Thinkers Who Changed the Map of Consciousness: From the "Hard Problem" to a New Pedagogy

Preamble to the Series of Articles

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Fractal Academy
Issue 3 (Autumn 2026) Article 2
Series: "Thinkers Who Changed the Map of Consciousness: From the 'Hard Problem' to a New Pedagogy"
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DOI: [to be assigned]
Publication date: 1.11.2026

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Title (English): «Thinkers Who Changed the Map of Consciousness: From the "Hard Problem" to a New Pedagogy»
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Why I Wrote This Series

In 2023, while listening to a public lecture by Tatyana Vladimirovna Chernigovskaya, I first clearly realized the scale of the problem facing modern neuroscience. "What is the brain?" she asked. And immediately answered honestly: "I do not know. And no one else does." This "I do not know" sounded to me not as a verdict, but as an invitation. An invitation to a conversation - honest, deep, and free from the illusions of omniscience. A conversation that cannot be held alone.

At that moment, I was already working on my model of the communicative-cognitive framework of personality (CCFP) and the hypothesis of epistemological recursion. But I was missing something crucial: an intellectual environment in which my hypothesis could breathe. I understood that to claim that pedagogy could become a strategy for the evolution of the species, I had to show on whose shoulders this idea stands. I had to lead the reader to the thinkers who prepared the ground for such an assertion. Thus, this series was born.

Project Idea: The Series as a Single Organism

This series is not just a collection of portraits of scientists. It is a unified narrative unfolding according to a strict logic. Each thinker in it is not an isolated figure, but a link in a chain that leads from the formulation of the "hard problem of consciousness" to a concrete pedagogical solution.

Here it is appropriate to recall Italo Calvino's *Invisible Cities*. In this novel, Marco Polo tells the Khan about cities that do not exist on the map: a city built on water, a city of spiderwebs, a city where everything repeats. Each city is not just a place, but a way of seeing the world. Each is an invitation to a different perspective. The thinkers in my series are such "invisible cities." Chalmers is the city where everything is divided into "easy" and "hard." McGinn is the city surrounded by a wall that cannot be jumped over. Morin is the city with no straight streets, only intertwining paths. Foerster is the city where every inhabitant is simultaneously an observer and the observed. Hofstadter is the city built of mirrors. Varela is the city that can only be entered from the inside. Friston is the city that constantly predicts its own future. Tononi is the city where one measures not the number of houses, but the strength of the connections between them. Vygotsky is the city where children build bridges out of cultural tools. Chernigovskaya is the city where sages say "I do not know," and this is considered the highest degree of knowledge. Sosa and Zagzebski are the city where one values not correct answers, but correct questions. Perkins and Tishman are the city where one is taught not to think, but to *want* to think. Clark and Sterelny are the city that extends into its tools. Kuhn is the city where one day people realize that the map they lived by was wrong. Together, these cities form a country that is not on any map, but which becomes visible if you read them in sequence.

I have structured the series into six blocks. The first block, "Formulation of the Problem," features Chalmers and McGinn, exploring why we are stuck in a trap of correlations and why some consider this dead end insurmountable. The second block, "Awareness of Complexity," features Morin, Foerster, and Hofstadter, examining why old tools fail and what it means to be "an observer who is part of the system." The third block, "New Approaches," features Varela, Friston, and Tononi, exploring how to study consciousness if it is not a "thing," but a process, a prediction, and integrated information. The fourth block, "The Path Through Subject Development," features Vygotsky and Chernigovskaya, explaining why the brain is open to cultural evolution and why an honest "I do not know" is a beginning, not an end. The fifth block, "Epistemic Virtues and the Cognitive Niche," features Sosa and Zagzebski, Perkins and Tishman, and Clark and Sterelny, detailing the qualities a knower must possess to solve the hard problem, and the environment necessary to cultivate these qualities. The sixth block, "Methodology of Revolution," features

Kuhn, explaining how paradigm shifts occur and why pedagogy becomes the engine of scientific revolution. Read sequentially, these fourteen texts transform into a single journey - from recognizing the dead end to envisioning the path.

The number of blocks increased from five to six, and the number of articles from eleven to fourteen, because during the work on the series it became clear that a complete picture required a philosophical link: the tradition of virtue epistemology, the theory of dispositions, and the concept of the cognitive niche. Without this link, the transition from "subject" to "paradigm shift" would have been too abrupt, leaving it unclear what specific qualities a subject must possess to enact a revolution.

Connection with the Main Article

The central text of the entire project is my main article, "Epistemological Recursion in Cognitive Science: Mental Mechanisms as a Tool for Overcoming the 'Hard Problem' of Consciousness." It is a manifesto in which I formulate the hypothesis, relying on the ideas of all fourteen thinkers. During the work on the series, the main article was revised. Three key elements were added that were absent in the first version.

First: the redefinition of the hard problem as *paradigmatic*. The hard problem is not a problem of missing data, but a problem of an exhausted conceptual framework. This redefinition connects Chalmers' argument with Kuhn's and makes the transition to pedagogy possible.

Second: six requirements for the cognitive apparatus. From the redefinition of the hard problem, six requirements are derived: distinguishing correlation from causality, access to experience as data, holding the tension between perspectives, deconstructing axioms, holding a multidimensional model, and foreseeing consequences. These requirements are not "skills," but conditions for the possibility of the act of solving.

Third: the hierarchy of core/support/context. From the six requirements, six core mechanisms are derived, which constitute the act of solving, and five support mechanisms, without which the core cannot function. Contextual mechanisms are left open. This allows us to answer the question of the list's openness: the core is closed by the task, the periphery is open to the context.

But a manifesto without context is merely a declaration. And context without a manifesto is mere erudition. Therefore, I propose reading them together. The main article provides the holistic picture and formulates the hypothesis. The series of articles provides depth and shows the foundation upon which this hypothesis stands. Each article in the series contains cross-references to other articles and to the main work. This creates a "scientific network" effect, where each text reinforces the other. The connection between the main article and the series can be formulated as follows: the main article is the argument (task - requirements - mechanisms - structure). The series is the genealogy of the argument (on whose shoulders it stands). Without genealogy, the argument looks like an invention out of thin air. Without the argument, the genealogy looks like a collection of portraits. Together, they form a research program.

Reading Routes for Different Readers

I understand that every reader has their own path, pace, and interest. Therefore, I offer several possible routes.

Route 1: "From Problem to Solution." For those who want to understand the whole picture. Read the main article, then sequentially all articles in the series, from Chalmers to Kuhn. This will take 5-6 hours of thoughtful reading, but you will traverse the entire development of the problem.

Route 2: "Through the Portrait of a Thinker." For those interested in a specific scholar. Start with their portrait in the series - each article is autonomous and contains all necessary contextual explanations. Then, if desired, read the main article to see how this thinker's idea fits into the overall hypothesis.

Route 3: "From Chernigovskaya to the CCFP." For the Russian-speaking reader who wants to start with a familiar name. Start with the portrait of Tatyana Chernigovskaya, then read the main article where her ideas are further developed. This is the shortest path to understanding the hypothesis.

Route 4: "For the Educator." For those primarily interested in practical application. Start with the main article (Sections 3-5), then read the portraits of Vygotsky, Perkins and Tishman, and Kuhn - they will show how pedagogy becomes a strategy for species evolution, what dispositions need to be formed, and how paradigm shifts occur.

Route 5: "For the Neurobiologist." For those working in cognitive science. Start with the portraits of Varela, Friston, and Tononi - they will show how your discipline views itself from the inside. Then read the main article to see how these ideas connect with pedagogy.

Route 6: "For the Philosopher." For those interested in philosophical foundations. Start with the portraits of Sosa and Zagzebski, Perkins and Tishman, and Clark and Sterelny - they will show how virtue epistemology, the theory of dispositions, and the concept of the cognitive niche justify the CCFP model. Then read the main article to see how these traditions are concretized in the six requirements.

Reading routes are not "recommendations," but ways to enter the series. Different readers have different "entry points": for an educator, it is Vygotsky and Perkins; for a neurobiologist, Varela and Tononi; for a philosopher, Sosa and Zagzebski. The task of the routes is not to "impose" an order of reading, but to show that the series is open to different ways of entry. This corresponds to the principle of individualization through unique abilities: each reader has their own "strength," and through it, they can enter the system.

Philosophical Manifesto of the Series

This series is not just a scientific project. It is a manifesto of a certain attitude toward knowledge. I am convinced that science does not exist in a vacuum. It is created by living people with their cognitive limitations, cultural traditions, and personal histories. To understand a scientist is to understand their ideas more deeply. I am convinced that complex problems require complex thinkers. One cannot solve the "hard problem of consciousness" with linear thinking. One must develop the cognitive apparatus - and this is exactly what CCFP pedagogy does. I am convinced that pedagogy is not a "servicing discipline." It is a strategy for the evolution of the species. Through the development of mental mechanisms, we prepare the next generation of researchers capable of seeing what we cannot see today. I am convinced that an honest "I do not know" is the beginning of knowledge. Acknowledging limits is not a defeat, but an invitation to development. This is how Chernigovskaya, Varela, and Morin spoke. And this is how every scientist claiming depth must speak.

And I am convinced that every thinker is a bridge. Chalmers showed the problem, McGinn its limits, Morin the complexity, Foerster the recursion, Hofstadter the self-reflection, Varela the view from within, Friston the prediction, Tononi the measurement, Vygotsky the openness, Chernigovskaya the humility, Sosa and Zagzebski the virtues, Perkins and Tishman the dispositions, Clark and Sterelny the niche, Kuhn the revolution. Together, they form a map by which one can navigate. The fifth point of the manifesto is not just a "list." It is an argumentative chain. Each thinker contributes to the overall picture, and without any one of them, the picture would be incomplete. Without Sosa and Zagzebski, there would be no philosophical justification for virtues; without Perkins and Tishman, no theory of dispositions; without Clark and Sterelny, no concept of the niche. This is precisely why the series expanded from eleven to fourteen articles: three links were missing for a complete picture.

Invitation to the Journey

I invite you on this journey. Not as a passive reader, but as a co-thinker. Each article in the series is not just an exposition of ideas. It is an attempt to bring the thinker to life, to show them as a living person who struggled with the same problems we face today. It is an attempt to build a bridge between their era and ours, between their discipline and pedagogy, between their theory and your practice.

When you read about Chalmers, ask yourself: "What do I feel when I see the color red?" When you read about McGinn, ask yourself: "What cognitive limitations of mine do I not see?" When you read about Varela, ask yourself: "How can I train my attention?" When you read about Vygotsky, ask yourself: "What cultural tools am I passing on to children?" When you read about Sosa and Zagzebski, ask yourself: "What intellectual virtues am I cultivating in myself?" When you read about Perkins and Tishman, ask yourself: "What dispositions am I forming in my students?" When you read about Clark and Sterelny, ask yourself: "What cognitive niche am I creating around myself?" When you read about Kuhn, ask yourself: "In what paradigm do I live? And is it ready for a revolution?" These questions are not rhetorical. They are tools that turn reading into action.

Instead of a Conclusion

When I started this project, I did not know if I would succeed in connecting different thinkers into a single narrative. I did not know if a reader would be found who would walk this path with me. But I knew one thing: the hypothesis of epistemological recursion cannot be proven alone. It requires an environment, context, dialogue. It requires that behind it stand not just citations, but the living voices of thinkers, each of whom has contributed to the understanding of what consciousness is and how to study it. This series is my attempt to create such an environment. My attempt to invite you into a dialogue that began long before me and will continue after me. If you are holding these texts in your hands, it means the dialogue continues. Welcome.