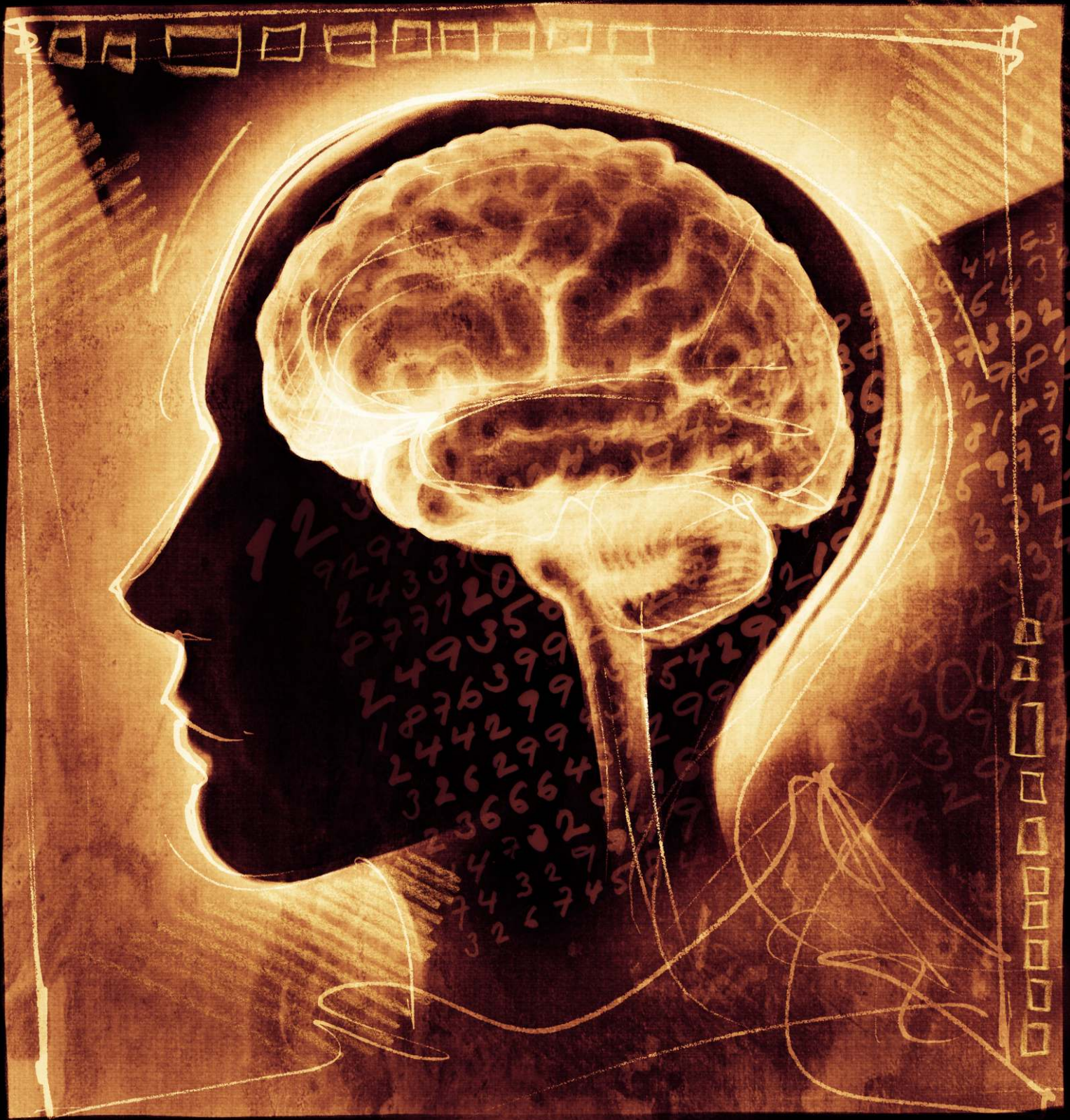




COGNITIVE NEUROSCIENCE SOCIETY OF INDIA



INAUGURAL SOUVENIR & ABSTRACTS
JUNE 21st, 2015

PRESIDENT CNSI - MESSAGE

COGNITIVE NEUROSCIENCE SOCIETY

Cognitive neuroscience is an academic field of extraordinary interest to human mind as it uncovers the scientific pursuits of understanding the emergence of mental processing capabilities from the biological substrates of the brain.

The brain and the mind have become inseparable and the studies of this unique domain have become the most challenging and inspiring pursuits for man. Multitudes of cognitive processes take place in the brain, which we have recognized as related to attending to sensory inputs and retrieved information, their recognition, motor responses and actions regulated by the sensory inputs and plans of actions, and the semantic interpretations of the sensory-motor regulatory processes fuelled by emotional arousal are the major neurocognitive processes of interest to us. The multifaceted nature of these investigations have brought multiple scientific disciplines together, and the integrated approaches are the only way to make meaningful inroads into understanding the mysterious processes within the brain-mind domain.

The Cognitive Neuroscience Society of India is the outcome of realization of the need for such multidisciplinary approach to the study of brain-mind, amongst many of us. The concerned scientists hope to build this interdisciplinary scientific interaction and understanding, which will inspire and facilitate not only their own scientific pursuits but also offer the same to students, who are joining this challenging pursuit in their life. We are constantly told about the immense potentialities of the brain and the huge unused reserves in the brain, which can be cultivated and used. Continuing with the scientific understanding of the processing capabilities of the brain, which may still be mysterious and scientifically little known presently, will open the doors to new realities of brain-mind relationship. Extraordinary challenges are already taking place among young minds all over the world, of choosing to live in virtual reality instead of choosing to experience reality in totality. There are unanswered questions about the definition and experiencing of reality, as their semantic interpretations can take us to mysterious domains.

We are privileged to be the descendants of the earliest of the minds, which investigated and attempted to conquer the mind. We have concepts semantically still little understood, and needs greater clarity, and we hope our pursuits in those areas may open doors to hitherto unknown realities. We have no doubt that the mind or mental processing capabilities have emerged from the limited neural cells of the brain, but what can be mentally created is infinite! Using this processing capability, we keep on creating new realities and changing our world!

I trust forming this new society CNSI is an effort in this direction. The website of the CNSI and the new journal will help us share our pursuits and thoughts with others.

President CNSI
Prof. C.R. Mukundan



DIRECTOR NIMHANS - MESSAGE



NATIONAL INSTITUTE OF MENTAL HEALTH AND NEURO SCIENCES

(INSTITUTE OF NATIONAL IMPORTANCE)

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Dr. P. Satish Chandra

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Director / Vice Chancellor

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Message

I have great pleasure in extending my wholehearted support on behalf of NIMHANS to the novel initiative taken by Prof C R Mukundan, former Professor and Head of Department of Clinical Psychology at NIMHANS and experts from various disciplines in Neurosciences in launching the Cognitive Neuroscience Society of India (CNSI). It is also quite heartening to see that the founding members of the Society have decided to launch this new initiative at NIMHANS on 21st June, the International Yoga Day.

Unravelling the complexities of human brain functioning is understandably the final frontier of human scientific pursuits and generations of scientists from various fields of neuroscience have contributed immensely to take us to the level where we have reached today. However, in order to take the current knowledge to the next level, it is not enough that experts belonging to various disciplines of neurosciences continue to work in isolation. A synergistic approach amongst various disciplines of neurosciences and basic sciences including mathematical science is absolutely essential in my opinion to enhance our understanding of the mind-brain interactions. The Cognitive Neuroscience Society of India will serve as a platform for meaningful interactions between experts belonging to various disciplines of neurosciences thereby promoting a multi-disciplinary approach towards understanding the mind-brain interactions.

The efforts of the team of experts belonging to various disciplines of neurosciences in the country in launching this new society is therefore laudable. I once again congratulate all the founding members of the society and extend my best wishes to this Society to achieve success in taking cognitive neuroscience research in the country forward. I am also pleased to extend all support from the Institute for convening a successful inaugural function of the Society at NIMHANS.

Dr P. Satishchandra
Director / Vice-Chancellor

Date: 19-06-2015
Place: Bangalore



CNSI - MEMBERS

Si. No.	Member	Specialty, Designation	Institution	Position in CNSI
1.	Dr. Mukundan C.R. crmukundan@gmail.com	Neuropsychology, Professor Emeritus	IBS, GFSU, Gandhinagar	President
2.	Dr. John P. John jppjnc@yahoo.com	Psychiatry, Additional Professor	NIMHANS, Bengaluru	General Secretary
3.	Dr. Alex Johnson alexmanipal@gmail.com	Neuropsychology, Associate Professor	KMC, MU, Manipal	Executive Secretary
4.	Dr. Roopesh B.N. bn.roopesh@gmail.com	Neuropsychology (Child), Assistant Professor	NIMHANS, Bengaluru	Executive Secretary,
5.	Dr. Keshav Kumar keshavjkapp@gmail.com	Neuropsychology, Additional Professor	NIMHANS, Bengaluru	Treasurer
6.	Dr. Radhakrishnan K. kurupath.radhakrishnan@gmail.com	Neurology, Professor	KMC, MU, Manipal	EC Member
7.	Dr. Bindu M Kutty bindu.nimhans@gmail.com	Neurophysiology, Professor	NIMHANS, Bengaluru	EC Member
8.	Dr. Rajashekhar B. b.raja@manipal.edu	Audiology–Language, Dean, Professor	KMC, MU, Manipal	EC Member
9.	Dr. Indramani Singh ilsingh_bhu@rediffmail.com	Neuropsychology, Professor, Director	BHU, CSL, Banaras	EC Member
10.	Dr. Prarbha Adhikari prabha.raghuveer@gmail.com	Medicine, Professor	KMC, MU, Manipal	EC Member
11.	Dr. Harsha Halahalli harsha@nitte.edu.in	Neurophysiology, Professor	KSHMA,NU, Mangaluru	EC Member
12.	Dr. Unnikrishnan M. unnikrishnanmazhuvancherry@gmail.com	Psychopharmacology Professor	KMC, MU, Manipal	EC Member

13.	Dr. Kiranmai S.Rai kiranmai.raimanipal.edu	Neurophysiology, Professor	KMC, MU, Manipal	EC Member
14.	Dr. Ashima Nehra ashimanwadhawan@gmail.com	Neuropsychology, Associate Professor	AIIMS, New Delhi	EC Member
15.	Dr. Suvarna Alladi alladisvarna@hotmail.com	Neurology, Additional Professor	NIMS, Hyderabad	EC Member
16.	Dr. Priyanka Kacker drpriyankakacker@gmail.com	Neuropsychology, Assistant Professor	IBS, GFSU, Gandhinagar	EC Member
17.	Dr. Gopee Krishnan brain.language.krishnan@gmail.com	Language – Speech Associate Professor	SAHS, MU	EC Member
18.	Mr. Chetan S.M. chetan@axxonet.net	Director, Axxonet System Technology	Axxonet System Technologies	EC Member

CNSI - OBJECTIVES

The objective of the society is to promote academic work and share knowledge base in the multiple facets of scientific pursuits in the brain – mind domains. Cognition is the unique functional property of the brain and the mind is created through cognitive processes. Interactions of millions of neurons in the brain result in the genesis of complex cognitive processes, which has been labelled as the mind. Cognitive processes shall include all signal to information conversions within the brain, their semantic interpretations, the presence of emotional states and their evaluations, and cognitive controls of all behavior, with and without awareness and perception. Considering the Indian scenario, and the scientific and professional interests of clinicians, academicians, and technologists, who are involved in the study, research, and clinical practices in the ‘brain – mind’ domains, the society shall address:

Promotion of Cognitive Neuroscience, for sharing knowledge and skills in the domains of research, clinical, and academic efforts, for understanding the varied brain – mind relationships. These scientific contributions may come from understanding Neurobiological aspects of cognitive processes, which emerge from professional specialties of Neurophysiology, Neurology, Neurosurgery, Neuropsychology, Neuropsychiatry, Forensic Neuropsychology, Psychopharmacology, Psychophysiology, Study of Language and Speech, and all rehabilitation efforts from disciplines promoting cognitive controls, including Movement and Music therapies. The understanding also comes from the studies of the effects of Meditation, and that of Hypnotic suggestions on the brain functions, and study of states of sleep and wakefulness.

These may be summarized as:

- I. Understanding the neurocognitive changes and deficits produced by brain lesions, pharmacological, structural and functional interventions in the brain;
- II. Neurocognitive technology development, neurocomputing modeling for neurocognitive functions;
- III. Development and application of neurocognitive enhancement programs;
- IV. Study of the origin of criminal behavior, effects of social conditioning or socialization process on neurobiological development of controls on human responses and behavior;
- V. Disseminating the knowledge to professionals/ students / teachers /public through skilled workshops / seminars / public lectures etc;
- VI. To provide the partial travel grants to students of Neuroscience/ Neuropsychology/ Neurocognition / to attend International/ National Conference from the profit generated out of society funds;
- VII. To conduct yearly meetings of the Society, for promoting and sharing knowledge in different subspecialties, as common Society meetings, or as Core Group meetings.

PROGRAM DETAILS

1.	9:00 A.M. to 9:05 A.M.	Welcome Address	Dr. John P. John , General Secretary, CNSI
2.	9:05 A.M. to 9:20 A.M.	Introduction of Cognitive Neuroscience Society of India	Prof. C.R. Mukundan, President, CNSI
3.	9:20 A.M. to 9:40 A.M.	Lighting the Lamp & Inaugural Address by the Chief Guest	Prof. P. Satish Chandra, Director, Vice-Chancellor, NIMHANS
4.	9:40 A.M. to 10:00 A.M.	Release of souvenir	Prof. G.N.N. Reddy, Former Director, NIMHANS
5.	10:00 A.M. to 10:15 A.M.	Tea Break	
6.	10:15 A.M. to 10:40 A.M.	Mind in the Perspectives of Shri Aurobindo	Prof. G.N.N. Reddy, Former Director, NIMHANS
7.	10:40 A.M. to 11:05 A.M.	From Consciousness to Savitri De Mystifying Shri Aurobindo	Prof. T. Ramakrishna, Professor Emeritus, Calicut University, Kerala
8.	11:05 A.M. to 11:30 A.M.	Brain to Mind and Mind to Brain	Prof. C.R. Mukundan, IBS, Gujarat Forensic Sciences University
9.	11:30 A.M. to 11:55 A.M.	Can Glial cells also make you Clever?	Prof. T.R. Raju, NIMHANS
10.	11:55 A.M. to 12:15 P.M.	Consciousness and Self	Prof. Sangeetha Menon, NIAS, Bangalore
11.	12:15 P.M. to 12:35 P.M.	A Case for Evolutionary Psychology	Prof. Unnikrishnan, KMC,

12.	12:35 P.M. to 12:55 P.M.	Low Blood Pressure and Cognitive Function	Dr. Prabha Adhikari, KMC, Manipal
13.	1:00 P.M. to 2:00 PM.	Lunch Break	
14.	2:00 P.M. to 2:15 P.M.	Hypnotic Alteration of Brain Functions	Dr. Priyanka Kacker, IBS, Gujarat Forensic Sciences University
15.	2:15 P.M. to 2:30 P.M.	Meditation, Neurogenesis and positive Cognitive development	Dr. Kiran Mai Rai, KMC Manipal
16.	2:30 P.M. to 2:45 P.M.	The Linguistic Interface of Cognitive Brain	Dr. Gopee Krishna, KMC, Manipal
17.	2:45 P.M. to 3:00 P.M.	Brain & Cognitive reserve	Dr. Bindu M. Kutty, NIMHANS
18.	3:00 P.M. to 3:10 P.M.	Vote of Thanks	Dr. Keshav Kumar, NIMHANS

ABSTRACTS
Cognitive Neuroscience Society of India
NIMHANS
21st June 2015

MIND
(In the perspective of Sri Aurobindo)
A Brief Note

Prof. G.N.N. Reddy
Former Director
NIMHANS

Mind is the representative of Supermind or Super conscient which is the absolute Truth Consciousness. It is in essence a consciousness which measures, divides, analyses and tries to make part a whole. It takes part in cognition, intelligence, ideas, perception, reactions of thought to things, and formation of will. It acts partially and by limitation. It works as a power of ignorance, because it arises from Inconscient which is the result of complete involution of Super conscient and becomes opposite of itself in all its aspects. This inverse reproduction makes inconscient dark, inert, insensible and plunged in its own abyss of infinity. In the process of evolution, an ordered world is created by the energy of the inconscient. First to emerge from this is Matter. Matter is the form of consciousness in which existence of Sachchidananda assumes when it is subjected to the phenomenal action. Next Life labouring in Matter expresses itself as Conscious Force, and acts as a field for the evolution of the concealed Spirit. It reveals itself as essentially same everywhere from atom to man. Then the mind emerges. In its origin, it is an instrument put forth from Supermind which is involved in Matter. It is dormant in Matter. It is insignificant in life formation. In early stages mind is dominated by life force and acts as a servant to body and life needs.

Its first stage of creation is only a thinking sense, then becomes a sense-mind and the early mind appears later. Though man is the summit of Nature's evolution, the mind of man has to grow and manifest all its potentials. Mind has many parts- each a force in itself with its formations and functions. Broadly it is classified as four types according to its graded functions in its lower nature.

1. Little mind
2. Greater mind
3. The Heavens Ideal and
4. Self of Mind

When it comes under the influence of Higher nature, and mind is spiritualised, it functions at the levels of:

- a. Higher mind
- b. Illumined mind
- c. Intuitive mind and
- d. Over mind.

But these higher levels of functioning are not isolated or compartmentalized. They influence the lower levels of functioning according to the need and level of consciousness depending on the stage of each individual mind.

Overmind is separated from Supramental Truth or Supermind by a luminous border and commands direct access to all that Supermind can give it. It is a delegate of Supermind. It is the creator of Truths and Cosmic Consciousness. In the human evolution to Divine, it acts as a golden lid.

From consciousness to SAVITRI: Demystifying Sri Aurobindo

Dr. T. Ramakrishna
Professor Emeritus of Physiology
University of Calicut
Formerly, Senior Visiting Fellow, Exeter College
University of Oxford

drtramakrishna@gmail.com

While mind and matter interact, the self conscious nature of the mind is also expanding and growing, leading to heightened creativity and engagement with greater inquiries. Eventually consciousness can be expected to transcend itself and expand into a super conscious state. Concomitantly (and perhaps consequently) man is not only trying to make life more acceptable, more sure, but is also struggling with immense questions about the meaning of life: What is it all for? What is the nature of my existence? How can I face up not only to self-awareness but to death-awareness?

These are the questions dealt with by Sri Aurobindo in his epic poem Savitri written in English. The undercurrent in Savitri is that human consciousness is constantly evolving and will expand into a super-conscious state when ordinary mortals gain mastery over their destiny and are able to rid themselves of pain and suffering, and ultimately, even death. Ancient technologies that lay out the means to such ascension of consciousness have been expounded in Eastern philosophies of the study of Self. Savitri leaves nothing out of its purview including cosmology, the origin of life, evolution, present condition and the destiny of man. The questions addressed in it have a profound and direct bearing on the human condition and happiness, the theme if not the contents in their entirety are of universal and general relevance.

Savitri is essentially written in the classical tradition of poetry, and uses many symbolisms often drawing parallels from classical Greek mythology in addressing its theme. The sweep and poetic expression have prejudiced a number of readers who find it difficult to understand, and there is a widespread acceptance that the epic is opaque in its meaning and content.

The questions revolving round man's place in the universe and his ultimate destiny, apparently intertwined at present with pain, grief and death have all been examined in Savitri, in terms of evolving consciousness, driven by the spirit and working through the matter. However, the question of the self and its brain, in the light of Sri Aurobindo's Savitri needs to be examined fully in the context of several references drawn from Greek mythology which embellish the narrative. Demystifying Sri Aurobindo in order to understand consciousness has a prerequisite: A close study and an understanding of his "Letters on poetry, literature and art" (1988, Sri Aurobindo Ashram, Pondicherry).

From Brain to Mind and Mind to Brain

Prof. Mukundan C.R.
Professor Emeritus,
Institute of Behavioral Science,
Gujarat Forensic Sciences University,
Gandhinagar.

We have developed two approaches for studying and understanding any entity or event in the universe. In one, we try to understand units or particles of entities and events and arrange them sequentially in the temporal-spatial order for developing relationships across them, and build larger relationships and concepts. On the other hand, we are also used to proposing the existence of larger entities, try to break each down to smaller ones and develop relationships among them. Verification of these relationships is considered to justify the presence of initial larger entity/concept.

The brain to mind approach may be said to use the first method, whereas the mind to brain emerges from the second line of thinking. Science is the method of employing neurocognitive processes for critically arranging units of information/events sequentially, for making us understand reality, whether the exercise may or not lead to rewarding end results. On the other hand, defining and creating social systems and related purposive and goal directed behavior, and searching for their genesis in the brain are the outcome of the second approach. We often believe that these two approaches are not complimentary to each other and only one may be accepted at a time. Scientifically, we accept that the mental processing abilities have emerged from the brain, which means the functional capability to create meanings and relationships and logically arrange them for creating new realities are the result of this property of the brain.

Different from this, mind was accepted as an independent entity for thousands of early years, and most of the earlier psychological notions and conceptual systems have emerged from that approach. For example, consciousness was postulated as an independent entity. Another way of explanation is to state that neurocognitive processes take place in the brain with and without their awareness. Awareness can occur only when brain mechanisms allow monitoring its own processing.

We have learnt to accept the need to preserve ourselves and have created social systems, by preserving social values through institutions and various disciplines of human interactions. The same neurocognitive processes of the brain are employed for creating unique meanings and social systems. This creative process is almost infinitely influenced by the return of rewards and comforts from them. Social systems facilitate creative growth of individuals and hence have immense value to them. We have thus created the concepts of purpose and goal and have learnt to define our behavior in terms of these concepts. Life is supported in all these endeavors by emotion, which serves as the fuel for living – responding and acting. The meanings created in turn, influence the brain functions and vice versa, and both have become integral components for creating and maintaining the processing efficiencies, which support and facilitate creation of new realities for them.

A Case for Evolutionary Psychology

Unnikrishnan M.K.
Professor (Pharmacology),
College of Pharmaceutical Sciences,
Manipal University,
Manipal 576104, INDIA.

Evolutionary Psychology (EP) is not merely a branch of psychology, but a guiding principle that integrates psychology with life sciences. As against proximate causes that explains the present, EP seeks out ultimate causes rooted in the dynamic adaptive mechanisms that aided fitness and promoted survival. EP is built on the premise that the physical brain, governed by the laws of chemistry and physics, shaped behavior appropriate for environmental circumstances. EP explains many universal human traits such as parental investment, kinship, friendship (avoiding cheaters), coalitional cooperation (punishing free riders), selective aggression (diffusing violent confrontation) and negotiating status-hierarchies (winning over rivals; dealing with subordinate status). EP posits that the purpose of sensory perception is not knowledge, but action and behavior that enhances fitness in the ancestral world. Complex computational modules evolved for adaptive information processing in primitive environments, which we employ towards navigation, nutritional and mate-fitness evaluation, face recognition, threat appraisal, language. Conscious mind is only the tip of the iceberg; our best feats are unconscious -- it is easier to teach the computer to play chess than to catch a ball. Modularity of the mind assumes that different neural circuits are specialized for solving different adaptive problems like vision, hearing, sexual attraction, proprioception, balance, etc. Above all, the complexity of the human brain probably emerged with sophisticated social exchange, a behavioral phenotype typical to man. Dunbar's number (the cognitive limit to the number of people with whom one can maintain stable social relationships) is correlated to brain size across a wide range of species. The robust long-term memory capacity of the large human brain helps maintain up to 150 stable relationships, more than any other primate. Our superior cognitive machinery primarily evolved to isolate treacherous elements that compromised group survival. Larger groups ($n > \text{Dunbar number}$) require enforced rules and discipline for stability. We owe much of the evolutionary success of man to the faculty of language that enabled social grooming, expanded social cohesion, became the means for extra-genetic information coding and the catalyst of culture and civilization.

Low Blood Pressure and Cognitive Function

Dr. Prabha Adhikari

Professor of Medicine

Dr. TMA Pai Endowment Chair in Geriatrics and Gerontology

Several studies have shown association between decline in cognitive function and low blood pressure. However whether low blood pressure is a cause or effect of dementia is not known. In our pilot study on 25 patients blood pressure improvement in 25 patients with dementia with or without Parkinsonism showed improvement in cognitive function after blood pressure normalization by withdrawing antihypertensive agents or by addition of Fludrocortisone.

Encouraged by this we conducted a Community study –Mangalore Senior Community Dementia (MaSeCoDe) study which showed that higher systolic blood pressure protected seniors from cognitive impairment. We also conducted a study to see the association between cognitive impairment and postural hypotension and post exercise drop in blood pressure and found significant association. An ongoing blood pressure intervention study which is placebo controlled is also showing trend towards improvement in cognitive function and after blood pressure improvement. A recent study on Oldest Old has also shown that higher systolic blood pressure protects from cognitive impairment and highPro BNP predisposes for cognitive impairment.

Hence we conclude that in patients with cognitive impairment, it is prudent to bring up blood pressure to an optimum safe level.

Hypnotic Alteration of Brain Functions

Ms. Priyanka Kacker
Assistant Professor,
Institute of Behavioral Science,
Gujarat Forensic Sciences University,
Gandhinagar 389002.

The cognitive processing efficiency of the human brain has been well understood and substantiated for several decades and is the subject of neurocognitive discipline. Lesions of the brain, developmental patterns of the brain, and neuroimaging studies have clearly indicated information about the pattern and localization of various cognitive functions in the brain. Three major functional domains are related to recognition of sensory inputs, responding and acting out, and critical thinking. Emotional arousal and cognitive appraisals as positive and negative emotions serve as the etiological basis of responses and actions. One interesting aspect that has been always known but so well understood is the fact that the critical evaluations of the brain can often be easily influenced by suggestions from outside and within the self. We have evidences to demonstrate how physiology related to recognition and responses could be shaped through such suggestions. Externally and self-induced suggestions are part of everyday life, and these influence the psychophysiological responses to all inputs in individuals. The effects of mind on the brain can also be used to the advantage of individuals, other than for personal psychological and social controls of the individual. This is used for medical purposes, including surgical interventions, when the individual can be subjected to hypnotic suggestions for removing pain and discomfort in many individuals. It is most useful, when individuals show such suggestibility in their normal life. All social values and customs have such suggestive value for most of the individuals who form the society.

THE LINGUISTIC INTERFACE OF COGNITIVE BRAIN

Gopee Krishnan (MSc., PhD)
Manipal University, Manipal

Historically, language has been the primary tool employed in the exploration of the mind-brain relationships. The benchmark investigations of Paul Broca and Carl Wernicke on neural substrates of language in the 19th century laid the foundation of a new discipline that would evolve into many branches and sub-branches in the ensuing centuries. The evolution is on and thus, we are here today!

Processing of language in normal as well as disordered brain has been the mainstay of a few sub-disciplines of neuroscience. Application of cognitive models to explain normal and disordered language skills have advanced these disciplines to the current state of the art. Today, the linguistic processing in the brain is studied by several techniques and paradigms. Currently, I study how cognitive models (e.g., Dual Route Cascaded (DRC) Model proposed to explain reading process in English (alphabetic) orthography could explain both normal and disordered reading in Indian orthography. I study this through examining reading errors of bi-literate persons with brain damage and acquired alexia as well as by tracking the movements of their eyes. In addition to this, I am currently investigating how orthography is important in visual word processing through masked repetition priming technique. The phonological and semantic similarity and orthographic dissimilarity of loan words (from English) to Indian languages is tapped to investigate the effect of orthography in lexical processing. The findings indicate the strongly influence of orthography in visual lexical processing.

Meditation and Neurogenesis: Reviewing its implications for positive Cognitive development

Prof. Kiranmai S Rai,
Department of Physiology,
MMMC, Manipal University.

Cognitive Neuroscience Society of India, NIMHANS , 21st June 2015

Abstract

Neurogenesis is the birth of new neurons from neural stem or progenitor cells as well as neural plasticity changes in synapses and neural pathways of the brain over the course of adult lifespan, that declines with age. Studies prove that physiological up-regulation of neurogenesis positively enhances cognition, learning and memory. The process of neurogenesis is influenced by various behavioural, environmental, pharmacological and biochemical factors. Our earlier experimental studies have shown that aging causes specific alterations and down-regulation in the process of dentate neurogenesis and despite pre or postnatal stress, dietary interventions with phospholipid precursors - choline and or docosahexaenoic acid positively up-regulates dentate neurogenesis enhancing learning and memory.

In humans, learnt behaviour such as meditation is found to powerfully influence cognition. Our earlier study by administering self-reported Oxford happiness questionnaire on Brahma kumari's Rajayoga meditators shows that meditation significantly enhances positive thinking, essential to attain higher levels of self-satisfaction and happiness in life. Moreover, a review of several studies show that mindfulness meditation positively enhances neurogenesis and neural plasticity, increasing regional brain grey matter in several areas of the brain including dentate gyrus.

It is observed that meditation for 30 minutes a day for eight weeks shows measurable changes in gray-matter density in regions of brain associated with memory, sense of self, empathy and reduced stress. Overall findings from these studies imply that, despite physiological aging and stress, practice of meditation can be a powerful learnt brain-exercise, that upregulates neurogenesis in several specific brain regions, enhancing development of positive thinking and higher cognitive skills.

Brain and Cognitive Reserve

Prof. Bindu M. Kutty,
NIMHANS

The phenomenon of plasticity is retained throughout life and the brain circuitry is constantly changing as a function of experience. Brain is endowed with countless degrees of cognitive reserve capacities that can bring about changes in network properties to experience qualia (the qualitatively distinct values of self-awareness), enhanced psychological performance, physical health, mental performance and state of wellbeing and perhaps the potential to attain the turiya state of consciousness. Meditative practices help experience higher states of consciousness such as transcendental state consciousness-a highly restful but deeply alert inner state of wakefulness without any object of thought or perception. It is thought that long years of meditative practices lead to inner evolution & total transformation of individual consciousness. Modern scientific studies have provided ample evidences of enhanced structural plasticity, fibre tract integrity, enhanced brain synchrony and oscillations- the electrophysiological correlates of enhanced attention, cognitive functions, and sensory motor integration - associated with meditative practices. The associated mental attributes include greater psychological development and personal growth and wellbeing leading to altruism, environmental mastery etc.

Proficient meditative practices are thus capable of providing various higher mental capabilities by transforming the brain network functions. Such practices make the brain more flexible with anatomical variability to efficiently utilize the existing neuronal networks / recruit alternative networks to maximize the performance and mental capabilities.

We are yet to understand such nuances of brain and mind relations and to understand the capacities of inner world of consciousness. However, our rishis had the distinctions of realizing such mental powers even hundreds of years ago.

Sage Patanjali said it best “When you are inspired by some great purpose, some extraordinary project, all of your thoughts break their bonds. Your mind transcends limitations; your consciousness expands in every direction; and you find yourself in a new, great and wonderful world. Dormant forces, faculties and talents become alive and you discover yourself to be a greater person than you ever dreamed yourself to be.” Patanjali (150 BC).

CNSI - MEMBERSHIP

CNSI - MEMBERSHIP FEE

a) Eligibility for Membership to CNSI

1. Primary Membership (Professional Membership)

All professionals who are currently working in Clinical/Research/Academic specialties of Cognitive Neuroscience, as defined above will be eligible for Primary Memberships of CNSI.

2. Associate Membership

Foreign/NRI Consultants/Professionals in the above areas of specializations may apply for Associate Membership.

3. Student Membership

All students engaged in clinical and research specialization in Cognitive Neuroscience will be Student Members of CNSI.

The Executive Committee can invite honorary life members, who do not pay for the membership. The EC can also offer suitable memberships to all applicants who have demonstrated clinical/research experience in Cognitive Neuroscience and associated areas, and wish to work for furthering their contribution to brain-mind-behavior understanding.

b) Procedure for applying for Membership:

1. All those who wish to become members shall submit copies of their professional credentials to the General Secretary of CNSI. These may include copies of:

(a) Current professional affiliation,

(b) Degree certificates, certificates of clinical and research activities in the above specialty areas,

(c) Eligibility degree obtained and synopsis of research carried out, published research papers, and

(d) Certificates from Head of the Department for Student Membership.

2. Applicants are requested to use Form A for applying for Primary and Associate Membership and Form B for Student Membership.

3. An applicant to membership shall get his application nominated by a Member of the Society.

4. The Executive Committee will ratify the Secretary's approval of a nominated applicant's Membership by majority vote.

The present Executive Committee has decided the following Membership Fees:

MEMBERSHIP TYPE	AMOUNT IN INR
Full Lifetime Primary Membership	5,000/-
Annual Primary Membership	3,500/-
Full Lifetime Associate Membership	3,500/-
Annual Associate Membership	2,000/-
Student Membership	1,000/- For 2 years
Subscription for Journal(Personal copy)	500/- Per year