; Hills & Argyle, 2003; Kraut et al., 2002). This study continues the exploration of personality traits and information seeking, including the Internet as a key information source.

3   Methods

This exploratory study examines how individuals acquire information on a specific piece of content (the Snowden case) and how the use of different sources may be associated with trait affect and personality type,

as well as their perceptions of risk as it relates to this specific piece of content. Because the Snowden case arguably is of global interest and dynamic, we explore if US and non-US responses differ and if responses change in a 5-week period (July to August).

3.1 Survey Development

The survey instrument for both time periods included questions about the use of different information sources for learning about the Edward Snowden situation. The questions asked about the use of 1) Blogs; 2) Online social media discussions; 3) Search engine news; 4) Online news services; 5) Television shows; 6) Personal discussions and email exchanges, and 7) Newspapers (including online versions). Responses were in the form of an anchored five-point Likert scale (1=not used at all; 2=used rarely in one week; 3=used at least weekly; 4=used daily, and 5=used several times per day). Both surveys asked for the respondents' degree of agreement with statements related to security and to how Snowden might be viewed (e.g., as publicity-seeker; courageous whistle-blower; etc.). Finally, both surveys included demographic questions.

The first survey included questions to measure cultural values, trait positive affect, and trait negative affect. The cultural values questions are from Hofstede's Values Survey Model 2008 (1984, 2008).

The primary measurement tool used to examine positive and negative affect has been the Positive and Negative Affect Schedule (PANAS) (Watson et al., 1988). PANAS has been the primary measurement tool in large part due to the extensive reliability testing and validation of this instrument (Waters, 2008). It has been used in a large number of studies to measure positive affect and negative affect and the relationship between these constructs and other constructs (Borkenau & Mauer, 2006; Curry & Youngblade, 2006; Fedorikhin & Cole, 2004; Grindley, Zizzi, & Nasypany, 2008; Lu, Xie, & Zhang, 2013; Ntoumanis & Biddle, 1998; Treasure, Monson, & Lox, 1996; Vasey, Harbaugh, Mikolich, Firestone, & Bijttebier, 2013; Watson & Walker, 1996).

The PANAS consists of 20 items with 2 scales: positive affect (10 items) and negative affect (10 items) (Watson et al., 1988). Positive Affect consists of the descriptors active, alert, attentive, determined, enthusiastic, excited, inspired, interested, proud, and strong. Negative Affect consists of the descriptors afraid, scared, nervous, jittery, irritable, hostile, guilty, ashamed, upset, and distressed. The instrument itself has been validated with several different time instructions, including an instruction for participants to indicate how "you generally feel this way, that is, how you feel on the average" (Watson et al., 1988, p. 1070). This time instruction is designed to measure trait affect. In particular, trait positive affect and trait negative affect, which is what the current research is concerned with measuring. Questions related to culture were also included, but are outside of the scope of the current analysis.

The second survey was similar to the first, but in place of the questions on culture and affect, questions designed to measure personality types were included. The Big Five Inventory is a self-administered questionnaire designed to measure the five primary personality dimensions: extraversion, agreeableness, conscientiousness, neuroticism, and openness (Benet-Martínez & John, 1998; John et al., 1991, 2008). The participant must indicate their level of agreement with 44 phrases by using a five-point Likert scale. In the complex world of personality studies, the use of this instrument provides an acceptable compromise between length and validity. This is important given that some instruments may consist of more than 200 items (Costa & McCrae, 1985), which is not practical for most survey research, especially when other questions are included.

3.2 Recruitment of Participants

This study was conducted by recruiting participants using Amazon's Mechanical Turk. The use of Amazon's Mechanical Turk offers several advantages over other recruitment methods (e.g., students, word of mouth, flyers, and electronic postings). For example, turnaround time can be quite quick — all responses for each sample for the first survey in this particular study were collected in less than 24 hours. Furthermore, it is a cost-effective recruitment tool. In this study, participants were credited with 50 cents to their account for

their participation in the first survey and 65 cents for participation in a follow-up survey. Finally, the quality of responses obtained from participants using Amazon's Mechanical Turk is generally high with only 4.17 percent of respondents failing a quality control question in one study, compared to 6.47 percent and 5.26 percent for participants from a university and Internet message board, respectively (Paolacci, Chandler, & Ipeirotis, 2010). The use of crowdsourcing has increased in popularity and acceptance for these reasons and others (Howe, 2006; Kittur, Chi, & Suh, 2008; Mahmoud, Baltrusaitis, & Robinson, 2012).

However, it does have some drawbacks. For example, since the users are anonymous, quality control can be quite difficult. Some participants may be "malicious workers" that are simply trying to finish the task to receive payment (Ipeirotis, Provost, & Wang, 2010). While quality of responses is a concern using this method, it is far from unique to this recruitment method. Nonetheless, two quality control questions with only one correct answer that were simple and obvious were added to each survey to check for attention, quality, and engagement in the study. The 77 participants (65 from India; 15 from the U.S.) in the first survey that failed the quality control question had their data removed from further analysis. Ultimately, different motives and biases may enter the picture due to the use of this method of recruitment; however, it is a common problem for researchers in most recruitment methods employed.

3.3   Survey Administration

The first survey was administered at the beginning of July. The second survey was administered approximately five weeks later to individuals who had responded to the first survey. Of those that chose to accept the offer and began the survey, 93 percent of those from India completed it (N=214), compared to 96 percent from the United States (N=172). Once we eliminated responses from participants that failed both quality control questions , we had a remaining sample size of 150 with a failure rate of 29.25 percent for India, with a significantly lower failure rate of 8.82 percent for U.S. participants (N=155).

The second survey was administered approximately five weeks later and only participants that completed the first survey and passed the quality control questions were asked to participate in the second. Out of the original 155 U.S. participants, 110 completed the second survey. After cleaning the data by removing responses that failed the quality control questions, as well as those that provided incomplete or incorrect Mechanical Turk Worker IDs, the final sample size from the U.S. for this study is 101.

The same process was followed for the participants from India. Out of the original 150 participants from India, 139 completed the second survey. After the data was cleaned, we ended up with a final sample size from India of 107. There was not a statistically significant difference in any of the demographic categories between those that successfully completed the first survey and those that successfully completed the second one. Additionally, all of the participants in this study completed both surveys.

This data suggests a relatively high response rate for this type of methodology given that paper-based mail surveys generally have a response rate of under two percent (Kotulic & Clark, 2004) with Internet surveys generally even lower (Shih T.-H. & Xitao F., 2008). Although the participants from Amazon's Mechanical Turk are likely more motivated than the general Internet population to complete such surveys. Regardless, the possibility of effects from non-response bias cannot be ruled out. Furthermore, in a study that includes personal questions related to perceptions of an individual embroiled in a national security matter, as well questions related to an individual's affect and personality, we believe the web-based format of the survey is the best method to employ in order to minimize social desirability bias. The samples should not be considered representative of the populations of the two countries. Table 1 shows significant differences in age, gender, and educational levels of the US sample and population, but our sample provides a satisfactory range of ages and educational attainment levels for an exploratory study.

	India Sample	U.S. Sample	U.S. Population[1]
Sample Size	107	101	--
Age			
18-29	41.12%	37.62%	22.0%
30-39	40.19%	30.69%	17.0%
40-49	8.41%	14.85%	18.2%
50-59	4.67%	9.90%	18.1%
60+	5.61%	6.93%	24.7%
Gender			
Male	64.49%	63.37%	49.1%
Female	35.51%	36.63%	50.9%
Education			
Some High School	.93%	0.99%	8.58%
High School (or GED)	.93%	8.91%	30.01%
Some College	9.35%	32.67%	19.46%
College Graduate	57.01%	47.52%	27.59%
Master's / Professional Degree	31.78%	6.93%	8.4%
Doctorate	--	2.97%	1.36%

Table 1: Age, Gender, and Educational Attainment Levels

4 Findings and Discussion

The primary purpose of this study is to examine possible relationships between trait affect and personality types with differences in information seeking behavior and risk perception. In particular, we are interested in determining if there is a statistically significant relationship between trait affect and personality types with the types of information sources individuals use to become informed on a specific news item, as well as their risk perceptions related to this news item. Likewise, we are also interested in determining if the type of information sources used varies over a short period of time — in this case, approximately five weeks.

However, this exploratory study includes multiple facets to it, one of which is a comparison between participants from India with those from the U.S. In this section, we will first examine whether or not the information sources used, their risk perceptions, and both trait affect and personality types are related to the country in which the participants reside. Next, we will look at the information sources used and how they may be related to both trait affect and personality types. Then, we will explore their risk perceptions in a similar manner, including whether or not their risk perceptions are related to the information sources they use to learn about this news item. Finally, we will examine the extent to which the information sources used may have changed over a five-week time period.

4.1 Differences between the U.S. and India

The U.S. and India have unique cultures, customs, traditions, and challenges. In this section, we explore how some of these differences may inform their perceptions of Edward Snowden and his actions, information sources used to learn about the news story, as well as differences in the participants that completed the surveys with respect to trait affect and personality types.

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[1] Source: U.S. Census Bureau, 2011/2012

First, we examine whether there are statistically significant differences between the U.S. participants and the participants from India with respect to awareness of the Edward Snowden situation and some overall perceptions of his actions. Participants from the U.S. are much more likely to be aware of the Snowden situation than those in India. Responses from those unaware of the Snowden case were not included in further analyses. While this may not be surprising, it is interesting how different the perceptions of Snowden are between the two groups of participants. In particular, participants from India feel more strongly that Snowden broke the laws of the U.S. and deserves to be tried in court and that he is a publicity seeker that hopes for personal gain from his actions. These results are presented in the table that follows.

	Aware of Edward Snowden Situation	Courageous Individual	Broke the Laws	Publicity Seeker
U.S.	92.1%	*M=3.65; s=1.165*	M=3.01; s=1.214	M=2.32; s=1.217
India	64.5%	*M=3.71; s=0.965*	M=3.37; s=1.087	M=3.37; s=1.226
t statistic	6.449**	--	2.702**+	7.581**+
*** Significant at the .01 level (2-tailed) * Significant at the .05 level (2-tailed)*				
-- Not Significant + Equal variances assumed				

Table 2: Differences between the U.S. and India - Awareness and Perceptions

Second, we explore whether risk perceptions related to Snowden's actions are different based on the country in which the participant resides. For most of the questions, we find a statistically significant difference between the two groups of participants. Specifically, for five of the six questions that showed a statistically significant difference, participants from India provided ratings indicating a greater level of agreement with the statement. This is true for questions considered more risk seeking (e.g., "make me feel personally more secure"), as well as those considered more risk averse (e.g., "have damaged U.S. national security").

The one exception is the question with the statement: "make me less confident in my government's oversight of our nation's security". Whether these responses reflect the true opinions of participants or perhaps simply a difference in levels of baseline agreeableness is unclear. However, as we will discuss momentarily, the personality type that measures how agreeable one is, is statistically different for the two countries. The table that follows presents the findings on differences in risk perceptions.

	More Secure Personally	Damaged U.S. Security	Damaged All Democratic Nations' Security	Less Confident in Government	Stronger and More Secure U.S.	Negatively Affects All Democratic Societies	Will Make Little Difference in our Security
U.S.	M=2.58; s=1.072	M=2.73; s=1.263	M=2.23; s=1.155	M=3.79; s=1.057	*M=3.19; s=1.114*	M=2.31; s=1.163	M=2.97; s=1.049
India	M=3.34; s=1.042	M=3.31; s=1.208	M=2.94; s=1.202	M=3.24; s=1.156	*M=3.38; s=1.011*	M=3.05; s=1.230	M=3.41; s=0.985
t statistic	6.274**+	4.125**+	5.311**+	4.291**	--	5.498**+	3.786**+
*** Significant at the .01 level (2-tailed) * Significant at the .05 level (2-tailed)*							
-- Not Significant + Equal variances assumed							

Table 3: Differences between the U.S. and India - Risk Perceptions

Next, we look at differences in how information sources are used. Similar to the above finding, participants from India rate much higher with respect to the use of various information sources. This may be an artifact of the specific participants from India who have taken part in the study, but it may also be indicative of a greater level of engagement with news than their U.S. counterparts. Finally, as noted above it is possible that participants from India are simply more agreeable. We will explore this next.

	Blogs	Online Social Media Discussion	Search Engine News	Online News Services	TV Shows	Personal Discussions & Email Exchanges	Newspapers
U.S.	M=1.88; s=1.001	M=2.02; s=1.054	M=2.40; s=1.180	M=2.60; s=1.166	M=2.40; s=1.208	M=1.69; s=1.011	M=2.08; s=1.070
India	M=2.57; s=1.107	M=3.29; s=1.229	M=3.56; s=1.076	M=3.30; s=1.137	M=3.40; s=1.225	M=2.69; s=1.249	M=3.82; s=0.929
t statistic	5.702**	9.610**	8.895**+	5.352**+	7.221**+	7.581**	15.445**
	*** Significant at the .01 level (2-tailed) * Significant at the .05 level (2-tailed)*						
	-- Not Significant + Equal variances assumed						

Table 4: Differences between the U.S. and India - Information Sources Used

In our final examination of differences between participants from the U.S. and India, we can see that participants from India have significantly higher levels of trait positive affect. Generally speaking, individuals with higher levels of trait positive affect experience the world by embracing life with energy, have higher levels of confidence and enthusiasm, and enjoy the company of others (Watson, Clark, McIntyre, & Hamaker, 1992). Furthermore, these individuals are more likely to have higher levels of the personality type extraversion (Watson et al., 1992; Watson & Clark, 1994, 1997). Not surprisingly, we find that the participants from India do in fact have higher levels of this personality type. Likewise, they also show statistically significant higher levels of the personality type "agreeableness". As noted earlier, this may account for the overall higher ratings provided by participants from India. This is something that should be explored in future research.

	TPA	TNA	BFI-E	BFI-A	BFI-C	BFI-N	BFI-O
U.S.	M=27.17; s=7.970	M=14.17; s=6.636	M=2.67; s=0.960	M=3.74; s=0.749	M=3.97; s=0.746	M=2.49; s=0.932	M=3.60; s=0.697
India	M=40.20; s=6.938	M=15.93; s=6.877	M=3.56; s=0.672	M=4.06; s=0.606	M=4.05; s=0.719	M=2.36; s=0.779	M=3.67; s=0.449
t statistic	12.533**+	--	7.706**	3.318**+	--	--	--
	*** Significant at the .01 level (2-tailed) * Significant at the .05 level (2-tailed)*						
	-- Not Significant + Equal variances assumed						

Table 5: Differences between the U.S. and India - Trait Affect and Personality Dimensions

4.2   Information Sources Used and their Relationship with Trait Affect and Personality Dimensions

In this section, we consider whether there is a relationship between the extent to which certain information sources are used and both trait affect and personality types. While there is no specific pattern that emerges here, trait positive affect and the personality type openness are correlated with several of the different information sources. Additionally, the personality type extraversion is correlated with search engine news for both U.S. and India participants. The only other combination this is true for is trait positive affect and

online news services. This suggests that trait affect and personality types may be related to the information sources individuals choose to use, but in largely different ways for the two groups of participants.

Rate how much you have used each of the following sources of information to learn about Edward J. Snowden, his disclosure of U.S. surveillance activities, and his legal situation:

	Country	TPA	TNA	BFI-E	BFI-A	BFI-C	BFI-N	BFI-O
Blogs	U.S.	--	--	--	--	--	--	--
	India	.305*	--	--	--	--	--	--
Online social media discussions	U.S.	--	--	--	--	--	--	.231*
	India	.328**	--	--	--	--	--	--
Search Engine News	U.S.	.221*	--	.217*	--	--	-.209*	.216*
	India	--	--	.277*	--	--	--	--
Online News Services	U.S.	.386**	-.279**	--	--	.236*	--	.247*
	India	.253*	--	--	--	--	--	--
Television shows (including online TV sites)	U.S.	--	--	--	--	--	--	--
	India	--	--	--	--	--	--	.277*
Personal discussions and email exchanges	U.S.	--	--	--	--	--	--	--
	India	.306*	--	--	--	--	--	--
Newspapers (including online versions)	U.S.	--	--	--	--	--	--	--
	India	--	--	--	--	--	--	--

*** Significant at the .01 level (2-tailed) * Significant at the .05 level (2-tailed)   -- Not Significant*

Table 6: Information Sources Used and their Relationship with Trait Affect and Personality Dimensions

4.3   Risk Perceptions and their Relationship with Information Sources Used, Trait Affect, and Personality Dimensions

Next, we examine several different possible relationships with the questions related to risk perceptions and other perceptions about the Snowden situation. First, we will explore possible relationships between risk perceptions and both trait affect and personality types. In this analysis, we find that the belief Snowden's actions have damaged U.S. national security is correlated with trait positive affect for U.S. participants and the personality traits conscientiousness and openness for India participants, albeit in a negative direction.

Additionally, participants in India with higher levels of trait positive affect and the personality type conscientiousness are less likely to believe that Snowden's actions negatively affects all democratic societies. Finally, participants in the U.S. with higher levels of the personality type agreeableness are less likely to believe that Snowden's actions will make little difference in our security as a society, while the opposite is true for those with higher levels of the personality type neuroticism.

In my view, Mr. Snowden's actions...

	Country	TPA	TNA	BFI-E	BFI-A	BFI-C	BFI-N	BFI-O
...make me feel personally more secure.	U.S.	--	--	--	--	--	--	--
	India	--	--	--	--	--	--	--
...have damaged U.S. national security	U.S.	.323**	--	--	--	--	--	--
	India	--	--	--	--	-.289*	--	-.324**
	U.S.	--	--	--	--	--	--	--

	Country							
…have damaged all democratic nations' security	India	--	--	--	--	--	--	--
…make me less confident in my government's oversight of our nation's security.	U.S.	--	--	--	--	--	--	--
	India	--	--	--	--	--	--	--
…in the long run will make for a stronger and more secure U.S. society	U.S.	--	--	--	--	--	--	--
	India	--	--	--	--	--	--	--
…negatively affects all democratic societies, U.S. and others	U.S.	--	--	--	--	--	--	--
	India	-.248*	--	--	--	-.255*	--	--
…will make little difference in our security as a society	U.S.	--	--	--	-.247*	--	.303**	--
	India	--	--	--	--	--	--	--

*** Significant at the .01 level (2-tailed) * Significant at the .05 level (2-tailed)   -- Not Significant*

Table 7: Risk Perceptions and their Relationship with Trait Affect and Personality Dimensions

In our exploration of a few more general perceptions related to the Snowden situation, we find that participants in the U.S. with higher levels of trait positive affect are less likely to believe that Snowden is a courageous individual who followed his conscience. Interestingly, the personality type openness was related to all three questions for India participants. In particular, participants from India with higher levels of the personality type openness are more likely to view Snowden in a favorable light.

In my view, Mr. Snowden…								
	Country	TPA	TNA	BFI-E	BFI-A	BFI-C	BFI-N	BFI-O
…is a courageous individual who followed his conscience.	U.S.	-.225*	--	--	--	--	--	--
	India	--	--	--	--	--	--	.390**
…broke the laws of the U.S. and thus deserves to be tried in court.	U.S.	--	--	--	--	--	--	--
	India	--	--	--	--	--	--	-.248*
…is a publicity seeker and hopes for personal gain from his actions.	U.S.	--	--	--	--	--	--	--
	India	--	--	--	--	--	--	-.252*

*** Significant at the .01 level (2-tailed) * Significant at the .05 level (2-tailed)   -- Not Significant*

Table 8: Perceptions and their Relationship with Trait Affect and Personality Dimensions

As this study is exploratory in nature, we are not in a position to declare that use of specific information sources leads one to have certain perceptions related to a news item. Nonetheless, the findings here are interesting as there are several correlations throughout. For example, participants from the U.S. that have followed the Snowden situation in part through TV shows are less likely to believe that Snowden's actions make them feel personally more secure. In contrast, the opposite is true for those that have followed online

news services a fair amount. The relationship between TV shows and risk perceptions is found in two other questions. In each case, those that have learned more about the Snowden situation through TV shows are more likely to believe his actions were not good for them personally or for the U.S. as a whole.

The opposite is true for U.S. participants that have learned about the Snowden situation in part through online social media discussions. Specifically, these individuals are more likely to think Snowden's actions were good for society. The implications of these findings here are unclear, but they do raise some interesting questions for future research. For example, does the information source used matter? Or, is it that individuals who choose to use a particular information source are the same ones that are risk averse (or risk seeking)?

In my view, Mr. Snowden's actions…

	Country	Blogs	Online Social Media Discussion	Search Engine News	Online News Services	TV Shows	Personal Discussions & Email Exchanges	Newspapers
…make me feel personally more secure.	U.S.	--	--	--	.165*	-.151*	--	--
	India	.244*	.277**	.191*	.182*	--	.246**	--
…have damaged U.S. national security	U.S.	--	--	--	.180*	--	-.166*	--
	India	--	--	--	--	--	--	--
…have damaged all democratic nations' security	U.S.	--	-.149*	--	--	--	-.205**	--
	India	--	--	--	--	--	--	--
…make me less confident in my government's oversight of our nation's security.	U.S.	--	--	--	--	--	--	--
	India	.200*	--	--	--	--	--	--
…in the long run will make for a stronger and more secure U.S. society	U.S.	--	.159*	--	--	-.162*	--	--
	India	.345**	.247**	.215*	--	--	--	--
…negatively affects all democratic societies, U.S. and others	U.S.	-.160*	-.157*	--	--	.155*	--	--
	India	--	--	--	--	--	--	--
…will make little difference in our security as a society	U.S.	--	--	--	--	--	--	--
	India	--	.196*	--	--	--	--	--

*** Significant at the .01 level (2-tailed) * Significant at the .05 level (2-tailed)   -- Not Significant*

Table 9: Risk Perceptions and their Relationship with Information Sources Used

Some of the same general trends noted previously are also found for these three questions. Again, participants in the U.S. that have learned about the Snowden situation in part through TV shows are less likely to have a favorable opinion of his actions and the overall effect these actions have on security. There is some suggestion below that this may not be true for participants from India.

In my view, Mr. Snowden…

	Country	Blogs	Online Social Media Discussion	Search Engine News	Online News Services	TV Shows	Personal Discussions & Email Exchanges	Newspapers
…is a courageous individual who followed his conscience.	U.S.	.160*	.162*	--	--	-.166*	.240**	--
	India	--	--	--	--	--	--	--
…broke the laws of the U.S. and thus deserves to be tried in court.	U.S.	--	--	--	--	.218**	--	--
	India	--	--	--	--	-.177*	--	--
…is a publicity seeker and hopes for personal gain from his actions.	U.S.	--	--	--	--	--	-.198*	--
	India	--	.185*	--	--	--	.267**	--
*** Significant at the .01 level (2-tailed) * Significant at the .05 level (2-tailed) -- Not Significant*								

Table 10: Perceptions and their Relationship with Information Sources Used

4.4   Consistency of Information Sources Used and Perceptions Over Five Weeks

Finally, we examine the question of whether a short time span of approximately five weeks results in changes in perceptions of Snowden or the information sources used to learn about the situation. The analysis indicates that there was no statistically significant difference in these items between survey one and survey two. It is possible that longer periods of time between the administration of surveys could change this and is something that may be worth exploring in future research.

5   Conclusion

This exploratory study demonstrates the statistically significant associations among non-cognitive factors with information acquisition and interpretation. This suggests that information research on perceptions and information behavior should take into account these non-cognitive factors in the research design and analysis of results. Ignoring these factors means that research findings may be less robust than findings from studies that incorporate these factors.

Specifically, this exploratory study illustrates that how individuals perceive (security) wall breaches — in particular the actions taken by Edward Snowden in revealing US secrets — is associated with differences in the non-cognitive factors of trait affect and personality. The correlations among the values from our sample are statistically significant and measureable, but we cannot say how extensive these influences may be with other samples or samples from other populations. In our study spanning five weeks, we see a consistent set of responses identifying perceptions and sources of information.

As with many exploratory studies, this one has raised more questions than it has answered. What the study has contributed is an awareness that non-cognitive aspects of perception and sense-making — particularly trait affect and personality dimensions — are important in understanding how people may acquire and interpret information.

5.1   Implications

Individuals perceive personal security issues differently and react differently to the actions taken by individuals who may act to reveal secrets. Security — more precisely, the perception of security — is constructed differently by different individuals, and this construction depends on personality and trait affect in addition to the information sources available. The results of this study, however, have implications that go beyond the current issue of Snowden and his actions on security. They raise questions about how individuals' trait affect and personality dimensions may be associated with information behaviors and sense-making.

5.2   Limitations

This exploratory study has numerous constraints that limit the generalizability of the responses. The samples are not representative samples of the populations of India and the U.S. The choice of Mechanical Turk means that there are inherent limitations (include response biases) that can limit the validity of the findings in other contexts.

5.3   Future Work

Despite its limitations, this study provides motivation for future studies that examine in more detail how personality dimensions and trait affect are associated with choices of information sources, sense-making, and judgments. The results suggest that models that seek to explain the variance among these dimensions could be fruitful. Data on cultural values — not examined in this paper — also may prove useful additions to such a variance model.

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7   Table of Tables