

Bridging the gap – mind and brain research

The brain is the most fascinating, but also the most complex, organ of the human body. The main reason why it is fascinating is because it is the basis of the mind, which is the basis of our mental experiences; our feelings, thoughts and perceptions; and our ability to decide and to speak. Like other organs of the human body, the brain is subject to specific stages of development and disorder.

Understanding the brain, the mind and, most importantly, the relationship between mind and brain is one of the most intricate, but also one of the most important, puzzles of human existence. It includes a number of difficult problems, such as the understanding of consciousness, the self or personal identity, free will and decision-making, psychiatric disorders, and language. It seems obvious that tackling any of these research questions requires the cooperation of different disciplines, among them neuroscience, psychology, philosophy, linguistics and psychiatry. After all, how should we interpret empirical evidence related to free will if we have no clear idea of what we mean by 'free will' in the first place? (This is certainly a philosophical question.) How could we understand the neural processes underlying language production without input from linguistics? And how could we investigate brain development without expertise from developmental psychology?

Interdisciplinary research is required in order to make progress in any of these fields. But how are we to conduct interdisciplinary research without experts with interdisciplinary training? This is where the Berlin School of Mind and Brain at Humboldt-Universität zu Berlin comes in. The school is an international research institution, located in the

vibrant heart of Berlin. Founded in 2006 as part of Germany's Excellence Initiative and bringing together all the relevant disciplines, it offers a unique three-year interdisciplinary doctoral programme in English in the mind/brain sciences. The graduate school is situated next to the grounds of the Charité Medical School, the largest medical campus in Europe. The Berlin School of Mind and Brain is a founding member of the Humboldt Graduate School, an umbrella organisation for Humboldt's doctoral programmes.

Central research topics

Research within the school concentrates on five central research topics, each of which connect brain- and mind-related research: conscious and unconscious perception; decision-making; language; brain plasticity and lifespan ontogeny; and brain disorders and mental dysfunction. Very recently, social cognition has been added to the school's programme: social neuroscience is one of the most prolific fields in neuroscience, connecting well with the Berlin School of Mind and Brain's other topics, and is a paradigmatic field for interdisciplinary cooperation. Understanding the neural underpinnings of human sociality requires input from philosophy, from the humanities, and also from psychology.

Fruitful collaboration between the humanities, behavioural sciences and neuroscience can be illustrated by looking, for example, at the long history of decision-making research in philosophy, economics and psychology. Only recently has cognitive neuroscience joined these disciplines in the quest to better understand how we make decisions. Decision-making research in Berlin covers a broad range of topics: from mechanisms of perceptual,

Berlin is a major centre for interdisciplinary neuroscience research...



Fig. 1: Main building of Humboldt-Universität zu Berlin, Unter den Linden



Fig. 2: Humboldt Graduate School, a centre for doctoral research

value-based, and economic decision-making to social, legal and moral decision-making.

Decision-making is not only a fascinating topic for basic research, but may have important practical implications, for example, in designing better decision architectures to enable people to make better decisions. Moreover, alterations in decision-making are a central feature of many neuropsychiatric disorders. A more comprehensive understanding of how we make decisions will also contribute to a better understanding of disorders of this kind in clinical populations, such as in patients with brain lesions, drug and alcohol addictions, depression, and impulsive aggressive behaviour. The interdisciplinary environment at the Berlin School of Mind and Brain provides a unique opportunity to tackle problems related to decision-making by taking into account knowledge from philosophy, economics, psychology, and cognitive and affective neuroscience.

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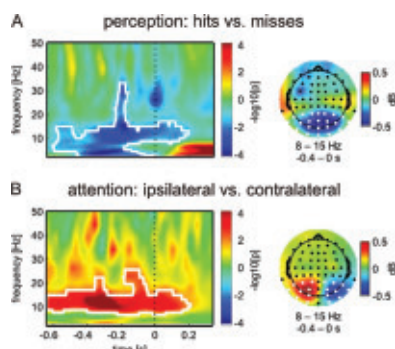


Fig. 3: Electroencephalography data looking at 'visual attention'



Fig. 4: Doctoral students presenting their projects at the annual research conference

An exciting environment

The school has a faculty that comprises of 60 distinguished researchers, including five Max Planck directors, the Einstein Visiting Fellow (currently Raymond J Dolan from University College London) and several associated research groups. Together they cover the gamut of research in the mind and brain sciences and enrich the scientific environment.

Research within the school is strongly embedded in the basic and clinical research conducted within the region, allowing for synergistic research initiatives and opportunities. Together with seven other neuroscience programmes, the school runs the research and education network 'Neuroscience Berlin' in order to enhance the exchange and collaboration between neuroscience faculty and students across Berlin. Neuroscience Berlin organises a highly successful annual PhD conference – the Berlin Brain Days – that regularly attracts over 200 participants.

Hosted by Humboldt University and working in close collaboration with the Charité Medical School, the school's research and education programme includes scientists from the Free University Berlin, the Technical University Berlin, the Bernstein Center for Computational Neuroscience, the Max Delbrück Center for Molecular Medicine, the Max Planck Institute for Human Development (Berlin), the Max Planck Institute for Human Cognitive and Brain Sciences (Leipzig), and the nearby universities of Potsdam, Magdeburg, and Leipzig.

Doctoral programme

Every year the school accepts 10 to 15 doctoral candidates into its programme. Students are selected in a highly competitive process with an acceptance rate of about 10%. Stipends are available for the best applicants. The overall structure of the programme is intended to put interdisciplinary mind and brain cooperation to work. Applicants, therefore, are requested to present a doctoral project within their current field of expertise that combines brain research (eg. neurology, neurobiology) with mind science (eg. psychiatry, linguistics, psychology, philosophy).

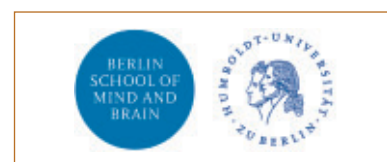
There are many reasons why students are interested in conducting their doctoral studies at the Berlin School of Mind and Brain:

- Students acquire a strong foundation for interdisciplinary work by attending eight one-week classes during the first half of their doctoral programme. These courses cover topics in all fields relevant to mind/brain research, and allow students to explore research methods and topics to which they have not been previously exposed;
- Each doctoral candidate is assigned two professorial advisors – usually one from the brain sciences and one from the mind sciences – in order to ensure the interdisciplinary impact of their work;
- Students meet with leading international researchers via the school's distinguished lecture series, interact with its senior visiting faculty and attend interna-

tional workshops and meetings. As part of the school's commitment to maximising students' research opportunities, it also encourages and provides financial assistance for students to spend time studying and conducting research abroad during the course of their doctoral candidacy;

- Students conduct their own journal and methods clubs and have access to specialised academic soft skill courses, language classes, mentoring and coaching.

Currently, the school is expanding both its research and education activities. A new Master's programme in cognitive science will help to further improve and extend interdisciplinary training even before the start of the doctoral project. An additional post-doctoral fellowship programme will allow the school's alumni, as well as young researchers from cooperating institutions, to develop new research projects in an excellent and stimulating interdisciplinary environment.



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