

EDITORIAL:

CHALLENGES OF INTERDISCIPLINARITY

Mind can be studied by many different disciplines, observed by very diverse methods and measuring techniques, approached on many different levels, and – to make thing even more complex – studied, observed, approached and described either from third- or first-person perspective. Mind is a very complex system indeed. The special issue *Challenges of interdisciplinarity* aims at showing that such an interdisciplinary approach is fruitful and even necessary if we are to understand the human mind. Authors' contributions¹ range from philosophically oriented critical reflections on studying the mind, to research on specific cognitive phenomena – all in some way trying to give an interdisciplinary account by connecting various disciplines, methods or perspectives.

The special issue starts with Olga Markič's critical reflection of neuroscientific understanding of human mind (neurophilosophy) and by arguing that philosophical reflection (humanistic view of the mind) is a necessary counterpart to empirically oriented research in "harder" sciences. The main part of the special issue with papers by Urban Kordeš, Toma Strle, Sebastjan Vöröš and Fransisca Hog-Eng Tan consists of various attempts, critiques, proposals and empirical research on bringing together first-, second-, and third-person approaches to studying the mind (neurophenomenology). The challenge of interdisciplinarity is thus not only in joining different methodologies and disciplines that study the mind from a third-person perspective, but to combine third-person with first-person approaches. Contributions of Metka Kuhar, Zarja Muršič and Nina Mikuš all attempt to show the importance of interdisciplinary research of various cognitive phenomena. Kuhar shows that it is necessary to combine psychology, social and political sciences to give a more complete account of human deliberation. Muršič argues for tight connectedness of biology and culture from an evolutionary perspective. Her paper combines animal and human studies as well as neuroscientific and cross-cultural studies (neuroanthropology). The last paper (Mikuš) argues that in researching synesthesia we have to combine first-hand synesthetic reports (first-person perspective), genetics, neuroimaging and behavioural tests (third-person perspective) and thus nicely rounds up this special issue.

In the introductory paper Markič examines roles of philosophy in shaping cognitive science, particularly neuroscience research. Recent development, particularly new tools and methods for investigating the working brain, have placed neuroscience at the centre of cognitive science. But, as Markič suggests, it is also necessary to examine theoretical and philosophical assumptions that lie behind different understandings and interpretations of neuroscientific research. She discusses Descartes' legacy in cognitive science and examines the idea that the proper framework for understanding the mind is developed by neuroscience. She argues that radical reductionism and eliminativism are too extreme positions and are not supported neither by empirical

data nor by philosophical analysis. She suggests that minimal neurophilosophy and embodied approach are more promising approaches and stress the need to investigate the influence of cultural backgrounds on cognition. As she concludes, “it is not only one way traffic from neuroscience to higher level sciences but also vice versa” (Markič, this issue).

Kordeš, Strle, Vöröš and Tan all argue that systematic research of experience from first- and/or second-person perspective should become an integral part of still mainly third-person cognitive science.

Kordeš presents an overview of current empirical methods for researching experience and explicates the most pertinent issues they face. Kordeš rightfully claims that epistemological and ontological issues should never be forgotten, but on the other hand also emphasizes that we should at the same time be aware that researching experience is also of methodological and technical nature. He puts forward the critique of the “just ask approach” from the perspective of Husserl’s and modern empirical phenomenology. He concisely presents some most important techniques of empirical phenomenology (explication interview of Petitmengin [1] and descriptive experience sampling (DES) developed by Hurlburt [2]). Kordeš argues that DES is a method which can be used for systematically “mapping” of everyday experience, while explication interview enables a more specific insight into experience. Kordeš and Strle both agree that these methods should be seen as complimentary and not as opposing or contradicting each other. Even though these methods differ in their goal of what “level” of the experiential they want to study, they both aspire to avoid certain problems with which the “just-ask approach” is faced. Following phenomenological tradition, Kordeš argues that our usual (and habitual) observation of experience is most of the time full of interpretations and assumptions of what is to be experienced (as is the case in the “just ask approach”). He claims that our self-observation is actually more interpreting, ordering and categorizing, than really observing how we experience ourselves and the world. He nicely shows that rigorous training in self-observation is a necessary step if we are to avoid this habitual stance towards our experience. Kordeš lucidly argues that “[t]he skill of observation (gaining data) in the research of experience is just as important as in any other branch of science.” (Kordeš, this issue). And thus first-person research is in this regard not much different to third-person research. At the end of his analysis he proposes that “in-depth first-person and – most importantly – existentially binding research is the only chance for truly in-depth insights into our consciousness, experience and human existential condition in general. Perhaps we should start this line of research by an in-depth critical study of the experience of people, who have dedicated their lives to the training of diverse techniques of mindfulness” (Kordeš, this issue).

Strle presents and critically evaluates Varela’s [3] neurophenomenological programme and argues that it is a good proposal for studying experience. Strle claims that the programme of neurophenomenology as a “remedy” for the hard problem of consciousness [4] should not be understood as a solution to the hard problem (the problem of experience) on the ontological level. It does however remedy some methodological and epistemological issues with which third-person sciences are faced. Critically evaluating the theses of methodological and epistemic reduction, Strle argues for the irreducibility of experience on these levels. For, he claims, if we

are to explain and understand the experiential part of the mind, we have to firstly avail ourselves of the appropriate methods (first- and second-person methods). Kordeš and Strle agree that some problems that we face when researching experience only seem insurmountable, because we just have not tried hard enough. On the other hand, Strle nicely shows how Varela's claim of phenomenological reduction as a necessary condition for the possibility of studying experience systematically, is too strong. Nonetheless, there already exist some more or less systematic methods for studying experience, such as DES developed by Hurlburt [2] and explication interview developed by Petitmengin [1] and her predecessors. Although these methods, as argued by Strle, face some serious problems (e.g. the problem of training and the problem of setting criteria for the "correct" way of observing experience), we should nonetheless start incorporating them into mainstream cognitive science. Strle argues that using such methods is especially pertinent for investigating cognitive phenomena that intrinsically involve conscious processes, for example when studying emotions or decision making. Furthermore, the use of such methods is needed for studies where differentiation between conscious and unconscious processing is crucial. To support his claims, Strle presents some examples from the broader area of decision making, where it is relatively clear how "it could easily happen that our conclusions and interpretations of empirical results would be false or inaccurate" (Strle, this issue). Joining philosophical analysis, (neuro)phenomenology and examples from areas of cognitive psychology and behavioural economy, the paper puts forward a good account of the necessity of combining first-, second-, and third-person approaches to studying the mind.

Vöröš's paper represents an original contribution to how studies of consciousness can benefit from insights of mystical traditions. Firstly, he gives a rigorous analysis of the term mysticism and mystical experience to avoid the false folk-psychological conceptions of the term. Vöröš then identifies various areas where insights of mysticism could benefit consciousness studies and cognitive science in general. One such area is phenomenology where in his view, mysticism could contribute with its "special" insights into experience and its analysis of the experiential. Secondly, he argues, mysticism could provide insight into two metaphysical problems that plague sciences of the mind: the hard problem of consciousness and the problem of a (unified) self. With its fundamental experiential insight into "selfless nature of the self" and the non-duality of subjective-objective, mind-body, etc. mystical traditions could help resolve or at least elucidate the hard problems Western science and philosophy face. It could help elucidate – from an experiential point of view – the division of the mind and body, the concept of self or the posed difference between subjective and objective. Vöröš concludes his paper with a provocative question to cognitive science: "Could it be that the greatest gift that mysticism could give to cognitive science is to save it from some of its own metaphysical spectres that haunt it – and thus help demystify it?" (Vöröš, this issue).

Going on, Tan presents her original research on food-related experience. She shows how studying food-related experiences can help us ground and enrich third-person food-studies. She argues that instead of just asking participants about their experience through e.g. questionnaires, it is essential to gather first-person reports that stem from exploring the "how" of experiencing food-related phenomena. Her empirical research is also firmly grounded in theoretical part of phenomenology which she critically

discusses in her paper. She argues that the study of (food-related) experience should become a necessary part of the research area she explores. As her research shows, the phenomenology of food-related experience reveals characteristics of the phenomenon that could not be revealed by classical methods used in food-related sciences. Furthermore, she explains how phenomenology of food-related experience can help us clarify hypothetical abstract concepts such as food-craving or hunger. She argues that “how we experience food, can give a vibrant insight to our cognitive integration of sensations, perceptions, thoughts and feelings, and such.” (Tan, this issue).

Kuhar’s paper represents another original attempt to bring together different disciplines and levels of research. She emphasises the necessity of bringing the understanding of psychological aspects of human deliberation into social and political sciences. She argues that in order to understand deliberation within governmental bodies and public institutions, and in order to understand direct citizen involvement in face-to-face meetings and the like, social and political science must take into account also psychological findings about deliberative processes. Social and political sciences must admit the need of understanding subjective and intersubjective aspects of deliberation. She argues that the analysis of deliberative processes must also include emotional, identity, value, interpersonal, etc. aspects. Furthermore, she argues for the importance of influence of attachment styles on the quality of deliberation. She concludes her paper with a proposal of further research and claims that “[a] deeper understanding of conditions potentially hindering successful deliberation would help developing more effective deliberation processes, strengthening deliberative competence of all (potential) actors in the public formal and informal public sphere and establishing/building trust in deliberation processes.” (Kuhar, this issue).

Muršič introduces the topic of neuroanthropology as a possible new important pillar of cognitive science. In her paper she discussed the importance of natural and cultural evolution for the development of complex cognitive skills. She is particularly interested in capability to compute and use mathematics. Humans developed through millions of years of evolution and Muršič points out that success of the humans lies in well-developed and complex nervous system. But she also suggests that “humans have some abilities that no other animal possesses” (Muršič, this issue). She argues that “complex cognitive skills, such as mathematical reasoning, i.e. numerosity and arithmetic, are an addition achieved as a side-product of the development of specific human culture.” She presents some studies in animal quantification abilities which show that animals do not possess a discrete representation of numbers although there is the sense of number as something that exists prior and external to the language. She concludes that “mathematics in humans does not develop because of natural evolution, but is a product of cultural evolution” (Muršič, this issue).

The special issue concludes with the paper on synesthesia. In this paper Mikuš introduces the term as “a phenomenon in which an otherwise normal person, while being stimulated in one modality experiences an emergence of sensations in other modalities” (Mikuš, this issue). She continues with discussing the main areas of synesthesia research: cognitive and psychophysical studies/theories; neural models/theories; gene studies and studies of localisation of the phenomena by fMRI and other neuroimaging techniques. In the second part of her paper Mikuš describes diagnostic criteria for synesthesia based on the main characteristics: it is involuntary

and automatic, perceptions are consistent and simple, it is memorable, it is spatially extended and is imbued by emotions. In conclusion she points out: “Due to its inherently subjective nature, synesthesia was for a long time being pushed aside on part of behaviorists ... [but] During the past two decades it has become possible to speak of a trend of increased interest in synesthesia” (Mikuš, this issue).

Articles presented and evaluated in the introductory text to this special issue *Challenges of Interdisciplinarity* all explicate various problems and present different ways of studying the mind in an interdisciplinary manner. They argue for the need to bring together different disciplinary and methodological approaches, including first- and third-person perspectives, or call for the need of connecting different levels from which mind can be described and explained. Building bridges across different levels, methodologies, disciplines and various ontological-epistemic presuppositions is by no means an easy task. Nonetheless, we believe that combining different approaches and perspective is at least to a certain degree an achievable goal that cognitive science must strive to achieve in order to understand the human mind in its full scope. It is exactly this complexity that makes cognitive science so intriguing and exciting.

REMARK

¹Authors have presented some of the ideas developed in their papers at the 16th International multiconference *Information Society 2013*, held in October in Ljubljana, Slovenia.

REFERENCES

- [1] Petitmengin, C.: *Describing one's subjective experience in the second person: An interview method for the science of consciousness*.
Phenomenology and the Cognitive Sciences **5**(3-4), 229-269, 2006,
<http://dx.doi.org/doi:10.1007/s11097-006-9022-2>,
- [2] Hurlburt, R.T. and Heavy, C.L.: *Exploring inner experience: The descriptive experience sampling method*.
John Benjamins Publishing, Amsterdam; Philadelphia, 2006,
- [3] Varela, F.J.: *Neurophenomenology: A Methodological Remedy for the Hard Problem*.
Journal of Consciousness Studies **3**(4), 330-349, 1996,
- [4] Chalmers, D.J.: *Facing up to the problem of consciousness*.
Journal of Consciousness Studies **2**(3), 200-219, 1995.

Cordially,

Ljubljana, 25th October 2013

CogSci-issue editors
Prof. Olga Markič
Toma Strle
Prof. Urban Kordeš