

“A Layered Model of Human Consciousness”

<https://doi.org/10.3991/ijes.v7i3.11117>

Athanasios S. Drigas ^(✉), Maria Karyotaki
N.C.S.R. ‘Demokritos’, Athens, Greece
dr@iit.demokritos.gr

Abstract—The human brain’s structure operates as a systemic whole with an absolute interdependence between its respective parts. Processes, such as information, consciousness, awareness, conscience depict humans’ layered consciousness state, but also the wholeness, coherence and continuity of human cognition. Awareness contains self-awareness, a fundamental metacognitive ability, through which individuals perceive the internal world of thoughts, reflect, imagine, feel emotions and daydream as well as external awareness, through which individuals perceive the outside world with the help of the five senses. Moreover, neuroplasticity and consciousness are bi-directionally connected; consciousness, on the one hand, is the result of the growing complexity of the brain connectivity and, on the other hand, neuroplasticity stems from reorganizing brain connections through learning activities. The conscious brain is in a perpetual state of learning and evolution; it learns how to describe and re-describe its own functions and illustrates the ancient Greek word “Anthropos” meaning someone looking higher and higher above.

Keywords—Consciousness, cognition, giftedness, intelligence, neurosciences, self-awareness, self-consciousness, social welfare

1 Introduction

Neuroscience is the scientific field, which has drawn attention to the multiple facets of consciousness, which encompasses relatively uncharted, yet interdependent cognitive processes. More specifically, cognition and its relative processes vary among individuals from a neuropsychological point of view, mainly on account of their ability to use and enhance their cognitive abilities. Thus, research is leading to a layered model of human consciousness based on a person’s cognitive and metacognitive profile [1]. In advance, this layered model of human consciousness focuses on individuals’ metacognitive functions as top level skills with an ascending degree of difficulty.

Notwithstanding, there are cognitive processes, fundamental for the development of human consciousness, which are characterized by their contradictive function, such as self and external awareness [2]. The aforementioned processes usually behave in an anti-correlated manner. When you are engaged in self-related processes, you are less receptive to environmental demands and vice versa [3, 4].

In addition, the hierarchical model conforms to evidence suggesting that new structures emerge in evolution by building on the existing structures, so-called tinkering [5].

Therefore, nonconceptual mental-state-like representations from our infancy do not disappear, but rather account for the efficiency and automaticity of our mental state ascriptions by adults [6]. Moreover, infants who have mastered a robust enough representation of themselves can more easily switch between being attending to others and attending to themselves [7].

According to Tononi and Koch [8], the level of consciousness can be measured by the amount of integrated information that he or she possesses. As consciousness is not an all-or-none property, it increases in proportion to a system's repertoire of discriminable states [9]. In fact, suitably wired computers or robots can be conscious [10]. However, humans' consciousness is an intrinsic causal power associated with complex mechanisms and their maintenance requires undamaged brain tissue, metabolic homeostasis, a moderate level of arousal, a balanced interplay of inhibitory and excitatory networks as well as midrange environmental conditions [11].

A basic distinction in the layers of consciousness is primary or sensory consciousness in comparison to higher-order consciousness. Primary or sensory consciousness consists in the creation of a neural multimodal scene, while higher-order consciousness involves the same aspects of primary consciousness, with the addition of a frame of reference that can “access” the past, present, and future, a sense of self and the ability to construct past and future representations [12].

Modern humans can reach up to the higher extended consciousness and possess complex language skills, strong sense of both past and future, strong sense of autobiographical self and memory, conscience as well as substantial artistic and scientific creativity [13]. Furthermore, the formation of conscience through the ages is the highest spiritual characteristic of human beings and it is formulated through a complicated process of observation, experience and suffering in particular [14]. Even more, there are differences in the conscience of Eskimos, Japanese, Africans, Asians, Europeans, North Americans, and so on, such as differences regarding what is right and what is wrong with respect to particular life situations. Nevertheless, all cultures know and agree on some basic concepts regarding morality.

"Space is not empty. It is full, a plenum as opposed to a vacuum, and is the ground for the existence of everything, including ourselves. The universe is not separate from this cosmic sea of energy." [15]. Consciousness is part of human cognition and it depicts individuals' cognitive and metacognitive status with special emphasis on humans' growing difficulty to reach a higher-level consciousness state.

2 First-Level of Consciousness State

In this level, individuals have a sense of lacking control of their life as well as they are lacking in a sense of purpose [16].

The theory begins with the observation that when you are conscious of something, many different parts of your brain have access to that information. On the other hand, if you act unconsciously, that information is localized to the specific sensory motor system involved. According to the global neuronal workspace (GNW), consciousness arises from a particular type of information processing. Incoming sensory information

is broadcast globally to multiple cognitive systems, which process these data to speak, store, call up a memory or execute an action [17].

Environmental stimulation with visual and auditory stimuli as well as tactile stimuli offer a subjective experience, wherein activation is one of the most important dimensions in the first-level of human consciousness. Being alert, awake, responsive and ready to react reflect an increase in activation [11].

In adults much of the brain's processing of the world occurs without conscious awareness and brain mechanisms underlying the threshold for conscious perception are already present in infancy but undergo a slow acceleration during development. [18]. Developmental scientists routinely observe evidence suggesting that prelinguistic infants not only experience objects and events phenomenologically, they respond to them in meaningful ways [19]. They discriminate between animate and inanimate faces [20], familiar and strange persons [21] and among a wide variety of objects sufficiently well to place them in categories [22]. Equally, they respond differentially to others' emotion expressions [23, 24] and execute movements to influence persons, objects and events in addition to solving problems [25].

Even more, one can report an experience while it is happening without having to remember it in any ordinary sense of the term. There is empirical evidence that perceptual systems send representations to a global active storage system, which is closely connected to the consuming systems. Those representations are available to all cognitive mechanisms without further processing [26]. Marisa Carrasco made an experimental demonstration proving that shifting attention affects phenomenology to a degree sufficient to change a sub-threshold stimulus into a supra-threshold stimulus [27].

3 Second-Level of Consciousness State

“Phenomenally conscious states are those states that possess fine-grained intentional contents of which the subject is aware, being the target or potential target of some sort of higher-order representation” [28, 29]. Also, Gutfreund [30] refer to humans' phenomenal consciousness, conscious awareness or sentiency. Kak et al. [31] argue that consciousness stems from the overlapping mechanisms of memory and awareness, as it requires both an awareness of things and the awareness that one is aware.

Jerath et al. [32] propose that the outside world is constructed internally in a format that is optimal for interacting with and responding to the external environment. However, both attention processes and memory contribute to the final representation within and experience of conscious events. Attention is the process that selects among all the competing sensory inputs, some of which are passed on for additional handling. This selection process feeds awareness as well as consciousness. Awareness span depicts one's ability to focus or broaden attention on a top-down, self-regulatory basis [11]. External awareness depends on individuals' attention and handling of sensory apparatus. Awareness is a result or response of the interface or exchange of information between our sensing apparatus (our five senses) and the intelligence contained in our consciousness [33].

Attentional networks include those involved in orienting to sensory stimuli, activating ideas from memory and maintaining the alert state [34]. A well-established conceptualization of attentional control as an executive function is Miyake’s model, which considers it as a unitary construct with three separable major components: inhibition of prepotent responses (inhibiting), shifting between tasks or mental sets (shifting) and information updating and monitoring of working memory representations (updating) [35, 36]. Executive functions can influence the degree to which memories are being recruited to assist awareness [31].

Thus, processed external and internal stimuli are recreated dynamically in combination with active sensory memory space in which current conscious experience, dreaming, and recollection of memories takes place. Conscious experience arises in the mind from processed information throughout the body and the feedback from the body, influences neural activity. Consequently, memory and attention both play important roles in constructing moment to moment experiences, as processed incoming sensory information are integrated with memory input to fill in the sensory memory space. Marchetti [37] points out that we can both relive past events and envision future events. Therefore, perceiving an object “feels” different than imagining that same object, which feels different than remembering that object.

Nonetheless, individuals have a false sense of complete control of their lives conquered by their ego and personal empowerment [16].

4 Third-Level of Consciousness State

Higher forms of consciousness, such as self-awareness are equal to self-knowledge. Self-awareness and meta-consciousness describe the state where someone has available the information that he or she is a distinct subject experiencing reality in conjunction with knowing that other individuals possess a similar ability [38]. Self-awareness addresses one’s need to have an intensified feeling of his unique entity and it requires a certain degree of consciousness [11].

Self-awareness constitutes the “global broadcast” of perceptual representations to a wide range of conceptual systems in the brain, for drawing inferences, for forming memories, and for planning, as well as for forming higher-order beliefs [39, 40, 41]. More specifically, insight and reflection as facets of self-awareness are positively related to search for meaning in life [42]. Self-reflection is defined as the extent to which an individual pays attention to and evaluates his/her internal states and behaviors, while insight is the clarity of understanding of these states and behaviors that the individual has. These features of self-awareness suggest two distinguishable epistemological focuses; reflection is focused on the content and information carried out by thoughts and memory (procedural cognition), whereas insight is focused on the phenomenal, embodied, and situated cognition. Mindfulness, thus, demonstrates the capacity of human consciousness to establish the condition of here and now, which is the sense of present moment [43, 44].

Moreover, mindfulness as part of self-awareness can be defined as attention to and awareness of the present moment, which does not seek to react to or classify experience

[45]. This element of a receptive attitude is helpful in differentiating between mindfulness and other aspects of self-awareness; monitoring (represented by mindfulness) and controlling (represented by private self-attentiveness). Teasdale [46] has suggested that this difference lies at the root of the differing effects of mindfulness and ruminative self-attentiveness, with the former being adaptive and the latter, due to its evaluative component, maladaptive.

People who have managed to have a high level of conscience usually have a “higher purpose in life”; they have “visions that can inspire others” and aim always to help “others” or humanity as a whole. It is through such process that a new quality of conscience eventually emerges to sacrifice self-interest for the common good [14]. Noteworthy, it is too difficult to attain a higher level of conscience because the individual must have adopted already, through long personal struggles, the concept of “sacrifice” of personal interests and comforts to achieve an ever-ascending level of conscience. In a word, conscience attains a higher level only when the “common good” is valued above “self-interest” [47].

In this level, individuals transcend self-focused needs and reach self-transcendence [31]. In addition, they acquire a sense of their ultimate purpose in life, which is based on love, trust and fellowship as well as their behavior is founded on respect for other people’s needs. Thus, they build on common good and happiness [16]. In addition, self-awareness makes emotions more salient as self-focused persons are more likely to notice their affective experiences [48]. The transcendental, extramundane experiences of spiritual people can take place while the person is still in relatively good health and, at the same time, he can understand and realize the ever-complex incoming information and make decisions and actions in split seconds.

5 Upper-Level of Consciousness State

Consciousness as a top-level skill can have a role in one’s interaction with natural forces [49] as it entails one’s ability to sense or perceive something irrespective of an adequate physical stimulus [11]. In a state of deep absorption, one is not momentarily conscious of oneself. Yet in another sense, one is self-conscious: simply by being conscious. From the very beginning, consciousness is self-luminosity, and there is nothing to add to this. Many spiritual traditions employ certain mental techniques (meditation), which consist in inhibiting mental activity whilst nonetheless remaining fully conscious, which is supposed to lead to a realization of one’s own true nature prior to habitual self-substantialisation [50]. This mindful state of being, raises our consciousness for the present moment, our relationship with the world around us in this moment as well as our place in the world [51]. In the space of unity that mystics write about, you need to give up the idea of separateness – the belief that you are separate from other people and accept oneness or Unity Consciousness. This goes beyond feeling simply connected, since connected can still imply separateness, not unity. In this state one no longer experiences reality as a duality – either/or, right/wrong, questions/answers. Pure knowingness, freedom and peace prevail in this non-dual realm [16].

In this level, individuals have a sense of complete serenity and fulfillment in combination with freedom and peace [16]. In other words, they are fully responsible of their thoughts, speech, feelings and actions [52].

6 Research Highlights

Consciousness corresponds to humans' level of intelligence, as it necessitates complicated brain mechanisms in combination with an ascending degree of difficulty in preserving and evolving individuals' level of cognitive and metacognitive skills. More specifically, individuals' cognitive and metacognitive profile stands for the status of their executive functions, memory, attention, self-awareness, external awareness, self-regulation, self-transcendence as well as unity consciousness. Evidently, people speak, store, call up a memory or execute an action as a result of their concomitant level of consciousness state.

The current research article endorses the theory of four basic levels of consciousness states; the first-level is centered on the stimuli received by the sensory system without any further action or process instigated by the person itself. The second-level of consciousness state focuses on the top-down cognitive processes controlled by the person, insinuating the existence of a certain level of self-regulation capabilities to control his or her external awareness. The third-level of consciousness state is concerned about the level of self-awareness, which is tied to one's self-transcendence as a prosocial trend and his or her relative need to assist other people's needs. Finally, the ultimate level of consciousness state is the Unity Consciousness, in which people are fully responsible of their thoughts, speech, feelings and actions in full serenity and peace.

People can improve their state of consciousness mainly through meditation, mental imagery, self-awareness and other mindfulness techniques [53] combined with physical stamina offered by undamaged brain tissue, metabolic homeostasis, a moderate level of arousal, a balanced interplay of inhibitory and excitatory networks as well as midrange environmental conditions [54].

7 Conclusion

Consciousness is part of the perpetual human evolution, endurance and survival. Neurosciences as well as cognitive science implicate cognitive and emotional mechanisms to be seriously connected to the effective brain function, to the brain plasticity as well as the growth of the human intelligence. Therefore, research on the theory of consciousness encircles research on cognitive and metacognitive skills in combination with the theory of mind and human learning. Consecutively, this layered model of human consciousness suggests that one's cognition and emotion, thus intelligence, can be willingly developed through continuous personal effort and mental training techniques, such as meditation and mindfulness [53]. The current theory of consciousness is targeted to a variety of groups, such as individuals with ADHD, people with dementia and other neuropsychological deficits, children aiming to academic improvement as well as ordinary people and professionals seeking personal growth, mere happiness and healthy

living. In this sense, healthy, self-conscious individuals set the standards for a sustainable society based on social wellbeing, civic engagement and self-leadership [55].

8 References

- [1] Askenasy J, Lehmann J. (2013). Consciousness, brain, neuroplasticity. *Front Psychol.*, 4:412.
- [2] De Sousa A. (2013). Towards an integrative theory of consciousness: part I (neurobiological and cognitive models). *Mens sana monographs*, 11(1), 100–150. <https://doi.org/10.4103/0973-1229.109335>.
- [3] Boly M, Baetens E, Schnakers C, Degueldre C, Moonen G, Luxen A, et al. (2007). Baseline brain activity fluctuations predict somatosensory perception in humans. *Proc Natl Acad Sci USA*, 104:12187–92. [PMCID: PMC1924544] [PubMed: 17616583]. <https://doi.org/10.1073/pnas.0611404104>
- [4] Trimble M. (2007). Body image and the parietal lobes. *CNS Spectr.* 12:540–4. [PubMed: 17603405]. <https://doi.org/10.1017/s1092852900021283>
- [5] Jacob F. (1977). Evolution and tinkering. *Science*, 196:1161–6. [PubMed: 860134].
- [6] Crone, K. & Huemer, W. (2018). *Phenom Cogn Sci.*, 7: 225. <https://doi.org/10.1007/s11097-017-9547-6>.
- [7] Filippetti, M. L. and Tsakiris, M. (2018). Just Before I Recognize Myself: The Role of Featural and Multisensory Cues Leading up to Explicit Mirror Self-Recognition. *Infancy*, 23: 577-590. <https://doi.org/10.1111/infa.12236>
- [8] Tononi, G. & Koch, K. (2015). Consciousness: Here, there and everywhere? everywhere? *cal Transactions of the Royal Society B*, 370, pp. 1-18.
- [9] Tononi, G. & Balduzzi, D. (2009). Towards a theory of consciousness, In *The Cognitive Neurosciences IV* edited by M Gazzaniga, MIT Press
- [10] Koch, C., & Tononi, G. (2008). Can machines be conscious? *Spectrum, IEEE*, 45(6), 55–59. <https://doi.org/10.1109/mspec.2008.4531463>
- [11] Vaitl, D. Birbaumer, N. Gruzelier, J. Jamieson, G. A. Kotchoubey, B. Kübler, A. (2005). Dietrich Lehmann, Wolfgang H. R. Miltner, Ulrich Ott, Peter Pütz, et al. Psychobiology of altered states of consciousness. *Psychol Bull.*, 131(1): 98–127. <https://doi.org/10.1037/0033-2909.131.1.98>
- [12] Edelman, G.M. (2004). *Wider than the Sky: The Phenomenal Gift of Consciousness*. New Haven, NY: Yale University Press.
- [13] Damasio A. (2003). Mental self: The person within. *Nature*. 423: 227. PMID 12748620 DOI: 10.1038/423227a
- [14] Vithoulkas, G., & Muresanu, D. F. (2014). Conscience and consciousness: a definition. *Journal of medicine and life*, 7(1), 104–108.
- [15] Bohm, D. (1983). *Wholeness and the Implicate Order*. New York: Routledge Publishing.
- [16] Renesch, J. (2012). *The Great Growing Up: Being Responsible for Humanity's Future*. HOHM PRESS, Prescott, USA.
- [17] Koch C. (2018). What Is Consciousness? *Nature*, 557: 8-12, doi: 10.1038/d41586-018-05097-x
- [18] Kouider, S. Stahlhut, C. Gelskov, S. V. Barbosa, L.S. Dutat, M. De Gardelle, V. Christophe, A. Dehaene, S. Dehaene - Lambertz, G. (2013). A Neural Marker of Perceptual Consciousness in Infants. *Science*, 340(6130), pp. 376-380. <https://doi.org/10.1126/science.1232509>

- [19] Tomas E. and Visser C. (2019). Behind the Scenes of Developmental Language Disorder: Time to Call Neuropsychology Back on Stage. *Front. Hum.*, 12:517, doi: <https://doi.org/10.3389/fnhum.2018.00517>.
- [20] Ellsworth, C. P. Muir, D. W. & Hains, S. M. (1993). Social Competence and Person–Object Differentiation: An Analysis of the Still-Face Effect. *Developmental Psychology* 29(1):63-73 <https://doi.org/10.1037//0012-1649.29.1.63>
- [21] Bushnell I. W. R., Sai F., Mullin J. T. (1989). Neonatal recognition of the mother’s face. *Br. J. Dev. Psychol.* 7, 3–15. 10.1111/j.2044-835X.1989.tb00784.x
- [22] Quinn, D. M., Kallen, R. W., Twenge, J. M. and Fredrickson, B. L. (2006), The disruptive effect of self-objectification on performance. *Psychology of Women Quarterly*, 30: 59-64. <https://doi.org/10.1111/j.1471-6402.2006.00262.x>
- [23] Walker-Andrews AS. (1998). Emotions and social development: Infants' recognition of emotions in others. *Pediatrics*, 102(5 Suppl E): 1268–71.
- [24] Zhao C, Chronaki G, Schiessl I, Wan MW, Abel KM. (2019). Is infant neural sensitivity to vocal emotion associated with mother-infant relational experience? *PLoS ONE* 14(2): e0212205. <https://doi.org/10.1371/journal.pone.0212205>
- [25] Sommerville, J. A., Woodward, A. L., & Needham, A. (2005). Action experience alters 3-month-old infants' perception of others' actions. *Cognition*, 96(1), B1–B11. doi:10.1016/j.cognition.2004.07.004. <https://doi.org/10.1016/j.cognition.2004.07.004>
- [26] Block, N. (2007). Consciousness, accessibility, and the mesh between psychology and neuroscience. *Behavioral and Brain Sciences*, 30, 481–548 doi: 10.1017/S0140525X07002786
- [27] Carrasco M, Ling S, Read S. Attention alters appearance. *Nature Neuroscience*. 2004; 7:308–313. <https://doi.org/10.1038/nn1194>.
- [28] Smith, Joel, (2017). Self-Consciousness, *The Stanford Encyclopedia of Philosophy*, Edward N. Zalta (ed.), URL = <<https://plato.stanford.edu/archives/fall2017/entries/self-consciousness/>>.
- [29] Friston K. (2018). Am I Self-Conscious? (Or Does Self-Organization Entail Self-Consciousness?). *Frontiers in psychology*, 9, 579. <https://doi.org/10.3389/fpsyg.2018.00579>
- [30] Gutfreund Y. (2018). The Mind-Evolution Problem: The Difficulty of Fitting Consciousness in an Evolutionary Framework. *Front. Psychol.* 9:1537. <https://doi.org/10.3389/fpsyg.2018.01537>
- [31] Kak A, Gautam A. and Kak S. (2016). A three-layered model for consciousness states. *NeuroQuantology*, 14 (2): 166-174. <https://doi.org/10.14704/nq.2016.14.2.935>
- [32] Jerath R, Crawford MW and Barnes VA. (2015). A unified 3D default space consciousness model combining neurological and physiological processes that underlie conscious experience. *Front. Psychol.*, 6:1204. <https://doi.org/10.3389/fpsyg.2015.01204>
- [33] Mishra, U., Patnaik, S., & Mishra, B. (2016). Role of Optimism on Employee Performance and Job Satisfaction. *Prabandhan: Indian Journal Of Management*, 9(6), 35-46. <https://doi.org/10.17010/pijom/2016/v9i6/94960>
- [34] Posner M. I. (1994). Attention: The Mechanisms of Consciousness. *Proceedings of the National Academy of Sciences of the United States of America*, 91(16), pp. 7398-7403
- [35] Miyake, A., Friedman, N. P., Emerson, M. J., Witzki, A. H., Howerter, A., and Wager, T. D. (2000). The unity and diversity of executive functions and their contributions to complex “frontal lobe” tasks: a latent variable analysis. *Cognit. Psychol.* 41, 49–100. <https://doi.org/10.1006/cogp.1999.0734>
- [36] Drigas, A., and Karyotaki, M. (2017). Attentional control and other executive functions. *Int. J. Emerg. Technol. Learn.* 12, 219–233. <https://doi.org/10.3991/ijet.v12i03.6587>

- [37] Marchetti, G. (2014). Attention and working memory: two basic mechanisms for constructing temporal experiences. *Front. Psychol.*, 5:880. <https://doi.org/10.3389/fpsyg.2014.00880>
- [38] Pisula, Wojciech. (2016). Levels of Consciousness. *Open Journal of Philosophy* 6: 51-8.
- [39] Baars, B., (1988). *A Cognitive Theory of Consciousness*. Cambridge: Cambridge University Press.
- [40] Baars, B., (1997). *In the Theatre of Consciousness*. Oxford: Oxford University Press.
- [41] Baars, B., (2002). The conscious access hypothesis: origins and recent evidence. *Trends in Cognitive Sciences*, 6: 47–52. [https://doi.org/10.1016/s1364-6613\(00\)01819-2](https://doi.org/10.1016/s1364-6613(00)01819-2)
- [42] Newman, D. B., & Nezelek, J. B. (2017). Private self-consciousness in daily life: Relationships between rumination and reflection and well-being, and meaning in daily life. *Personality and Individual Differences*. <https://doi.org/10.1016/j.paid.2017.06.039>.
- [43] DaSilveira A, DeSouza ML and Gomes WB. (2015). Self-consciousness concept and assessment in self-report measures. *Front. Psychol.*, 6:930. <https://doi.org/10.3389/fpsyg.2015.00930>.
- [44] Sutton A. (2016). Measuring the Effects of Self-Awareness: Construction of the Self-Awareness Outcomes Questionnaire. *Europe's journal of psychology*, 12(4), 645–658. <https://doi.org/10.5964/ejop.v12i4.1178>
- [45] Brown, K. W., & Ryan, R. M. (2003). The benefits of being present: Mindfulness and its role in psychological well-being. *Journal of Personality and Social Psychology*, 84(4), 822–848. <https://doi.org/10.1037/0022-3514.84.4.822>
- [46] Teasdale, J. D. (1999). Emotional processing, three modes of mind and the prevention of relapse in depression. *Behaviour Research and Therapy*, 37(Suppl. 1), S53-S77. [https://doi.org/10.1016/s0005-7967\(99\)00050-9](https://doi.org/10.1016/s0005-7967(99)00050-9)
- [47] Vischer RK. (2010). *Conscience and the Common Good. Reclaiming the Space Between Person and State*, NY: Cambridge University Press. <https://doi.org/10.1017/cbo9780511804267.002>
- [48] Paul J. S. (2002). Self-awareness and emotional intensity. *Cognition and Emotion*, 16:2, 195-216, DOI: 10.1080/02699930143000310
- [49] Rubik B. & Jabs H. (2016). Interactions of pyramidal structures with energy and consciousness, *Cosmos and History. The Journal of Natural and Social Philosophy*, 12(2).
- [50] Fasching, W. (2008). *Phenom Cogn Sci.*, 7: 463. <https://doi.org/10.1007/s11097-008-9090-6>.
- [51] Ventura, M. (2018). *Applied Empathy: The New Language of Leadership*. NY: Touchstone.
- [52] Singh, K., Khanna, P., Khosla, M. et al. (2018). *J Relig Health*, 57: 1392. <https://doi.org/10.1007/s10943-016-0328-2>
- [53] Drigas, A. & Karyotaki, M. (2018). Mindfulness Skills Training & Assessment and Intelligence. *iJES*, 6(3), <https://doi.org/10.3991/ijes.v6i3.9248>
- [54] Drigas, A.S. Karyotaki, M. and Skianis, C. (2018). An Integrated Approach to Neuro-development, Neuroplasticity and Cognitive Improvement. *iJES*, 6(3), <https://doi.org/10.3991/ijes.v6i3.9034>
- [55] Drigas, A.S. Karyotaki, M. and Skianis, C. (2017). Success: A 9 Layered-based Model of Giftedness. *iJES*, 5(4), <https://doi.org/10.3991/ijes.v5i4.7725>

9 Authors

A. Drigas is with N.C.S.R. “Demokritos”, Institute of Informatics and Telecommunications, and Coordinator of Net Media Lab & Mind-Brain R&D, Agia Paraskevi, 153 10, Athens, Greece (e-mail: dr@iit.demokritos.gr).

Paper—“A Layered Model of Human Consciousness”

Maria Karyotaki is with N.C.S.R. “Demokritos”, Institute of Informatics and Telecommunications, and Net Media Lab & Mind-Brain R&D, Agia Paraskevi, 153 10, Athens, Greece (e-mail: karyotakimaria@gmail.com).

Article submitted 2019-06-25. Resubmitted 2019-07-25. Final acceptance 2019-07-25. Final version published as submitted by the authors.