Why People Do the Things They Do

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Building on Julius Kuhl's Contributions to the Psychology of Motivation and Volition

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Chapter 1
The Romantic Science of Julius Kuhl

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Abstract: This chapter reviews the scholarly career of Julius Kuhl and the academic context in which he developed his work. Kuhl began his doctoral training in the late 1970s under supervision of motivation psychologists Heinz Heckhausen and Herbert Götzl at the University of Bochum, Germany. Subsequently, as a postdoc working with John Atkinson at the University of Michigan, Kuhl conducted computer simulations on the dynamics of motivated action. Returning to Germany in the early 1980s, Kuhl developed a new theory of volitional action control that kick-started the revival of German will psychology. In this context, Kuhl also developed a measure of individual differences in volitional efficiency, or action versus state orientation. In the second half of the 1980s, Kuhl became professor at Osnabrück University, Osnabrück, Germany, where he and his team developed several new experimental paradigms for studying volition. The theoretical integration of this work came about in the late 1990s, when Kuhl articulated personality systems interactions (PSI) theory, a comprehensive theory of human motivation and personality. Throughout his career, Kuhl's work has been characterized by a rigorous search for lawful processes and mechanisms, while maintaining a caring, involved attitude that respects the individuality of the person. This unique profile marks the romantic science of Julius Kuhl.

"Life becomes simple when we accept its complexities" was the motto that Julius Kuhl emblazoned on his magnum opus, the 1,221-page volume *Motivation und Persönlichkeit: Interaktionen psychischer Systeme* [Motivation and personality: Interactions between psychological systems] (2001). Anyone who has had the fortune of meeting and interacting with him will confirm that this is the perfect way to characterize Julius Kuhl and his work. But, of course, there is much more to say about this remarkable scholar than any aphorism, no matter how fitting, can convey. This chapter is written for everyone who is interested in learning more about the background of Kuhl's academic work and the professional context in which he developed his ideas.

To structure our biographical narrative, we have divided Kuhl's career into three periods: The early years, middle years, and later years. We realize that this division is bound to be somewhat arbitrary. Nevertheless, we chose the three periods to roughly correspond with important developments in Kuhl's working life and his thinking. Indeed, during each of these periods, Kuhl moved to a different place and began working with a different research group. In addition, it so happens that each of the three periods is associated with one of Kuhl's most important academic books. So, as a starting point, the three periods seem a useful way of learning about Kuhl's academic life and work.

The Early Years (1967–1985): Mastering the Traditions

Julius Kuhl was born on July 27, 1947 in Duisburg, a town with around half a million inhabitants in the Ruhr area, a western region of Germany that is home to major chemical, steel and iron industries. His father, Matthias, was a coal miner and his mother, Katharina, was a children's nurse. In 1948, the family moved to Oberhausen, a neighboring city of Duisburg. Julius grew up together with his younger brother Alwis and his younger sister Marlies. During his childhood years, much of the Ruhr area was still in ruins, as one of the most heavily bombed regions during World War II (by some counts, even *the* most bombed urban area). The city was plagued by many problems, including poor sanitary conditions that lead to the spread of infectious diseases. When Julius was 6 years old, he and Alwis were both infected with diphtheria. Julius survived, but the life of his younger brother was taken.

Because both his parents were working full-time, Julius was raised to be independent from an early age. At the age of 4, Julius had to be able to tell the time, so that each day at 8 in the morning, he could walk by himself to Kindergarten, which took about 20 minutes. His mother Katharina had lost her two brothers, Julius and Alwis, during the war. Both brothers had shown signs of extraordinary intellectual giftedness, by attaining perfect scores on their Gymnasium exam, a highly unusual event at the time. Throughout his childhood, Julius had the feeling that his life was somehow meant to make up for or even replace the lost life of his uncle Julius. His mother did not wittingly share this feeling with Julius, but was nevertheless convinced of her son's great academic potential and made an effort to ensure that Julius was able to get a higher education. Julius was therefore sent to a Catholic boarding school for three years (7th–9th grade) where he learned English, Greek, and Latin. Kuhl often felt homesick and was not particularly fond of the boarding school, which was run by monks from the fraternity of Pallotines. Nevertheless, the place made a lasting impression on him, and Julius would keep returning to monastic environments for inspiration, writing, and meetings throughout his life.

In 1967, Kuhl enlisted as a student in psychology at the Ruhr-University of Bochum, one of the five largest German universities. The Ruhr-University had been established only 20 years earlier, some years after the Second World War. This meant that it was very new compared to other German universities, many of which had been established centuries ago. During his studies at Bochum, Kuhl became interested in human motivation. This topic was taught by Professor Heinz Heckhausen (1926–1988) and his team. Heckhausen was an internationally renowned scholar, who trained several successful doctoral students and helped to shape the psychology curriculum in Germany. Heckhausen's (1980) *Motivation und Handeln* [Motivation and action] provided a comprehensive overview of motivation psychology and was a standard textbook at German universities for decades (for English translation, see Heckhausen, 1991; see also Heckhausen & Heckhausen, 2010).

Kuhl started in Heckhausen's lab as a research assistant for Herbert Götzl – a mentor of many renowned psychologists, even though Götzl himself shied away from scientific publishing. The guidance of Götzl was a major source of inspiration for Kuhl. It was Götzl who introduced Kuhl to the Lewinian tradition of theorizing and experimentation, a broad and systematic school of thought. Götzl would lecture for hours about complex theoretical problems, of which Kuhl could only understand bits and pieces. These experiences instilled the young Kuhl the intellectual enjoyment of thinking about seemingly hopeless theoretical problems, which could take many years to be resolved. Götzl's first task for Kuhl (in his first undergraduate year) was for him to study the formal logic of argumentation by the philosopher Carnap. Next, Kuhl was to learn computer programming and to study the work by Newell and Simon (1956), pioneers in computer simulations of human action – the latter received the Nobel Prize in economics in 1978. Götzl prompted Kuhl to use the logic of argumentation in order to test Atkinson and Feather's (1966) assumptions on achievement

motivation in a computer simulation, as Götzl had said that he felt strongly that there was "something wrong in this theory." Although the final step of this task proved unsolvable for Kuhl as an undergraduate, it paved the way for his subsequent work.

In 1972, Kuhl completed his Master's thesis on the Thematic Apperception Test (TAT), which was published in condensed form in 1978 in the *Archiv für Psychologie,* one of the world's oldest psychology journals (Kuhl, 1978). Although the TAT was the most widely used test for measuring the strength of implicit motives, its measurement properties were highly contested, due to the low reliabilities that the TAT attained on classic psychometric indexes. Using a sophisticated psychometric model that was based on item-response theory, Kuhl showed that the low reliabilities of the TAT were due to limitations of classic psychometric models, which made assumptions about the distributions of test scores that are inapplicable to the TAT. The validity of this theoretical approach was confirmed more than four decades later (Lang, 2014).

After his Master studies, Kuhl took up his dissertation research under the supervision of Heckhausen and Götzl. During this work, Kuhl conducted computer simulations (the first generation of powerful computers had just become available to behavioral scientists) and experimental investigations of achievement motivation. In 1976, Kuhl received his PhD for a dissertation on "Personal and situational determinants of achievement motivation" at Bochum. Kuhl then spent two years as a postdoc (1976–1978) with Professor John Atkinson at the University of Michigan in Ann Arbor, USA. There he continued his work on computer simulations of motivational processes and conducted experimental tests of selected aspects of the dynamics of action (Atkinson & Birch, 1970) that set up his dynamic perspective on motivation and volition.

In 1982, Kuhl received his *venia legendi* – a German academic degree that was required at the time for attaining tenured positions – at the Ruhr University Bochum. This was followed by a year at the renowned Center for Advanced Study in the Behavioral Sciences at Stanford University, USA, where he was one of the youngest researchers and among the first European psychologists to publish in American journals. Back in Germany, Kuhl held a tenured position at the Max Planck Institute for Psychological Research in Munich (1982–1986). It was during this period that Kuhl developed a new theoretical paradigm that would become known as action control theory.

In the early years, Kuhl published a number of theoretical and empirical papers in leading international journals, such as *Psychological Review* and the *Journal of Personality and Social Psychology*. However, Kuhl's most important publication during this period was undoubtedly his 1983 book *Motivation, Konflikt und Handlungskontrolle* [Motivation, conflict, and action control] (see Figure 1.2). An early issue that would become a recurring theme in Kuhl's work was his critique of the

Figure 1.1 Julius Kuhl (center) with John Atkinson (left) and Heinz Heckhausen (right).

Figure 1.2 Cover of *Motivation, Konflikt, und Handlungskontrolle* (Kuhl, 1983), which instigated the revival of German volition psychology.

widespread constructivist tendency in social and personality psychology. According to Kuhl, this theoretical tradition prematurely "explains" behavior on the basis of people's subjective beliefs and concepts. Kuhl acknowledged that subjective constructs can be useful for making predictions and for finding an interpersonal level of mutual understanding (e.g., in counseling and therapy). However, Kuhl was convinced that constructivism has to be supplemented by a new form of scientific realism that is based on a functional analysis of relevant competences and processes (Alsleben & Kuhl, 2010; Kuhl, 1981; Kuhl & Helle, 1986; Kuhl, 2000a). For instance, when a student notices that she fails to enact an important intention (e.g., to prepare for an exam) despite having positive beliefs and intentions, reinforcing positive beliefs and intentions may not be very helpful. Instead developing her actual self-regulatory competences might be a more useful strategy.

In his groundbreaking 1983 volume, Kuhl built a theoretical bridge between modern motivation science and classic German volition psychology. Specifically, Kuhl revisited the old controversy between Narziss Ach, a volition researcher in the early 20th century, and Kurt Lewin, a pioneer of motivation research. Ach (1905, 1910, 1935) had conducted ingenious experiments showing that volition allows people to enact difficult actions, and that forming specific action plans facilitates volitional action control. However, Lewin (1926) believed that Ach's conception of purposive behavior was too narrow, and proposed that people flexibly choose options that bring them the highest expected value. The Lewinian approach had prevailed after World War II, leading to a complete neglect of volition in motivation psychology up to that time.

Kuhl suggested that the seemingly opposing theories of Ach and Lewin could be reconciled by assuming that each refers to a different problem in action control. Lewin's expectancy-value approach (and its successors) related to the problem of *choosing* the right kind of action, which Kuhl referred to as "choice motivation." By contrast, Ach's determining tendencies related to the problem of implementing a chosen course of action, which Kuhl referred to as "realization motivation." By thus settling the Ach-Lewin controversy, Kuhl brought volition back into the focus of motivation researchers. Kuhl's conception of the relation between motivation and volition was embraced by Heckhausen (Heckhausen & Kuhl, 1985) and thus contributed to a broader revival of German volition psychology (Heckhausen & Gollwitzer, 1987; Gollwitzer, 1993, 1999).

A central interest of Kuhl was in individual differences in volitional functioning. Kuhl developed a self-report scale that captures such individual differences: the Action Control Scale (Kuhl, 1984, 1994). People scoring high on the scale, or "action-oriented" individuals, report that they are capable of initiating new courses of action under demanding conditions and of disengaging their mind from negative thoughts and feelings. By contrast, people scoring low on the scale, or "state-oriented"

individuals, report that they are more prone to lack initiative and to become preoccupied with negative thoughts and feelings.

Together with his first doctoral student, Jürgen Beckmann (born 1955), Kuhl showed that individual differences in action versus state orientation moderate a number of well-known phenomena in mainstream psychology, including learned helplessness (Kuhl, 1981), cognitive dissonance reduction (Beckmann & Kuhl, 1984; see also Chapter 11 in this volume), and the intention-behavior gap (Kuhl, 1982). These findings were integrated in a comprehensive theory of volitional action control (Kuhl, 1984), which outlined six subtypes of volitional processes, including: 1) selective attention, 2) selective encoding, 3) emotion control, 4) motivation control, 5) environment control, and 6) parsimonious information processing. This groundbreaking process-analytic approach was to guide subsequent research on motivation and volition. The fact that similar mechanisms are now widely used to explain emotion regulation (e.g., Gross, 2001) and self-control (e.g., Kotabe & Hofmann, 2015) attests to the visionary nature of these early ideas.

The Middle Years (1986–2000): Creating New Paradigms

In 1986, Kuhl accepted a full professor position as chair of the Differential Psychology and Personality Research lab at Osnabrück University, Germany. In this medieval German city known as the *Friedensstadt* ["City of Peace"], Kuhl settled down and formed his own research team. He would continue to work at Osnabrück until his retirement in 2015. Kuhl's first aim was to develop new experimental paradigms for studying volition. The starting point for his team was the general notion that volitional deficits may arise from incompletely developed mental representations of intentions (Kuhl & Helle, 1986).

A classic phenomenon in motivation psychology is the so-called Zeigarnik (1926) effect, which states that people recall uncompleted intentions better than completed intentions. However, the Zeigarnik paradigm was not rigorously controlled and its central findings had proven difficult to replicate. Kuhl and his PhD student Thomas Goschke (born 1958) developed a new experimental paradigm with better controls and more sophisticated memory tests (i.e., response times, signal detection measures). This line of experiments confirmed people's superior memory for intention-related information (Goschke & Kuhl, 1993; see also Chapter 7 in this volume). Unexpectedly, the intention-superiority effect turned out to be greater for state- (than for action-) oriented people. Kuhl (2000a) suggested that state-oriented people may be more rigid in maintaining intentions in working memory, and that this cognitive tendency paradoxically renders them less capable of enacting their intentions. This over-maintenance hypothesis has been confirmed in subsequent research (Kaschel, Kazén & Kuhl, 2017; Ruigendijk & Koole, 2014; see also Chapter 9 in this volume).

Another important aspect of intentions is whether or not they were chosen by the self. If people decide to commit to an intention themselves, the intention is likely to be better integrated with people's emotional preferences than if this commitment is forced on them (see Deci & Ryan, 2000; see also Chapter 14 in this volume). People therefore should be capable of distinguishing whether their intentions are self-chosen or imposed on them by an external agent (see Chapter 15 in this volume).

Together with Miguel Kazén (born 1952), Kuhl developed an ingenious paradigm to examine this volitional capacity. In the so-called "self-discrimination task" (Kuhl & Kazén, 1994), participants have to choose some activities themselves, whereas other activities are assigned to participants by the experimenter. After a filler task, participants have to remember which activities were assigned and which were self-chosen. If people are good at self-discrimination, they do not confuse assigned

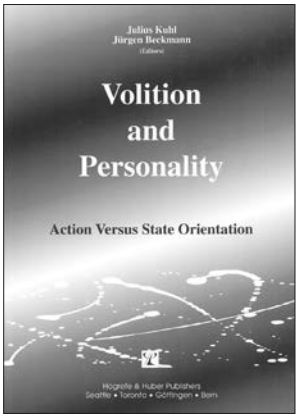

Figure 1.3. Cover of *Volition and Personality* (Kuhl & Beckmann, 1994), a book bristling with new ideas, paradigms, and applications.

tasks for self-chosen tasks, which means they show self-congruence (or "integrity") rather than follow others' expectations. Notably, Kuhl and colleagues consistently found that state-oriented individuals, particularly under conditions of negative affect or stress, tend to lose this form of integrity. The self-discrimination task and relevant findings are discussed in more detail by Baumann, Kazén, and Quirin (see Chapter 16 in this volume).

Besides developing the aforementioned basic research paradigms, Kuhl took an active interest in practical applications of motivation and volition. This combination of a deep theoretical focus and a strong applied interest is reflected in the 1994 volume *Volition and Personality: Action Versus State Orientation* that Kuhl co-edited with Jürgen Beckmann (see Figure 1.3). Although the book is an edited volume, most of the chapters of this book were authored or co-authored by Kuhl himself. The book is further remarkable for its unusual mix of highly theoretical chapters, more empirically oriented basic research chapters, and more applied chapters in domains such as education, sports psychology, and clinical psychology. Furthermore, the book had chapters with Professor Renate Haschke, with whom Kuhl conducted pioneering EEG studies on the neural activations of action- versus state-oriented people in response to emotional stimuli. This marked a transition in Kuhl's thinking from theorizing about cognitive mechanisms to theorizing about the neurobiological processes that are underlying these cognitive mechanisms.

Perhaps more than anything, *Volition and Personality* speaks to the herculean efforts that Kuhl was making to push the scientific understanding of motivation and volition ever further and deeper. In trying to understand the phenomena, Kuhl was using everything he could find from diverse disciplines – cognitive, personality, social, motivation psychology, neuroscience. All the while, Kuhl kept returning towards the big picture, trying to create a comprehensive framework that could integrate all empirical observations and theoretical insights. Indeed, some of the chapters in *Volition and Personality* already referred to a new comprehensive theory of motivation and volition that Kuhl was working on during the 1990s. This theory was to become the focus of the later years of Kuhl's scientific career.

The Later Years (2000–Present): PSI Theory

In the summer of 1994, Kuhl withdrew to the Italian island of Giglio to pull all the strings together of his ideas and findings. The basic outlines of the theory were completed within two months. How-

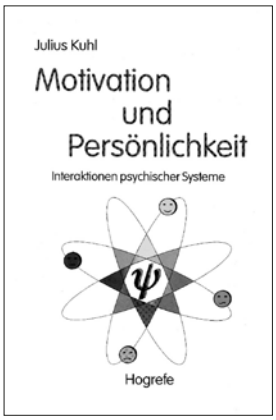

Figure 1.4. Cover of *Motivation und Persönlichkeit*, Kuhl's (2001) magnum opus.

ever, it would take an additional 6 years to spell out the implications of this theory. The final result was personality systems interactions (PSI) theory. PSI theory and its applications have been covered by many English-language publications (e.g., Kuhl, 2000a, 2000b, 2000c; Kuhl & Baumann, 2000; Kuhl & Koole, 2004, 2008; Kuhl, Quirin, & Koole, 2015). However, the most important publication on PSI theory is once again a book: *Motivation und Persönlichkeit: Interaktionen psychischer Systeme* [Motivation and personality: Interactions between psychological systems] that was published by Kuhl in 2001 (see Figure 1.4).

A towering volume of 1,221 pages, *Motivation und Persönlichkeit* arguably represents Kuhl's greatest scholarly achievement. The fact that Kuhl chose to write this work in German rather than English is a bit puzzling. It may be related to the lukewarm reception that Kuhl's theoretical work sometimes received among English-speaking colleagues. Indeed, in the second chapter, Kuhl quotes a telling comment of the influential American psychologist Martin Seligman, who apparently told him, "I don't trust any theory that has more than three boxes" (2001, p. 61). Fortunately, other American colleagues showed themselves more tolerant of theoretical complexity (see Chapter 10, 13, 14, and 15 in this volume). Nevertheless, the open aversion to complex theories that Kuhl encountered in the English-speaking world was likely a factor when he decided to write his greatest scholarly work in German.

In the space of 20 chapters, *Motivation und Persönlichkeit* takes Kuhl's theory of action control as a starting point and develops it into PSI theory, a theoretical framework that embraces all personality functioning. In the theory, volition is merely the "tip of the iceberg," placed at the top of a hierarchy of seven levels of personality functioning, consisting of (1) habits, (2) temperament, (3) affect and incentive motivation, (4) coping with stress, (5) implicit motives, (6) cognitive processing styles, and (7) self-regulation. Each of these seven levels constitutes a different way of explaining human behavior, and has been the focus of a separate research tradition within psychology. Consequently, the perspective of PSI theory is considerably more general and abstract than modern psychologists are used to. PSI theory could be called a macro-theory in that it consists of general principles that cut across many different phenomena and that are usually treated by separate theories. However, the theory could equally be called a micro-theory, because of the fine-grained analyses of personality processes that it affords. Perhaps the safest conclusion is that PSI theory simply defies any attempts to fit it within pre-existing categories and pretty much forms a category on its own.

For more in-depth reviews of PSI theory, we refer to other chapters in this book (e.g., Chapter 2 in this volume) and earlier publications (e.g., Kuhl, 2000a, for the theoretical core of PSI theory; Kuhl, 2000b, for an application of PSI to the motivational dynamics within educational settings; Kuhl, 2000c, for a functional analysis of personality disorders; Kuhl & Koole, 2008, for a closer

look at the seven levels of personality functioning). Here, we limit ourselves to some of the key developments that were stimulated by the theory.

A first development was a shift from "hard" (compulsive and conflict-driven) forms of willpower to "soft" (self-accepting and intuitive) forms of willpower. This theoretical shift paved the way for a new generation of research on soft willpower. For instance, Kuhl and Kazén (1999) demonstrated that volitional action can be facilitated by briefly exposing people to positive affective stimuli. In their experiments, volitional facilitation by positive affect completely eliminated the Stroop interference, one of the most robust phenomena in experimental psychology (MacLeod, 1991). Together with Nicola Baumann (born 1966), Kuhl further explored the relations between volition and intuition (Baumann & Kuhl, 2002) and implicit motives (Baumann, Kaschel, & Kuhl, 2005). Kuhl's ideas about soft willpower further stimulated research on implicit processes in emotion regulation, which he investigated with Sander L. Koole (born 1971) at the Amsterdam Emotion Regulation Lab (Koole, 2009; Koole & Jostmann, 2004; Koole & Kuhl, 2007; Koole & Rothermund, 2011)

A second development stimulated by PSI theory was a renewed interest in the neurobiological foundations of motivation and volition. This interest was already apparent in Kuhl's earlier work with Haschke and colleagues (Rosahl, Tennigkeit, Kuhl, & Haschke, 1993). But PSI theory brought the theoretical significance of neurobiological processes in full view. One set of studies related self-discrimination processes to different hemispheric activations (Baumann, Kuhl, & Kazén, 2005). The neurobiological orientation was further implemented in research with Markus Quirin (born 1974), who related motivational and volitional processes to neuroendocrine functions (Quirin, Kuhl, & Düsing, 2011) and analyzed them with sophisticated neuro-imaging paradigms like EEG (Düsing, Tops, Radtke, Kuhl, & Quirin, 2016) and fMRI (Quirin, Loktyushin et al., 2011).

Finally, a third development stimulated by PSI theory was the practical application of research on motivation and volition. Throughout his career, Kuhl developed a wealth of experimental methods and diagnostic instruments. Many of his questionnaires (e.g., on action and state orientation, Kuhl, 1994; personality styles and disorders, Kuhl & Kazén, 2009; self-regulation, Kuhl & Fuhrmann, 1998), are translated and validated in many languages and rank as standard instruments in research and applied contexts. PSI theory led to the development of new non-reactive, computer-based, and process-oriented diagnostic instruments, including tests for implicit affect (Quirin, Kazén, & Kuhl, 2009), volitional facilitation (Kuhl & Kazén, 1999), and implicit motives (Baumann, Kazén & Kuhl, 2010; Kuhl & Scheffer, 1999; Kuhl, 2013). Moreover, Kuhl developed a

Figure 1.5. Julius Kuhl, who continues to share the fruits of his long scientific career.

systematic methodology for using his test battery in clinical and counseling settings (Kuhl, Kazén, & Koole, 2006; see also applied in Chapters 17, 18, 19, 20, 21, 22, 23, and 24 in this volume).

A consistent theme in Kuhl's work has been the measurement and advancement of individual potentials within children and adolescents. Indeed, Kuhl has conducted pioneering work in the development of diagnostic tools for young children at the age of Kindergarten and elementary school (e.g., the self-regulation test for children; Kuhl & Kraska, 1992). Between 2008 and 2015, this work led him to become leader, together with Professor Claudia Solzbacher, of the Lower Saxony Institute for Education and Development in Early Childhood (NIFBE)'s Research Centre for the Promotion of Abilities (2008–2015). NIFBE has trained a new generation of scholars in the applied science of assessing and nurturing young talents (see also Chapter 20 in this volume). The same interests guided Kuhl toward establishing the Andrea Kuhl foundation (http://www.andreakuhl-stiftung.de/home/). In honor of his late wife, Andrea Kuhl, the foundation seeks to support educators in stimulating optimal self-development of children and youngsters.

Outside the German-speaking world, it is little known that Kuhl has been committed to communicating his theory far across the traditional boundaries of psychological science. His interpretations of fairy tales in lectures and books (Kuhl, 2001, Chapter 20; Kuhl, 2010, at each chapter end), for example, are designed to make complex theoretical ideas intuitively accessible. Furthermore, Kuhl has written books on the discourse between psychology and philosophy (e.g., Kuhl & Luckner, 2006) and psychology and religion (e.g., Kuhl, 2005). Kuhl further co-authored a popular psychology book with Maja Storch that made it to the bestseller lists in Germany (Storch & Kuhl, 2012).

Epilogue

In 2012, Julius Kuhl received a lifetime achievement award from the German Society for Psychology (DGPs). This chapter has showcased some of Kuhl's contributions that make him particularly deserving of this distinction. Kuhl himself, on the last pages of *Motivation und Persönlichkeit* (Kuhl, 2001, p. 1103) explained how he identified with the plea for a romantic science by the Russian neuropsychologist Alexander Lurija (1993). Lurija's notion of romantic science entails the combination of a rigorous search for lawful processes and mechanisms, while the researcher maintains a holistic, systems-oriented sensitivity for the complexity of those processes and a caring, involved attitude that respects the individuality of the person. We hope that the romantic science of Julius Kuhl will continue to inspire many generations of researchers, practitioners, and general audiences.

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