

SOCIAL INFORMATION PROCESSING AND PERSONALITY BEHAVIOR IN NEW SITUATIONS

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Abstract

This paper examines the complex relationship between person, situation, and social information processing in explaining human behavior. What people do depends, to a large extent, on the situation they find themselves in. But while this fact has been discussed and sometimes contested over the past few decades, situations rarely receive the focused scrutiny they deserve. What is known about the socio-psychological characteristics of situations? Are persons, situations, and behaviors so hopelessly intertwined that they can never be separated? How can a situation be defined and what are its characteristics? The key question is: what causes people to behave the way they do? The stakes are high when the protagonists of the "person-situation debate" argue about whether behavior is primarily determined by the individual's personality traits, or by his/her immediate situation. The very definition of a situation is a "complex issue". One problem concern where to set the boundaries.

Among other implications, the debate appears to turn the two major subfields of psychology against each other: personality psychology, which generally emphasizes the influence of the person, and social psychology, which emphasizes the situation. The main idea is that behavior cannot be understood solely through the characteristics of the person, nor solely through the influence of the situation, but through their constant interaction.

Keywords: *person, situation, social interaction, information*

Introduction

One common concern is the prediction of behavior (whether at the individual or group level). We are all now concerned with interactions, since we accept the importance of both the person and the situation, but just because we have recognized the importance of interaction does not mean that we have achieved much. At the very least, we need a detailed understanding of how personality factors influence dispositions in dynamic interaction. Most researchers accept that neutral, cognitive, and social processes interact in the course of personality development, although building and validating detailed models of the developmental process is difficult. Two examples will suffice to illustrate this.

There is a growing belief that research on personality and health should be placed in the context of the life course, between the individual and the environment in a particular social encounter, as well as a longer-term focused understanding of the developmental interaction between the person and situations over periods of years or even decades.

A significant question here is the causal role of individual differences in cognition in generating personality differences. Information processing models typically establish correlations between personality traits and various processing components, but it is still unclear whether processing precedes personality or vice versa. Recent research on anxiety (Wilson, MacLeod, Mathews and Rutherford, 2006) assigns a causal role to processing: training participants to respond to threatening stimuli appears to increase anxiety (vulnerability to stress). Theories of self-regulation can be usefully extended by specifying reciprocal relationships between personality traits and specific processing functions that support adaptation to external social environments.

Personality and social interaction

Different perspectives have always existed simultaneously, and changes that were positive for some people were negative for others. As part of a larger intellectual dialogue, the perspectives of different theorists (Freud's pessimistic focus on repression and sexual conflict, optimism about human potential, Skinner's emphasis on environmental determinism and the possibility of a utopian community,

are just a few that capture different perspectives that contribute to their acceptance or rejection, based on their compatibility and perceived usefulness to individual lives (Koltko-Rivera, 2004). Along with these advances in personality theory, several cognitive behaviorists (Bandura, 1986) have spoken of the perception of faces as refined concepts of traits: no longer defined solely in terms of observable behavior, but also in terms of a person's thoughts and beliefs about a situation, his or her abilities, the likely outcomes of the situation, and so on. The extension of measures of self-efficacy expectations to many behavioral domains confirms the influence of this cognitive reconceptualization of personality trait concepts.

In discussing individual differences in the functioning of behavioral systems, (Bowlby, 1973) rejected the psychoanalytic and object relations approaches that emphasized exclusively the person's fantasies, internal conflicts, and defenses and downplayed the actual experiences of individuals with their relationship partners. Although Bowlby agreed that the functioning of the behavioral system reflects intrapsychic processes related to the person's desires, fears, and defenses, this is sensitive to the relational context in general and to the specific reactions of the relationship partner on a given occasion. For example, the functioning of the attachment system involves real or imagined interpersonal interactions with real or internalized attachment figures and can be altered by the responses of these figures to demands for closeness and support. In this way, attachment theory has much in common with interpersonal psychodynamic theories of personality and social-psychological interdependence theories of relationships (Kelley, Berscheid, Christensen et al. 1983). All of these theories focus on social interactions as the unit of analysis and emphasize the powerful influence that a person's reactions exert on the thoughts, feelings, and behavior of a partner.

There is a challenge that arises from social psychological approaches that integrate both cognition and personality within the context of social interaction. The self-schema can be attributed to a generalized self-knowledge relevant to all individuals (Wells & Matthews, 1994). For example, we can assess self-esteem using standard instruments and relate the measurements to traits such as neuroticism. The opposing sociological-psychological perspective is that constructs related to the self can only be understood in the context of social relationships and cultural milieu. Not only is the self formed through social interaction, but it is also modified through discourse with others; thus, it can be said to be located "between" rather than "within" people (Hampson, 1988). Social learning can lead to the development of organized networks of cognitive-affective processing units that support the individual's unique pattern of interaction with the social world.

Despite the ferocity of the person-situation debate, its deep roots, its far-reaching implications, and its persistence into the 21st century, it can be argued that the basic dichotomy is flawed (Funder 2006; Roberts and Pomerantz 2004). While it is impossible to compare and identify statistical main effects of person and situational variables, it is not true that one can only exist at the expense of the other.

However, although in the past five years of published scientific literature, phenomena have been mostly explained by situational forces, there is still no real technology for defining, characterizing, or measuring them. Hogan and Roberts, lament that in ninety years of research, social psychology has yet to offer a reasonable taxonomy of situations. Funder points out that 'little is known empirically or theoretically about how situations influence behavior, or what the basic types of situations are (or, alternatively, what variables are useful for comparing one situation with another)'.

Defining situations

The very definition of a situation is a 'complex question'. One problem concerns where to draw the boundaries. For example, one might simply describe a situation in terms of place or location, in which case 'France' is as valid a situation as 'in the market'. But at best, this kind of description is little more than a mere indication. Psychologically relevant attributes of the environment need to be characterized and explored. In doing so, one can attempt to define situations at a very molecular level: a picture of the precise and complex arrangement of all the physical, psychological, and social things at a particular moment in time. But because each moment is always different from the next, this approach makes it impossible to determine where one situation ends and the next begins. "Eating lunch in the cafeteria" can be divided (literally) into different bite-sized situations. While there may or may not be anything psychologically different between the first bite of steak and the last, a definition of situations that attempts to account for minute-by-minute variances in the physical and/or social environment quickly becomes too broad.

A second problem with the definition involves perspective. A short plane flight from Los Angeles, California, to Las Vegas, Nevada, would be described very differently from the perspective of an aviphobe than from the perspective of a frequent flyer or (hopefully) a pilot. A school party may be described as “demoralizing” or “uncool” by one teenager, “romantic” and “a night to remember” by another, and “precious” or perhaps “tedious” by those tasked with overseeing it. Does a situation have its own independent characteristics, beyond the perceptions of the people in it? These two questions of definition raise difficult philosophical puzzles, and there is no solution to either of them in sight. However, that does not mean that further use of concepts and research should not be made. Here are some of the tentative answers that have emerged for each of the questions.

The first question, concerning boundaries, can be provisionally addressed by asking people to use their common sense when answering the question, What situation are you in right now? Whether a participant or an observer, we believe that a person will readily identify the psychologically relevant boundaries of the situation in which he or she finds himself or herself, or which he or she observes, and will be able to describe it as “studying for a test,” “arguing with the roommate,” and so on. Whether the situations thus defined can be further characterized in psychologically interesting and useful ways is an empirical question. The second definitional question, we believe, requires at least a provisional “yes” answer, since each attempt characterizes the situations that follow. Without denying that a given situation may have different meanings for each individual in it, the analysis of any situation must surely begin with an attempt to specify its attributes that are psychologically relevant to people in general.

Situational Conceptualization

One of the earliest and most famous conceptions of situations comes from Henry Murray, whose theories address the question of whether situations and persons can be separated. Specifically, he was interested in the role that the environment plays in a person's ability to express his psychogenic needs, and he called the environmental forces that influence behavior his pressures. He distinguished between forces that are intrinsic to the situation (which he called alpha pressures) and forces that arise from the individual's idiosyncratic reaction to the objective features of the situation (which he called beta pressures). This distinction is useful in that it suggests that the situation exists in some form outside of the individual's individual perceptions of it. A crude example of this is a person being trapped in a freezer: the freezer, where no one else is, has the inherent property of being very cold. Once someone is accidentally caught up in it, the situation may be seen as terrifying and dangerous, ironically amusing, or irritatingly inappropriate – but this depends to some extent on the person. In doing so, it is reasonable to imagine examining situations from any of these perspectives, or both.

Several researchers (Sosir, Bahar & Fernandez, 2007) agree that situations can be approached from different conceptual levels. Block calls these levels psycho-biological, canonical, and subjective; Sausir et al. call them environmental, consensual, and functional; Gelfand simply calls them macro, meso, and micro – but all of these authors seem to be referring to the same or very similar three levels of analysis.

Level 1: macro/physico-biological/ecological. Early definitions of situations were behavioral and based on learning theory: the fragmentation of the physical environment into discrete, quantified stimuli that probe the pleasant and unpleasant effects of the environment. At this level, the broadest of the three, a situation represents only the raw sensory information available to us, unfiltered by perception. For Saussure, this would include, for example, temperature, location, and number of people in the room; for Blok, this might also include physiological arousal.

Gelfand describes this level as including ecological, historical, and sociopolitical factors. This level corresponds to the alpha press in its most rudimentary form, after all aspects of the social and psychological world have been removed.

Level 2: meso/canonical/consensual. This level of description refers to features of the situation that are shared in a social, cultural, and sociological way. Situations at this level are described objectively (e.g., “funeral,” “quarrel”) and are selected and “structured to exclude certain (behavioral) possibilities and to emphasize others” (Block, 1981).

Although this will vary from one social group to another, from one region to another, from one culture to another, it represents the most useful level at which to conceptualize the alpha press, because it is both objective and sufficiently captures socio-cultural characteristics. Level 3: micro/subjective/functional. This level describes the psychological needs-features of the situation as they register with the individual. This, however, is the level of the situation that individuals experience

subjectively and respond to, and which can be quite idiosyncratic. It is most closely related to Murray's concept of the beta press.

Riverside Situational Q-Sorting

It is clear that situation research is far from over. For a start, there is little consensus on what the basic dimensions of situations are, or how the characteristics of situations can be reasonably described, or what constitutes a situation in general. Also, the comprehensiveness of previous studies is quite uneven: many of them are limited to hypothetical situations rather than those actually experienced, or to specific types of situations rather than general situations. Finally, the three parts of the "triad" are hardly connected to each other: while very few other studies have examined situations and behavior, they have usually been limited to what participants think they would do if... rather than what was actually done; and only a few have examined individual differences in perception and response to situations.

A current review of the Riverside Situational Q-Sort (RSQ) (Wagerman and Funder, 2006), an assessment tool built on the following assumptions about two main questions.

(1) Can situations ever be viewed independently of people's perceptions of them (or of the behaviors involved in them)? The answer is thought to be a resounding "yes." Indeed, interactions between people, situations, and behaviors can only be studied successfully if they are kept independent at the level of conceptualization and measurement (Reis, 2007). Some might argue for a subjective or constructivist approach: that the person and the situation are essentially inseparable, and that it is impossible to study either separately (Lewin 1936; Johnson, 1999).

However, such arguments, while philosophically interesting, risk being mired in analytical and empirical paralysis. In fact, the conceptualization of situations in terms of individual differences (for example, an extrovert sees situation "X" in a particular way, while a shy person interprets the exact same situation in a completely different way) effectively subsumes the study of situations into the domain of personality studies. In order to be equal partners with personality variables in predicting behavior, situational variables need to be distinguished from, not merged with, them. There must be something about the situation that affects both the shy and the extroverted person, because if it doesn't, social psychologists, and psychological experimentalists in general, have been wrong all along.

(2) At what level should situations be studied? Level 1 (macro/physical-biological/ecological level) may have the advantage of being easy to cluster, but while such variables undoubtedly influence behavior, clustering of locations seems behaviorally uninformative and unpsychological: the situation as it affects human behavior must be more than its location or the raw physical facts. The study of situations at Level 3 (micro/subjective/functional level) involves all the problems mentioned above about the need to separate the person from the situation, and there is a risk of circularity in behavioral analysis.

Accordingly, it may be best to direct the investigation of the characteristics of situations at Level 2 (meso/canonical/consensus level of description), which is analogous to the description of a person: while the characteristics of any given person are of psychological interest, data are often aggregated from multiple such perceptions to obtain some consensual and objective description of the characteristics of that situation. While this approach still has some limitations, and may not be useful in the study of intimate relationships, it is nevertheless expected to have a wide range of applicability.

Analysis of associations between situational variables, behavior, and personality using the RSQ (of which the examples summarized above are only a small fraction) has led to the conclusion that aspects of experienced situations can be reliably and meaningfully described by such an instrument, and that the traits it captures are related to behavior, emotional experience, and personality, and perhaps also gender and cultural background.

This step toward systematization may help promote a new symbiosis between personality and social psychology (Swann & Seyle, 2005), by allowing the "situation effect" long studied to be analyzed in terms of the same kind of general variables that have long been used in personality psychology to conceptualize the effects of persons (Funder & Ozer, 1983).

In applied contexts, situational assessment technology offers the potential to predict the specific situations in which people, or at least certain types of people, or even people with certain genotypes, are likely to become angry, engage in criminal behavior, perform well at work, or live longer. Different people thrive or suffer in different situations, a fact that suggests that a developed science of situational

assessment would be useful for enhancing individual selection and design in the context of the workplace, education, and general life, to promote mental and physical health, as well as the achievement of important individual goals.

Personality and Information Processing Task Performance

A promising source of evidence for links between personality traits and intellectual abilities has been through the examination of information processing task performance in the context of personality and other factors (e.g., motivation, time of day, caffeine, etc.). Information processing tasks typically involve participants comparing objects to discover similarities and differences, memorizing random numbers, staring at a screen to notice specific signals for extended periods of time, and so on.

Although information processing tasks are not perfect indicators of intellectual ability, they are usually related to abilities to some extent, and some information processing tasks are part of broader measures of intellectual ability. The evidence for the relationships between personality traits and performance on information processing tasks is much more incomplete than the corresponding list of correlations between personality trait measures and measures of intellectual ability.

The relationships between personality traits such as impulsivity, extraversion, anxiety, and need for achievement and performance on information processing tasks appear to be even more complex. For example, Revell and his colleagues have shown that there are interactions between the types of information processing tasks that participants are asked to perform, the time of day they are performed, and even the amount of caffeine that participants consumed before the task. More generally, a key aspect of this framework is the idea that introverts tend to have higher baseline levels of arousal than extroverts, and they tend to perform better in the early morning. When the task, situation, or external stimuli (e.g., drinking a caffeinated beverage) increase arousal, individuals respond with improved performance or worse performance, depending on whether their arousal level has exceeded the optimal level.

The difficulty in generalizing these findings from information processing tasks to intellectual abilities is that many of the underlying effects are thought to be curvilinear; For example, if introverts are better in the morning and extroverts are better in the afternoon, then ability ratings given at different times of day might yield positive, negative, or zero correlations. And, to the extent that abilities are acquired over a longer period of time, the expectation is that these different effects would essentially cancel out in the long run.

Perhaps the ultimate effects of these personality trait–ability relationships will not be revealed so much in personality trait–ability correlations, but rather in the interests or orientations and orientations of individuals. For example, introverts and extroverts may be more likely to be attracted to school subjects or jobs for which they are most suited, and the association with intellectual ability would be only an indirect effect of the intellectual demands of the different school subjects or jobs. In fact, there are significant correlations between some personality traits and topics of occupational interest (such as Conscientiousness and conventional occupational interests; Extraversion and social and entrepreneurial occupational interests; and Openness to Experience and artistic occupational interests (Ackerman & Heggestad, 1997).

Agreeableness/Acceptance

Because of the relationship of extraversion and neuroticism to emotions and to rewards and punishments, and because of the long history of biological theorizing about them, there is more evidence regarding their biological substrates than there is for agreeableness/acceptance, conscientiousness, and openness/intelligence. Furthermore, several theories have been proposed to explain the nature of the latter three trait domains from a biological and evolutionary perspective (MacDonald 1998; Nettle 2006). Thinking about grouping them within the meta-traits of stability and plasticity is a useful starting point in this endeavor. For example, consent/acceptance seems to reflect a tendency to maintain social stability, and encompasses traits that reflect prosociality versus antisociality: compassion, empathy, cooperation, kindness—a general tendency to be interested in and attentive to the needs, desires, and feelings of others, and to refrain from aggression and imposing one's will on others.

Such altruistic tendencies are particularly important for social species, and traits that resemble consent/acceptance are consistently found in social mammals (Gosling & John, 1999). It seems likely that consent/acceptance will be supported by brain systems involved in social information processing. As more neuroscientific research on empathy, theory of mind, and the perception of biological movement

and intention becomes available, they will be more relevant to understanding the neurobiological substrates of consent/acceptance. Brain regions associated with these forms of social information processing include the medial prefrontal cortex (Seitz, Nickel & Azari, 2006), the posterior temporal sulcus, the temporoparietal ganglion, and the mirror neuron system that includes the inferior frontal gyrus and the rostral posterior parietal cortex. (Mirror neurons respond similarly when watching an agent perform a task and when performing the task themselves.)

Other brain regions, beyond those typically identified as involved in social information processing, have also been associated with measures of trait empathy. One study (Chakrabarti, Bullmore & Baron-Cohen, 2007) showed that viewing different emotional expressions correlated empathy with activity in brain regions functionally relevant to the specific emotion (e.g., viewing happiness activated the reward system more strongly than the ventral striatum in participants who were high in empathy). Another study (Singer, Seymour, O'Doherty et al., 2004) found that empathy was associated with brain activity in the insula and anterior cingulate cortex (regions involved in the affective component of pain) while individuals watched a loved one experience pain.

These findings suggest the extent to which empathy may involve the activation of brain regions involved in relevant emotions when observing others, a process potentially coordinated by the brain regions described above as contributing to social information processing.

Conclusion

This review of the relationships between personality traits and intellectual ability suggests that there are many sources of overlap, but the largest relationships are found for personality traits that have some theoretical relationship to intellectual ability and/or environmental pressures related to ability testing (e.g., Typical Intellectual Involvement, Intellectuality, Culture, Test Anxiety, etc.). Other personality traits have prominent but relatively modest relationships. Positive personality traits (e.g., Positive Affect, Introversion) tend to have small positive correlations with both broad and narrow intellectual abilities, while negative personality traits (e.g., Neuroticism, Anxiety, Aggression) tend to have negative correlations with intellectual ability. Neuroticism and Anxiety in particular tend to correlate with intellectual ability to a greater extent than positive personality traits.

Personality traits where the ideal point is much closer to the middle of the scale (e.g. introversion - extroversion) tend to show negligible correlations with intellectual ability, but these correlations may not be the most appropriate technique for detecting the underlying relationship (which may be nonlinear in the sense that a score towards one extreme is just as negative an indicator of ability as the other extreme).

In general, knowledge of an individual's standing on various personality traits will not tell us much about his standing on various measures of intellectual ability, and vice versa. In fact, it is much more likely that because personality traits are tied to the concept of "typical behaviors," an individual's standing on a personality trait will be much more informative about whether the individual will approach or avoid situations with varying levels of intellectual demand. Similarly, an individual's personality traits should be expected to be more closely related to the level of performance on an intellectual task that is achieved when there is little or no environmental pressure for good performance.

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