

## **BOUNDARIES IN THE MIND: HISTORICAL CONTEXT AND CURRENT RESEARCH USING THE BOUNDARY QUESTIONNAIRE**

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The term “boundaries in the mind,” first defined by Ernest Hartmann (1989), refers to two sorts of boundaries:

1. the degree of connectedness among various aspects of the mind; and
2. the degree of connectedness between the self and the outside world.

Boundaries lie on a continuum from “thick” to “thin.” On the thin end of the spectrum, boundaries signify permeability and fluidity. For example, a person with very thin boundaries may have difficulty separating his or her sense of self from the environment and consequently be very emotional. Others with thin boundaries may have difficulty in distinguishing dreaming from reality. Thick boundaries, on the other hand, imply a degree of separateness. Examples may include a person who seems detached or unaffected by his or her environment, a person who is removed from close relationships, or a person who experiences minimal congruence between waking experience and dreaming.

The concept of boundaries is a useful way to describe differences among people. Many researchers have investigated the relationship between boundaries and other aspects of personality functioning, such as neuroticism and attachment patterns (Zborowski, Hartmann, Newsom, & Banar, 2003). Additionally, the association between boundaries and dreaming proved to be a particularly fruitful area of study when findings revealed that boundary structure is one of the

only personality variables reliably related to how frequently people recall their dreams (Blagrove & Pace-Schott, 2010). This article attempts to describe the origins and precursors to Hartmann's boundary concept with particular attention to the various manifestations of the boundary construct throughout the history of psychiatry and psychology. It will then review tools to measure boundary structure and review current literature related to the boundary concept.

### PRECURSORS TO THE BOUNDARY CONSTRUCT

Attempts to describe structure of the mind have been numerous since the beginning of the 20th century. Models of these possible structures have been developed in order to better understand phenomena as diverse as levels of consciousness, dreaming, cognitive development, affect regulation, and psychological disorders. Many of the early contributions were made by Sigmund Freud and his followers in their attempts to explain dreams and psychopathology. In his influential work *The Interpretation of Dreams*, Freud (1900/1978) theorized that dreams are made from an interaction between various parts of the mind. The mind, or more specifically the "psychic apparatus," is made up of various systems, each performing a specific function. By wending their way through the levels within the psychic apparatus, ideas are turned into images and eventually represented in dreams. Freud named three general divisions within the mind: the conscious, preconscious, and unconscious. Ideas or information in the preconscious, according to Freud, can travel to consciousness without significant impediment. In contrast, the unconscious has no access to the conscious except through the preconscious. Dreaming facilitates the movement of information from the unconscious to the conscious. This is similar to boundary concept, as both models describe a movement of information from one aspect of the mind to another. The rate and volume of communication are variable among individuals—some people have a high level of communication across the mind's topography, whereas others may not.

Freud also made a distinction between "primary" and "secondary" processes of the mind in *Interpretation of Dreams* (Freud, 1900/1978). The "primary" processes are functions of the mind that serve the interests of primitive hedonic drives. These functions are mediated by "secondary" processes, which "only take shape gradually during the course of life, inhibiting and overlaying the primary [processes]" (Freud, 1900/1978, p. 454). Primary processes can therefore be thought of as the illogical aspects of the mind working for the id alone. They are free from any considerations of time or social norms. In a sense, they are free of boundaries. In order for a person to be healthy, Freud asserts, both types of functions of the mind must be balanced and working in harmony. Therefore, Freud's vision of psychological health is a person with both thin and thick boundaries, each located in different systems within the mind.

Freud again described boundaries later in his career. When attempting to explain variability among personality types, Freud (1923/1976) and his followers discussed a “barrier” protecting an organism against unwanted or harmful stimulation. When this barrier is permeable or broken, the mind cannot handle the ensuing “traumatic excitations” (Freud, 1920/1944). This can lead to various forms of psychopathology, especially repression (Freud, 1925/1976). This inability to shut out negative information is included in Hartmann’s definition of boundaries. Other psychoanalytic literature discusses the importance of “ego boundaries,” which can be understood as what separates the id, ego, and superego. In particular, Federn (1952) further elaborated on this concept and again relates very permeable ego boundaries to psychopathology.

Attempts to refine Freud’s theories concerning divisions within the mind have criticized his emphasis on discord between the id and the ego. Heinz Hartmann (1958) postulated that conflicts between the ego and instinctual drives, although extremely influential in a person’s development, could not completely explain all conflict in one’s life. Conflict, Hartmann stressed, is essential for learning and for adaptation to one’s environment. Conflict is often a normal part of development. For example, Hartmann believed that “perception, intention, object comprehension, thinking, language . . . [and] walking” were aspects of the ego unrelated to the id or the conflict between primary and secondary processes (Hartmann, 1958, p. 8). He referred to this area of one’s development as the “conflict-free ego sphere.” Because psychopathology (according to the psychoanalytic tradition) is caused by conflicts among the regions of the mind, Hartmann logically deduced that expanding the conflict-free ego sphere would reduce psychic discord and promote greater mental health and stability. Therefore, increasing or thickening the boundaries and logical aspects within a person’s mind would in turn increase well-being. Hartmann’s work was part of a general evolution of classical psychoanalysis into the mid-20th century emphasis on ego psychology and the importance of psychic defenses for personality structure and assessment of psychological development and maturity (Freud, 1936/1967; Rapaport, 1942; Shapiro, 1965).

Interestingly, Freud and his intellectual descendents were not the only theorists who described divisions within a person’s mind. American psychologist William James, in his discussion of temperaments, addressed how people can adopt one of two basic worldviews: either the “rationalist” or “empirical” perspective (James, 1907/1975). Temperament “loads the evidence for him one way or the other, making for a more sentimental or a more hard-hearted view of the universe. . . . Wanting a universe that suits it, he believes in any representation of the universe that does suit it” (p. 11). Rationalists, or what James called “tender-minded” people, seem to be driven more by their mental conceptions of the world, which are comprised of both idealizations and desires. He claimed that characteristics associated with them are religiousness, optimism, idealism, and intellectualism. Their worldview is guided by principles. “Empiricists,” or

“tough-minded” people, on the other hand, tend to be guided by facts. They are skeptical, materialistic, pessimistic, and irreligious. James was careful to emphasize that, “No one can live an hour without both facts and principles, so it is a difference rather of emphasis” within a person as opposed to a strict dichotomous division (p. 12).

Jung’s work in describing personality types discussed cognitive processes that shape a person’s psychological interactions with the world (Jung, 1921/1971). Similar to James, Jung asserted that these divisions can be measured on a spectrum within a person; they are not binary categories. The “types” of cognition he described, such as thinking, feeling, sensing, and intuiting, are other ways to classify the particular divisions within the mind and how that mind experiences interior and exterior stimuli. Following these earlier theorists, many other scholars and researchers throughout the history of personality psychology have agreed that the human mind is composed of separate aspects, which share information and communicate with each other (for more recent examples, see Pacini & Epstein, 1999; or Singer & Conway, 2011).

### **ERNEST HARTMANN AND THE DEVELOPMENT OF THE BOUNDARY QUESTIONNAIRE**

It is within this context that Ernest Hartmann developed the boundary construct. He first became interested in this line of inquiry while working with nightmare sufferers (Hartmann, 1989, 1991; McCrae, 1993). Interestingly, he found that people who had frequent nightmares had ostensibly little in common: there was no pattern of childhood trauma, nor a discernable pattern of psychopathology. Over time, researchers studied other characteristics of frequent nightmare sufferers and found that many had artistic or creative jobs. People suffering from frequent nightmares also seemed to be very open and honest in interviews, as well as unusually sensitive. Both researchers and the individuals themselves often used adjectives such as “unguarded,” “undefended,” “fluid,” “artistic,” “vulnerable,” and “open” when describing personality characteristics.

Upon further investigation, it was found that the nightmare sufferers also slipped easily between more conscious and more unconscious states, and could easily imagine themselves as being the opposite sex. Many were bisexual or had bisexual fantasies. On Rorschach projective tests, nightmare sufferers described shapes as being significantly more amorphous and having the ability to merge (Hartmann, 1991). Hartmann and his colleagues soon became fascinated with boundaries, since it was a personality dimension that was not frequently described in the current psychological literature of that time. In stark contrast, Hartmann and his colleagues had also observed people with comparatively “thick” boundaries. They tended to be employed in technical fields such as engineering, business, and law, and reported few instances of having nightmares. In many aspects of functioning, people with thick boundaries seemed to prefer

concreteness and order, tending to like stories with a definite beginning, middle, and end as well as houses with clearly defined rooms with specific purposes (Harrison, Hartmann, & Bevis, 2005).

Although the concept of boundaries has been described in various forms since the beginning of the 20th century, the biggest strength of Hartmann's boundary construct is its ability to be quantified and empirically studied. Although the theoretical works of Freud, James, and Heinz Hartmann were all extremely influential in the way aspects of the mind and personality have been viewed, Ernest Hartmann and his colleagues developed a questionnaire designed to quantify what they had observed. This tool, which they named the Boundary Questionnaire (BQ), has proven to be a valid and reliable measure of the boundary construct. Researchers have used it in a variety of contexts in order to better understand and describe such varied topics as dreaming, personality, religiousness, and cultural differences.

Originally 146 items, the BQ measures thickness of boundaries over many different aspects of functioning. The scale is broken down into 12 factors, including ideas such as Openness, Fragility, Flexibility, Belief in Impenetrable Intergroup Boundaries, and Organized Planfulness (Harrison et al., 2005). The BQ has been demonstrated to have high reliability and validity, and has been used in a number of studies involving boundaries. But because the full BQ is prohibitively long in certain experimental situations, other researchers have developed shorter versions. Rawlings (2001) published a 46-item version with 6 subscales, which he named: Sensitivity, Childlikeness, Need for Order, Trust, Perceived Competence, and Unusual Experiences. This version of the BQ, or the BQ-Sh, has been shown to have a very high reliability, and also correlates strongly with the original BQ ( $r = .88$ ). A third version of the BQ, containing 18 items, has also been used in several studies (Hartman & Kunzendorf, 2005; Kunzendorf, Hartmann, Cohen, & Cutler, 1997; Yu, 2010). These 18 items were chosen based on their face validity and high correlation with the original BQ total score. Researchers have found this measure to be a useful brief measure of boundary structure.

The BQ has been administered to a variety of populations. In its initial stages of development, art students, military personnel, and nightmare sufferers were among the groups examined (Harrison et al., 2005). In order to extend the usefulness of the BQ to different age populations, Cowen and Levin studied the reliability and validity in adolescents. Participants consisted of 182 high school students from New York City from 7 different high schools between the ages of 14 and 19. The researchers found that adolescents with thinner boundaries reported higher rates of dream recall, greater nightmare frequency, and also reported being disturbed by their dreams at a higher rate than those with thicker boundaries. Gender differences were also found in relation to BQ score. As with adults, female adolescent participants were found to have significantly thinner boundaries than male participants. Thus, the researchers concluded that the BQ describes very similar characteristics in adolescents as it does in adults.

The BQ has also been used in older populations. In a sample of 61 adults aged 60 and older, Funkhouser, Würmle, Cornu, and Bahro (2001) found the BQ to be a reliable measure. The researchers found that traits measured by the BQ remained stable over time. Interestingly, the researchers also noted that boundaries were thicker in this sample than in younger populations. These results support the usefulness of the BQ across a variety of ages.

The BQ has also been administered to diverse populations, and differing boundary structures have been found among individuals with different cultural backgrounds. Tartz, Baker, and Krippner compared the dreams of 30 Asian and Pacific Islanders from the United States to the dreams of 30 European Americans over a period of 4 weeks. The Asian and Pacific Islander group was found to have significantly thicker boundaries than the Caucasian group. This may be reflective of the overall collectivist orientation of Asian cultures or the emphasis placed on hierarchy. Interestingly, the authors note that no other research exists which indicates cultural differences in boundary structure.

### **RECENT RESEARCH CONDUCTED USING THE BOUNDARY QUESTIONNAIRE**

Boundary research using the BQ has been ongoing since the early 1990s. Due to the nature of the development of the concept of boundaries, much of the early research focused on the relationship of thin boundaries to dreaming. Hartmann and Kunzendorf's literature reviews (2007) provides a comprehensive overview of the relationship of boundaries to dreaming. They found that boundary structure has been consistently related to how frequently people recall dreams in several studies. Although dream recall frequency is related to age, gender, and stress level, it does not seem to be related to any of the more traditional personality variables. Boundary structure is the one clear exception to this. Even when studies measure dream recall frequency in different ways (i.e., dream journals and self-report) and in different populations, thin boundaries are consistently related to higher dream recall frequency.

According to Hartmann and Kunzendorf (2007), boundary structure is also related to dream content. They review several studies reporting that thin boundaries are predictive of emotional intensity of dreams, bizarreness of dreams, detail within the dream, and dream length. Dreams occurring after traumatic events, which contain a Central Image (CI), have also been studied in relation to boundary structure. The authors note that the intensity of the CI is related to thin boundaries as well.

Since 2007, researchers have continued to study the relationship of boundaries to dreaming; for example, Aumann, Lahl, and Pietrowsky (2012) recently demonstrated the relationship between thin boundaries and higher dream recall frequency. They also found thin boundaries to be related to more bizarre and aversive dream experiences. Additionally, the dreams of participants with thinner

boundaries incorporated more aspects of waking experiences and were more personally significant.

Our own work has investigated the relationship of boundary structure to daydreams (Harrison & Singer, 2009). Using the Short Imaginary Processes Inventory, developed by Huba and colleagues (1981), we were able to operationalize daydreaming experiences. Daydreams can be thought of in three ways: as positive/constructive, as infused with guilty ideation or fear-of-failure, or precipitated by poor emotional control. When correlated with boundary structure, negative aspects of daydreaming were significantly related to thin boundaries. Indeed, regression analyses indicated that daydreams signifying poor attentional control were most predictive of thin boundaries of the SIPI subscales. The experience of guilty-dysphoric daydreams was also a significant predictor; positive/constructive daydreams, however, were not significant.

Personality researchers have also continued to examine boundaries. Hartmann, Harrison, and Zborowski (2001) describe early findings of how boundary structure is related to other personality variables. Their review details attempts to relate the boundary concept to other tools to measure personality. Thin boundaries were found to correlate certain scales on the MMPI: Pa, which measures paranoia, and the F scale, which measures atypical responses and unusual experiences. Thick boundaries correlated with higher scores on the K scale, which measures defensiveness in response style. When correlated with the Rorschach, thin boundaries correspond to lower form quality scores. On the Myers-Briggs Personality Type Inventory (MBTI), thin boundaries are related to higher scores on "Intuition" and "Feeling."

In recent years, researchers have expanded their understanding of boundary structure to include its relationship to other types of personality traits. The Big Five traits, and in particular "openness to experiences" and "neuroticism," have been examined closely to better understand their relationship to boundaries. McRae (1993) found that openness to experiences is highly correlated with thin boundaries. However, other researchers (Hartmann et al., 2001) note that openness encompasses only the positive aspects of thin boundaries. The negative aspects, such as feeling vulnerable or easily overwhelmed, are not represented in the way openness is captured in the Five Factor model. However, these emotional responses to vulnerability and/or stress are indeed measured by facets of neuroticism. For this reason, researchers have hypothesized that thin boundaries are related to neuroticism, and have shown moderate correlations between the two traits (Schredl, 2003). Yet researchers have more recently demonstrated that while the two personality constructs share some aspects, they represent fundamentally different concepts (Schredl, Bocklage, Engelhardt, & Mingeback, 2009).

Zborowski, Hartmann, Newsom, and Banar (2003) studied how boundaries relate to dimensions of object relations, interpersonal behavior, and dependency. These researchers found that thin boundaries are positively correlated with trait anxiety, insecure attachment, alienation, interpersonal dependency, social

introversion, and egocentricity. In addition, when personally interviewed, people with thin boundaries are also rated by interviewers as more likeable, open, and comfortable in the interview. The results suggest that those with thinner boundaries may be more open to forming new relationships, as indicated by their strength in forming positive impressions with the interviewers, but perhaps less adept at maintaining them due to the high instance of insecure attachment style, suggesting a potential link to the “preoccupied” adult attachment style. This is a rich area of investigation that has the potential to yield many new insights. Understanding how boundaries affect a person’s relational patterns would have wide-ranging clinical implications that could impact the therapeutic process.

The relationship between thin boundaries and unusual experiences is another fruitful area of study. James Houron and Michael Thalbourne have spearheaded the effort to investigate the relationship between boundary structure and a concept that Thalbourne calls “transliminality.” According to Thalbourne (1991), transliminality refers to the crossing over of information from the preconscious to the conscious. Those with a higher level of transliminality are more sensitive to their unconsciously generated emotions and ideations. Transliminality, measured by the Rasch-scored Transliminality Scale, is correlated with all of the factors of thin boundaries measured by the BQ. However, 7 of the 12 subscales of the BQ do not predict transliminality when examined by multiple regression methods. These subscales operationalize interpersonal boundaries, boundaries between waking and sleeping, boundaries between childlikeness and adulthood, as well as opinions about children, organizations, nations/groups, and beauty and truth. Researchers concluded that these aspects of boundaries are not included in the concept of transliminality.

Further research has hypothesized that although the two personality constructs may be slightly different, they may share an underlying factor related to connectedness and neuronal fluidity. Thalbourne and Maltby (2008) examined the results on a factor analysis on a combination of four different measures: the BQ, Revised Transliminality Scale, Unusual Experiences scale (taken from the Oxford–Liverpool Inventory of Feelings and Experiences), and a measure of temporal lobe lability (taken from Persinger’s Personal Philosophy Inventory). Thalbourne and Maltby found that all four measures did in fact have high positive correlations with each other. Factor analysis showed one underlying factor with an Eigenvalue of 2.99, which accounted for 74.6% of the variance. The BQ had the highest factor loading of this factor, which the researchers believe represents some form of perceptual sensitivity. Research concerning the relationship of boundaries and transliminality has shown substantial similarities between the constructs, but important differences in the way the two personality variables are conceptualized remain.

The relationship of boundaries to religiousness and spirituality is another promising avenue of research. In a previous study investigating the relationships among these variables, we found a negative association between religiousness

and overall thin boundaries (Harrison & Singer, 2009). Religiousness was most closely associated with the BQ-Sh subscales of “Perceived Competence” and “Need for Order,” on the BQ-Sh. Spirituality, in contrast, was not related to either subscale. It seems that while the concepts of “religiousness” and spirituality” are related to each other, their pattern correlations to the subscales of the BQ-Sh were very different. Using the boundary concept, we were able to clarify differences between “religiousness” and “spirituality.”

## CONCLUSION

The concept of divisions within the mind has been integral to understanding humans throughout the history of psychiatry. Although described in many forms over the course of many years, theorists ranging from Sigmund Freud to William James to Heinz Hartmann all agree that these boundaries are a fundamental part of the human experience. Boundaries exist among the parts of the mind as well as between the self and the outside world. By operationalizing boundaries with the Boundary Questionnaire, Ernest Hartmann and his colleagues created a way to quantify this concept and to examine it empirically. This advancement has led to a substantial body of research that was impossible to do beforehand. This line of research is ongoing and continues to attempt to understand dreams, as well as other personality factors. The ability to describe and measure boundaries and relate them to new aspects of personality will keep this line of inquiry alive and help researchers to understand the mind.

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