

*Law and Psychology: Cognitive Biases in Judicial and  
Legislative Work and Measuring Metacognitive Gaps among  
Hungarian Lawyers*

PhD thesis in English

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## **I. Overview of the Research Problem**

Psychology has become one of the most influential fields of our time, not only expanding its scientific research scope over the past century but also significantly influencing public discourse and thought. Concepts from psychology, such as trauma, repressed desires, and addiction, have penetrated everyday language, shaping how we view ourselves and others. This growing influence of psychology naturally extends to other disciplines, including law, where there is increasing interest among law students in the potential intersections between psychology and legal studies.

The connection between psychology and law is profound, as both fields share a common subject: human behavior. While psychology seeks to understand and model human behavior, the law aims to regulate and shape it. Traditionally, legal thinking has relied on normative models driven by values, often neglecting the descriptive models of human behavior provided by psychology. However, the rapid advancement of behavioral sciences challenges this approach, making it increasingly unsustainable. Although the field is commonly referred to as legal psychology or law and psychology, a more precise term might be law and behavioral sciences.

My doctoral thesis explores various ways in which psychology can contribute to law, examining how behavioral sciences are reshaping the underlying human model in legal frameworks. I provide a systematic review of the literature on behavioral law and economics, a well-defined research area within the intersection of law and psychology that has gained momentum over the past two decades. The thesis also includes an empirical study on the legal profession's knowledge of legal psychology and features two expert interviews to offer deeper insights.

## **II.1 Structure of the Dissertation**

Western thought, since Plato, has assumed that humans are primarily rational beings capable of conscious decision-making. While emotions can undermine logical reasoning, the traditional view holds that we can filter out these "problematic" factors. My dissertation argues that this overestimation of rationalism has influenced the human model used in legal thinking. However, the cognitive revolution in psychology during the 1970s fundamentally challenged this traditional view. Empirical research has demonstrated that humans are not rational decision-makers but rather rationalizing ones. Most decisions are made through “irrational”, fast, and unconscious processes, which are often biased and can distort legal decision-making. This concept is thoroughly explored in the *chapter on descriptive and normative models of human behavior*.

Following an introductory section, I review the legal and psychological research on various cognitive biases. These cognitive biases have been well-documented in the decision-making processes of average individuals and many other otherwise well-trained professionals, such as doctors, financial experts, and teachers. The question is: to what extent are lawyers susceptible to these biases? Based on the research I conducted, *there is nothing inherent in the legal profession that would protect lawyers from the same biases that affect all thinking individuals.*

Today, we have numerous experiments conducted on relevant judicial samples, so *I use court rulings or experiments involving practicing judges to support my thesis.* The research clearly shows how random numbers, the appearance of witnesses and defendants, the order of evidence, or the framing of information influence judges' decisions. According to the findings analyzed in my dissertation, factors such as weather conditions, including rising external temperatures, significantly affect judicial decisions by reducing the proportion of favorable rulings. Similarly, sports events, especially unexpected defeats, result in harsher judgments. Judgments made on birthdays tend to be more lenient, hungry judges make more heuristic decisions, and the media, such as news about crimes, can also distort judicial decision-making. This raises the question of how compatible these new findings are with the traditional model of justice. In my dissertation, *I will explore the level of noise in the justice system and the applicability of these findings in Hungary.*

Humans possess a strong psychological immune system, with numerous cognitive biases protecting us from recognizing our mistakes. Overconfidence is one of the most well-documented cognitive errors. These biases also conceal our own distortions, leaving us with no intuitive understanding of our irrational nature, which only becomes apparent when researchers apply scientific methods to uncover them. While this ignorance may not be problematic in everyday life, *the metacognitive gap can lead to severe consequences for those involved in creating and implementing the law, such as wrongful convictions and the wasteful use of scarce social resources.* The chapter on metacognition *discusses the causes of this metacognitive gap*—the incomplete understanding of our cognitive processes.

One of the primary objectives of this doctoral dissertation is to *develop a comprehensive, empirically grounded measurement tool to analyze the attitudes of Hungarian legal professionals, particularly concerning the intersection of law and psychology.* Following international research precedents, *I designed a questionnaire to bridge the gap between naive and scientifically accurate psychological views.* This chapter also reviews legally relevant research on memory and perception, as well as the professional considerations behind the measured items.

After developing this tool, I applied it to a sample of Hungarian legal professionals. *The sample included 164 legal experts with an average of 14.4 years of legal experience, as well as 95 law students, providing a comparative analysis between experienced and inexperienced professionals.* The analysis of these results will enable a critical assessment of the attitudes and approaches of legal professionals in the future, potentially leading to recommendations for improving the legal profession and enhancing the effectiveness of the legal system. The findings from this research may also contribute to the ongoing international scientific dialogue in the field of law and psychology.

The cognitive biases uncovered by my doctoral research influence not only the administration of justice but also how legal regulations interact with society. *In the final chapter, I discuss the ethical and legal dimensions of modern psychological behavior management, focusing on the societal consequences of discovering cognitive biases.* It is evident that governments and markets are increasingly using psychological behavior-modifying techniques, with some even predicting the rise of a psychological

state. As information and communication technologies become more advanced, psychological behavior regulation becomes more effective, driven by Big Data, customizable, and trackable in real-time. *The lawmaker faces a dual challenge: developing ethical psychological regulation techniques while protecting people from unconscious mental manipulation, which suggests the emergence of a new generation of human rights centered around cognitive freedom.*

The law and psychology movement is nearly 100 years old, but it has largely been shaped by psychologists, who often have limited legal knowledge and understand only the logic and socialization of their discipline (psychology and behavioral sciences). While there is no similar synthesis of the knowledge presented here in the Hungarian language, comprehensive legal psychology works are also rare on the international stage. However, as modern society becomes more complex and dynamic, psychological aspects will become increasingly important in understanding and developing the legal system. I hope to convince the Hungarian legal community that psychology is essential for law to be fair, just, and socially effective. Similarly, psychologists must recognize that law is one of the most powerful tools for shaping and defining society. For psychology to impact society, it is essential that psychology influences law.

## **II.2 Research Methodology**

This doctoral dissertation presents the results of research conducted in the field of behavioral law and economics and describes the development and application of a research tool. The investigation was approached using three primary methodologies, each covering different aspects of the topic's complexity.

1. **Systematic Literature Review:** This approach involved a thorough analysis of publications from the behavioral law and economics literature. It synthesizes relevant sources, critically evaluating their findings and providing a reproducible summary of cognitive biases observed in the field of law and psychology.
2. **Quantitative Methodology:** This method focused on the quantitative approach, utilizing a custom-developed measurement tool applied to a sample of Hungarian legal professionals. The objective was to collect quantitative data and perform analyses on phenomena discussed within the scope of law and psychology. The survey used the Likert scale, a common tool for measuring opinions and attitudes, assigning numerical values to statements related to the subject matter. Descriptive statistical analysis was used to evaluate the data, focusing on the distribution of values—how different groups, such as practicing lawyers and law students, agreed or disagreed with specific legal psychology statements.
3. **Qualitative Methodology:** The third approach centered on qualitative analysis, involving expert interviews to gain insights into the emerging field. Two in-depth interviews were conducted, one with a psychologist specializing in law and psychology and the other with a lawyer working in the same field. These interviews provided a behind-the-scenes look at the evolving discipline.

## **III.1. Summary of Research Findings and Potential Applications**

### **III.1.A. Measuring Metacognitive Gaps in the Justice System - Overview**

While law enforcement and legal actors inevitably use psychological principles in their work—considering factors like the reliability of witnesses or the human dynamics between victim and perpetrator—recent studies suggest that these principles are often based on misconceptions or

inaccuracies. The results of the questionnaire used in my doctoral research indicate that these shortcomings are also present in the Hungarian legal profession.

In the summary chapter of my research, I highlighted the gap between legal professionals and the findings of legal psychology research. The responses overwhelmingly support this notion, suggesting that this gap could potentially lead to unjust legal outcomes. Throughout the various chapters of my dissertation, I explored and demonstrated the mechanisms behind this issue in detail. Naturally, as I mentioned in the section on framing, the perception of reality is generally tied not to numbers themselves, but to the linguistic frameworks that interpret those numbers. As a result, this research can be framed in multiple ways.

Two tables illustrate the aggregated results of the responses from legal professionals and law students. These results can be framed either as a success or as a failure. If we emphasize that practicing lawyers agreed with legal psychology experts in about 55-57% of the cases concerning the psychological phenomena studied, we might adopt an optimistic outlook. In questions related to memory and perception, only one-third of the responses showed the majority of lawyers do not know the correct answer. For the section on spontaneous human understanding, this figure was less than 30%. However, these same results also highlight the existing gap. In most of the questions, practicing lawyers were unable to unanimously identify the correct answer from a legal psychology perspective. In some specific areas, their performance was particularly poor. And while a 55-57% correct response rate might be considered good, the remaining 40% of incorrect psychological and behavioral models could still cause significant problems in the justice system. One could argue that even a much smaller metacognitive gap would be problematic in a critical societal system like the law, which decides human fates and whose legitimate and just operation is one of our most important communal interests.

Memory and perception	Lawyer who provided the correct answer	Law student who provided the correct answer	Less than half gave the correct answer	More than half gave the correct answer	More than two-thirds gave the correct answer
7	55	53		x	
8	16	12	x		
9	57	76		x	
10	20	25	x		
11	85	71			x
12	87	90			x
13	48	39	x		
14	77	86			x
15	90	94			x
16	54	38		x	

17	29	44	x		
18	81	85			x
19	39	61	x		
20	68	65		x	
%	57,57142857	59,92857143	35.71	28.57	35.71

Spontaneous person perception and other psychological influences:	Lawyer who provided the correct answer	Law student who provided the correct answer	Less than half gave the correct answer	More than half gave the correct answer	More than two-thirds gave the correct answer
28	70	72			x
29	71	73			x
30	54	49		x	
31	39	54	x		
32	10	19	x		
33	91	87			x
%	55,83333333	59	28.5%	28.5%	42.85%

### III.1.B. Detection of Lies, Self-Perception of Lawyers

The analysis of the textual responses indicates that although lawyers often agree on certain signs of lying, these signs frequently contradict each other. It is also possible that respondents mention contradictory statements within the same sentence, such as considering the signs of lying to be "*rapid speech or conversely, overly slow speech*"; "*halting speech, vague details, or conversely, overly confident, aggressive communication*"; "*excessive eye contact or conversely, a significant lack thereof*."

It seems that lawyers consistently consider tone of voice and changes in tone as important verbal indicators. References to tone of voice or its variation are among the most frequently repeated responses. As one respondent notes, this suggests that compared to a person's normal tone of voice, during lying, the voice may sound deceptive: "*If the speech gives a slightly grotesque impression or differs from the norm. It is very important here to compare it to the person's previous verbal communication when they were certainly not lying.*" Another respondent refers to the same: "*They use a different tone of voice, not their natural one.*" Some even specify particular changes in tone, such as the voice becoming higher when the person is lying: "*The voice becomes higher for someone who is lying, they use incorrect sentences when faced with an unexpected question.*"

Incoherent, self-contradictory accounts are definitely considered a sign of lying. However, a significant proportion of respondents also consider the opposite to be a sign of lying, namely overly coherent and detailed accounts.

Both the practicing lawyers and law students place themselves significantly above the average person in terms of their ability to detect lies. It is also noticeable that they are more confident in their abilities compared to the evaluation of other participants in the justice system. This expected result is caused by the well-known 'Wobegon effect' in psychology, which suggests that when drivers, entrepreneurs, or spouses evaluate themselves, they consistently consider their abilities to be above average. It is surprising and extremely concerning that a significant portion of practicing lawyers, more precisely 71%, agree that observing the eyes is necessary to determine credibility.

### **III.1.C. The Power of Appearance on the Outcome of Legal Proceedings**

Seventy percent of the responding lawyers believe that the appearance of the defendant, perpetrator, plaintiff, or defendant influences the judgments made by the judge. Additionally, 39% of practicing lawyers and 54% of law students agree that having a baby-faced appearance is an advantage in the courtroom. This indicates that a large portion of lawyers acknowledges that appearance affects judicial decisions. If this is the case, it means that more than two-thirds of the responding lawyers believe that arbitrary and legally trivial factors, such as appearance, influence the outcomes of legal proceedings. A predictable legal system should make decisions based on the actions committed, not on external appearance. Such psychological factors undermine the principles of justice.

Half of the practicing lawyers do not believe they can distinguish between a criminal and an international humanitarian worker based on appearance alone. However, slightly more than a quarter of the surveyed practicing lawyers answered they would be able to make such a distinguishing judgment solely based on facial appearance.

Two-thirds of lawyers and law students agree with the statement that *"Court trials often become a sort of credibility contest, where the perceived reliability of different, opposing witnesses and narratives decides the outcome."* This statement means that during court trials, the perception of the credibility of witnesses and the narratives presented often plays a crucial role in determining the verdicts. From a legal psychology perspective, this is problematic because if judges rely too heavily on perceptions of credibility, the legal system may become vulnerable to factors that can influence the reliability of witnesses and narratives.

### **III.1.D. Opinions of Legal Professionals on the Judicial Subject's Decisive Role**

It is surprising how much the legal professionals who completed the questionnaire disagree with the Court's findings regarding judicial consistency. The Hungarian Court states: *"Empirical evidence shows that if the same case is assigned to three independent judges, each will arrive at the solution through different means, but the content of their decisions will be the same."* Two-thirds of the legal professionals strongly disagree with this assertion, with only 14% agreeing. Thus, practicing lawyers do not corroborate these empirical facts and experience them differently. Interestingly, law students, who lack practical experience, also do not believe in the Court's assertion. Both international research and the experiences of questionnaire respondents suggest that there may be significant variability in judicial practice.

The Court's argument stating that three judges reach the same decision through different methods in the same case, continues with *"therefore, the assumption that the judicial subject has a decisive influence on the outcome of the case is not tenable."* Although to a slightly lesser extent, practicing lawyers and law students also disagree with this conclusion. Half of the practicing lawyers firmly believe that the judicial subject does play a decisive role, while only 16% agree with the Court's position.

### **III.1.D. Assessment of Perception and Memory Issues in Legal Psychology**

Regarding the statement, “*after an event, we tend to overestimate how foreseeable the event was,*” 77% of practicing lawyers agree. This indicates that most practicing lawyers are aware of the hindsight bias, at least concerning the overestimation of foreseeability. However, only 39% of practicing lawyers agree with the statement, “*after an event, we can accurately estimate the probability of the event occurring,*” while 37% are neutral. The first question addressed the impact of an event’s occurrence on our assessments of foreseeability, while the second focused on inevitability bias, i.e., the belief that the event was inevitable or highly likely after it has occurred. It is noteworthy that while three-quarters of lawyers agreed with the first statement, less than 40% recognized the inevitability bias aspect. This raises the question of how well this knowledge is applied in expert evaluations or connected to foreseeability expectations in the legal system.

While 57% of practicing lawyers agree that “*sometimes we remember events we did not participate in,*” 21% disagree, and 22% are undecided. It is positive that slightly more than half of the lawyers are aware of the existence of false memories, yet it is concerning that nearly a quarter are skeptical about the possibility of false memories and another quarter is unsure. The existence of false memories is well-supported by literature and forms the basis for many erroneous legal judgments. In contrast, law students are much more accepting of the existence of false memories, with more than three-quarters considering it realistic to remember events they did not witness.

It is positive that 81% of practicing lawyers disagree with the statement, “*people only confess to a crime if they actually committed it.*” An overwhelming 90% of lawyers agree that “*a witness's perception and memory can be influenced by their attitudes and expectations regarding an event.*” However, only 55% of practicing lawyers disagreed with the statement, “*the more confident a witness is, the more reliable their memories are,*” with just 10% agreeing. This is concerning, as research indicates that confidence does not correlate with memory reliability. It is also problematic that 51% of practicing lawyers believe that the more detailed a witness can recall an event, the more likely they are to correctly identify the perpetrator. This view is problematic since research shows no evidence that detailed recollection corresponds to more reliable memories, and it can often be the opposite.

Only 67% of lawyers agree that the reliability of adult witnesses' memories can be a subject for psychological expertise, with slightly more, 77%, agreeing for child witnesses.

### **III.1.E. Assessment of the Metacognitive Gap in Perception and Memory, Broken Down by Legal Professions**

One-quarter of practicing lawyers specifically believe that neither prosecutors nor judges are aware of factors influencing memory. One-third of practicing lawyers think there is a metacognitive gap in understanding how memory works concerning prosecutors and police. While the results are not tragically low, less than half of the practicing lawyers agree that justice system participants are aware of how certain factors can affect the reliability of eyewitness memories.

The police are rated the worst, with only 38% of practicing lawyers believing that the police have adequate knowledge about memory functions. On the other hand, both lawyers and law students view the judiciary as the most competent in terms of psychological knowledge. Additionally, both groups consider prosecutors to be more competent in legal psychological knowledge than defense attorneys and police officers.

### **III.2. The Right to Cognitive Freedom**

The doctoral dissertation highlights through an analysis of international literature that the irreversible consequences of technological advancements pose significant risks to human society. Legal regulation must urgently address psychological manipulation to protect individuals' mental freedom. The dissertation supports the view that the "dark patterns" used by the marketing industry intentionally confuse users and manipulate their decisions, presenting serious ethical and legal challenges. The application of psychological and neuromarketing methods raises questions about how these practices



may violate individual mental integrity and whether stronger state and international regulations are necessary. The study emphasizes that the extent of psychological manipulation now exceeds the current legal framework, necessitating a new approach to safeguard individuals' mental autonomy.

There is a general moral intuition that, just as we cannot intervene in another person's body without consent or a very serious reason (e.g., medical emergency), we should not arbitrarily alter other people's mental states. It is evidently inappropriate to use hypnosis, brainwashing, aversive therapy, or subconscious influence on someone against their will. Similarly, lying and deception are not permissible. It is no coincidence that the law partially protects us from these through criminalization of fraud and defamation. The question remains, however, how to address the intermediate zone of manipulation—non-irresistible but still severe interventions that now pervade all aspects of life—within the legal domain.

One of the fundamental principles of the right to bodily integrity is that we possess a form of property right over our own bodies. The body is part of our self over which we exercise sovereign power, just as a state exercises sovereign power within its borders. If our self is the center of autonomy, we could argue that our mental states are even more crucial than our bodies for our self-identity. Thus, if bodily integrity is protected, mental states should be even more so. One could also argue that mental integrity is encompassed within the rights to freedom of thought, conscience, and religion, as well as freedom of speech, and thus does not necessarily require new legislation but rather an expansive interpretation of existing legal protections. However, according to traditional views, these rights are narrowly interpreted compared to the types of mental interventions discussed in the dissertation. The "freedom of thought" typically only includes political and social thought, while "conscience" is limited to moral convictions and historically linked to religious views. Since freedom of thought is an absolute right, Malcolm Evans, an Oxford law professor, noted in the 1990s that a broad interpretation of this right could potentially include advertisements, which would have significant practical consequences. The International Covenant on Civil and Political Rights, for instance, would outright prohibit such practices.

Given these issues, I would not build the right to mental integrity upon the existing fundamental rights framework but would establish a separate institution to address this specific problem. A century ago, we were not aware of the nature of our mental lives and the broad range of intervention possibilities, so it is clear that the law could not respond to this sophisticatedly. It is not unprecedented for scientific advancements to give rise to new rights. For example, the protection of genetic information and digital data has become a legal issue in the 21st century due to advancements in genetics and information technology.

Based on the dissertation, I would propose three criteria for the legal protection of mental integrity:

1. **Systematic Behavioral Manipulation:** The intervention is part of a systematic attempt to influence behavior, with the intent of achieving a behavioral change favorable for the intervenor.
2. **Lack of Consent:** The target of the behavioral change did not consent to or is unaware of the intervention.
3. **Heuristic Methods:** The behavioral change does not aim to affect the target's slow, rational, and deliberative thinking but employs rapid, heuristic, and often subconscious cognitive processes.

The first criterion ensures that everyday natural interactions do not lead to excessive litigation. Thus, for instance, I cannot sue a neighbor for not framing a question about whether I want to look after their cat in a fair manner, as this does not constitute a systematic intervention. Systematic interventions clearly require entities with significant resource concentration and the capability to implement such interventions.

The second criterion allows certain systematic behavioral changes to remain permissible, especially when consent is given. For example, the state may use systematic intervention tools for specific public health goals if authorized by its citizens.

The third criterion defines what constitutes a violation of mental integrity. According to cognitive psychology, fast and slow thinking processes can be distinctly separated. Persuasion techniques that affect slow processing are not subject to prohibition. For example, a TV commercial where a medical expert presents rational arguments for using a toothpaste would not inherently contain prohibited intervention elements. However, the "dark patterns" discussed in the dissertation, which systematically test automatic behavior, would violate the right to mental integrity. Similarly, advertising strategies that build emotional associations would not meet legal expectations.

#### IV. List of Publications Related to the Research Topic

- Czabán Samu: **Jog és pszichológia, rendszertani nehézségek és pszuedopszichológia az igazságszolgáltatásban** –Themis, 2018. december, 5-25.o, HU ISSN 2064-0900 ([https://www.ajk.elte.hu/media/05/0f/9c73599b4fcd3f3628cdd7c4797a959df6f0d5dd43abeb49e0afa92c972/THEMIS\\_2018\\_dec.pdf](https://www.ajk.elte.hu/media/05/0f/9c73599b4fcd3f3628cdd7c4797a959df6f0d5dd43abeb49e0afa92c972/THEMIS_2018_dec.pdf))
- Czabán Samu: **Horgonyhatás és jog – tudunk-e megbízható numerikus ítéleteket hozni az igazságszolgáltatás kontextusában?** – Themis, 2020 május, 29-44 HU ISSN 2064-0900 (<https://www.ajk.elte.hu/dstore/document/1395/THEMIS-2020-05.pdf>)
- Czabán Samu: **A nagy történetmesélő – a döntéshozatal történeti modellje, utólagos okoskodási torzítás és a jogi felelősség utólagos megállapításának pszichológiai kérdései** - Jogelméleti Szemle, 2020. július (<http://jesz.ajk.elte.hu/>)
- Czabán Samu: **A spontán emberismeret jogpszichológiai vonatkozásai, a veszélyes döntések elmélete és a demokratikus döntéshozatal kognitív kihívásai** - Bibó Jogi és Politikatudományi Szemle 2020. évi 2. szám ([https://drive.google.com/file/d/1Xa0cGwaY3UR24Le6J9rISfR\\_DbmBjGKv/view](https://drive.google.com/file/d/1Xa0cGwaY3UR24Le6J9rISfR_DbmBjGKv/view))
- Czabán Samu: **Az emberi viselkedés deskriptív és normatív modelljeinek viszonya a jogi gondolkodásban – egy új pszichológiai emberkép és kihívásai!** Bibó Jogi és Politikatudományi Szemle 2021/1. : 1 p. 45 (2021)
- Czabán Samu: **Pszichológiai hatások veszélyei a bírósági eljárásokban, különös tekintettel a családjogi perekben** - Családi Jog, 2021/1, ISSN 1589-7516
- Czabán Samu: **Igazságkeresés az igazság kizárásával – a tiltott bizonyíték kognitív sorsáról és a mentális reprezentációk aszimmetrikus természetének jogi kérdéseiről.** Jogelméleti Szemle 4 : 21/4 p. 25 (2021)
- Czabán Samu: **A psziché törvénye előtt mindenki egyenlő – hogyan viszonyuljunk előítéleteinkhez?** Jogelméleti Szemle 2022/2 p. 5
- Czabán Samu: **Behavioral design supporting the transition to a circular economy.** In: Kajos, Luca Fanni; Bali, Cintia; Preisz, Zsolt; Polgár, Petra; Glázer-Kniesz, Adrienn; Tislér, Ádám; Szabó, Rebeka (szerk.) 10th Jubilee Interdisciplinary Doctoral Conference : Book of Abstracts = 10. Jubileumi Interdiszciplináris Doktorandusz Konferencia : Absztraktkötet Pécs, Magyarország : Pécsi Tudományegyetem Doktorandusz Önkormányzat (2021) 347 p. p. 123
- Czabán Samu: **Jog és pszichológia – egy új interdiszciplináris megközelítés és alkalmazási lehetőségei** – Jog és állam 24. szám, XI. Jogász Doktoranduszok Országos Szakmai Találkozója, kiadó: Károli Gáspár Református Egyetem Állam- és Jogtudományi Kara, ISBN: 978-615-5961-02-1 / ISSN: 1787-0607